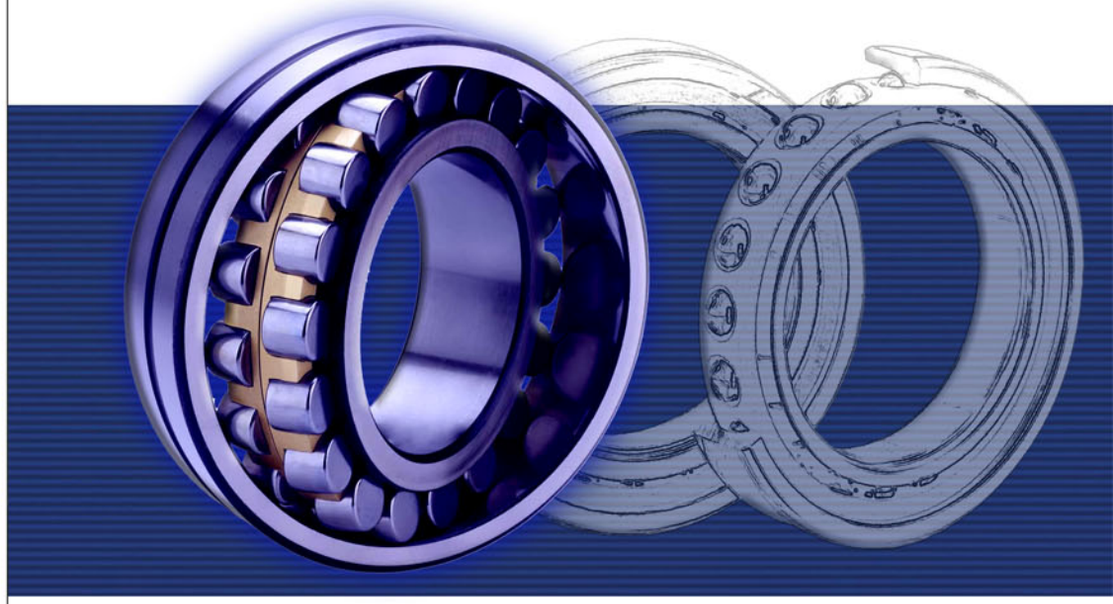
OID®

OID® BEARING CATALOG







BEARING CATALOG

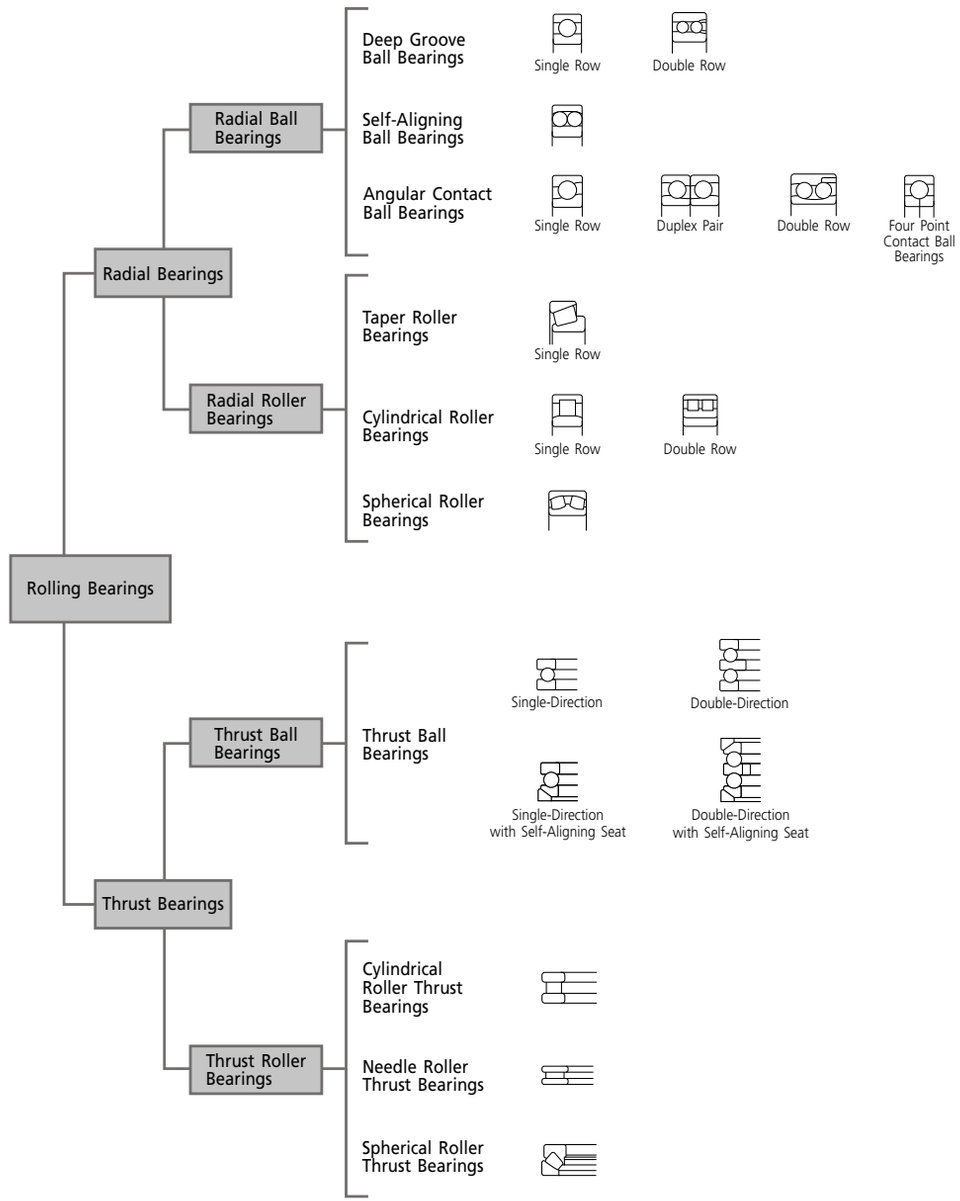
OID MECHANICAL PARTS BEARINGS

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Conversion Table

Quantity	Unit	Conversion			
Length	inch foot yard mile	1 mm 1 m 1 m 1 km	0,03937 in 3,281 ft 1,094 yd 0,6214 mile	1 in 1 ft 1 yd 1 mile	25,40 mm 0,3048 m 0,9144 m 1,609 km
Area	square inch square foot	1 mm^2 1 m^2	0,00155 sq.in 10,76 sq.ft	1 sq.in 1 sq.ft	645,16 mm^2 0,0929 m^2
Volume	cubic inch cubic foot imperial gallon U.S. gallon	1 cm^3 1 m^3 1 l 1 l	0,061 cub.in 35 cub.ft 0,22 gallon 0,2642 U.S. gallon	1 cub.in 1 cub.ft 1 gallon 1 U.S. gallon	16,387 cm^3 0,02832 m^3 4,5461 l 3,7854 l
Velocity, Speed	foot per second mile per hour	1 m/s 1 km/h	3,28 ft/s 0,6214 mile/h (mph)	1 ft/s 1 mile/h (mph)	0,30480 m/s 1,609 km/h
Mass	ounce pound short ton long ton	1 g 1 kg 1 tonne 1 tonne	0,03527 oz 2,205 lb 1,1023 short ton 0,9842 long ton	1 oz 1 lb 1 short ton 1 long ton	28,350 g 0,45359 kg 0,90719 tonne 1,0161 tonne
Density	pound per cubic inch	1 g/cm^3	0,0361 lb/cub.in	1 lb/cub.in	27,680 g/cm^3
Force	pound-force	1 N	0,225 lbf	1 lbf	4,4482 N
Pressure, Stress	pounds per square inch	1 MPa	145 psi	1 psi	6,8948 x 10^3 Pa
Moment	inch pound-force	1 Nm	8,85 in.lbf	1 in.lbf	0,113 Nm
Power	foot-pound per second horsepower	1 W 1 kW	0,7376 ft lbf/s 1,36 HP	1 ft lbf/s 1 HP	1,3558 W 0,736 kW
Temperature	degree	Celcius	$t_C = 0,555 (t_F - 32)$	Fahrenheit	$t_F = 1,8\ t_C + 32$

The Structures and Types of Rolling Bearings



Suitability ● Very Good ◔ Good ◐ Possible ◔ Limited Not Suitable One Way / Double Way	Radial Load	Axial Load	Compound Load	Shield & Seal	Self Aligning	Rings Separable	High Speed	High Rigidity	Low Running Precision	Low Friction	Low Running Noise	Tapered Bore
Deep Groove Ball Bearing	◐	◐	◐	◔	○	○	●	◐	●	●	●	○
Self-Aligning Ball Bearing	◐	◔	◔	◔	●	○	◔	◔	◔	◔	◔	◔
Angular Contact Ball Bearing	◐	◐	◔	○	○	○	◔	◐	●	◔	◔	○
Four-Point Ball Bearing	◔	◐	◐	○	○	◔	◔	◐	◐	◐	◐	○
Cylindrical Roller Bearing	◔	○	○	○	○	◔	●	◔	◔	◔	◔	○
Needle Roller Bearing	◔	○	○	◔	○	◔	◐	◔	◐	◔	◐	○
Spherical Roller Bearing	●	◐	●	◔	◔	○	◐	◔	◐	◐	◐	◔
Taper Roller Bearing	◔	◔	●	○	○	◔	◐	◔	◔	◐	◐	○
Thrust Cylindrical Bearing	○	◐	○	○	○	◔	◐	◐	◐	◐	◔	○
Thrust Cylindrical Roller Bearing	○	◔	○	○	○	◔	◔	◔	◔	◔	◔	○
Thrust Needle Roller Bearing	○	◔	○	○	○	◔	◔	◔	◐	◔	◔	○
Thrust Spherical Roller Bearing		●	◐	○	○	◔	◐	◔	◐	◐	◔	○
Self-Aligning Roller Bearing	●	◐	◔	○	●	○	◐	◔	◐	◐	◔	○

Bearing Material

Material	Chinese Standard	Equivalent		
		AISI/SAE/ASTM	DIN	JIS
High Carbon Chromium Steel	GCr15	SAE52100	100Cr6	SUJ2
Stainless Steel	9Cr18	AISI440C	X102CrMo17	SUS440C
*Cold Rolled Low Carbon	ST14	ASTM366	1623	3141

Chemical Composition

Material	Chemical Composition (Symbol)						
	C	Si	Mn	P	S	Cr	Mo
High Carbon Chromium Steel	0.95-1.05	0.15-0.35	≤0.45	≤0.025	≤0.025	1.40-1.65	≤0.08
Stainless Steel	0.95-1.20	≤1.00	≤1.00	≤0.04	≤0.03	16.00-18.00	≤0.75
*Cold Rolled Low Carbon	≤0.08	≤0.02	≤0.4	≤0.02	≤0.03	≤0.06	–

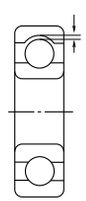
* Cold Rolled Low Carbon is used in drawn cup outer ring of one way clutch bearings.

Internal Radial Clearance

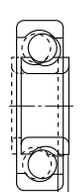
Internal clearance is the distance between outer ring, inner ring and rolling element. It is an important factor that has significant influence on noise, vibration, heat and fatigue life of a bearing. As such, it is critical to select the proper clearance considering the bearing fit, load, speed and operating temperature.

When measuring the internal radial clearance, the bearing is subject to a standard load in order to ensure full contact between all bearing components. Under such a load, the measured clearance is larger than the actual; this is due to elastic deformation. The difference is compensated by the factors given in the table below.

Bearing Internal Clearance



Radial Internal Clearance



Axial Internal Clearance

Internal Radial Clearance of Miniature Bearings

Unit μm

Clearance Mark	MC1		MC2		MC3		MC4		MC5		MC6	
Clearance	max	min	max	min	max	min	max	min	max	min	max	min
	0	5	3	8	5	10	8	13	13	20	20	28

Note: 1. Standard clearance is MC3.
2. For measuring clearance, offset by compensation factor listed below.

Unit μm

Clearance Mark	MC1	MC2	MC3	MC4	MC5	MC6
Compensation Factor	1	1	1	1	2	2

Measuring load is as follows.
Miniature bearing 2.5N (0.25kgf)
Small bearings 4.4N (0.45kgf)

Internal Radial Clearance of Ball Bearings

Unit μm

Nominal Bore Diameter d (mm)		Clearance									
		C2		CN(C0)		C3		C4		C5	
OVER	INCL.	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
10 (Only)		0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73

Note: 1. For measuring clearance, offset by compensation factor listed below.

Unit μm

Bore Diameter of Nominal Bearing d (mm)		Measuring Load		Compensation Factor				
		(N)	(kgf)	C2	CN(C0)	C3	C4	C5
OVER	INCL.							
10 (Included)	18	24.5	(2.6)	3~4	4	4	4	4
18	50	49	(5)	4~5	5	6	6	6

Bearing accuracy consists of dimensional accuracy and running accuracy. The normal accuracy grade is P0, a higher grade is P6 and P2 is the highest grade. Application requirements decide which grade accuracy should be applied.

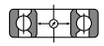
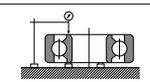
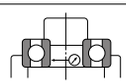
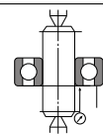
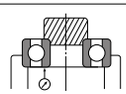
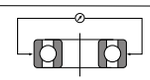
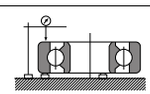
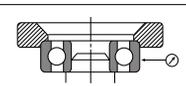
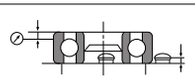
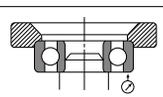
Accuracy Grade Standard Conversion Table

GB	Equivalents			
	ISO	ABMA	DIN	JIS
P0	Normal Class	ABEC 1	P0	JIS0
P6	Class 6	ABEC 3	P6	JIS6
P5	Class 5	ABEC 5	P5	JIS5
P4	Class 4	ABEC 7	P4	JIS4
P2	Class 2	ABEC 9	P2	JIS2

Notes:
1. P0(GB) is normal grade, P6 higher grade and P2 the highest accuracy grade.
2. GB : Chinese National Standards
3. ISO : International Standardization Organization
4. ABMA : The American Bearing Manufacturers Association
5. DIN : Deutsch Industrie Norm
6. JIS : Japanese Industrial Standards

Guide for Selection of Bearing Accuracy

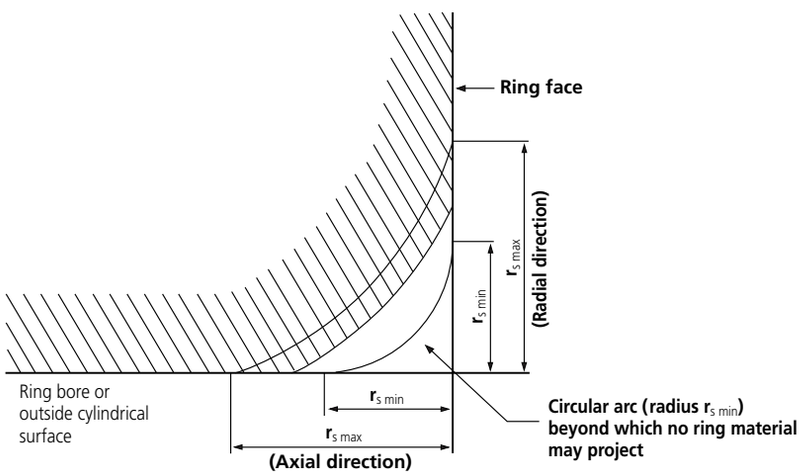
Application	ISO
Computer printers, copy machine-feed rollers, micro motors, stepping motors, fan motors, VCR pinch rollers	Normal Class 6
High precision motors, hard disk drive motors, dental spindles, servo motors, encoders, VCR drum spindles, VCR capstan motors, polygonal mirror scanner motors	Class 5 Class 4
High frequency spindles, gyro rotors, gyro gimbals	Class 4

Symbol	Definition	Inspection
d	Nominal bore diameter	
Δ_{dmp}	Mean bore diameter deviation in a single plane	
Δ_{ds}	Deviation of a single bore diameter	
V_{dp}	Bore diameter variation in a single radial plane	
V_{dmp}	Mean bore diameter variation	
Δ_{Bs}	Deviation of a single inner ring width	
V_{Bs}	Variation of inner ring width	
K_{ia}	Radial runout of assembled bearing inner ring	
S_d	Face runout with bore	
S_{ia}	Face runout with raceway of assembled bearing inner ring	
D	Nominal outside diameter	
Δ_{Dmp}	Mean outside diameter deviation in a single plane	
Δ_{Ds}	Deviation of a single outside diameter	
V_{Dp}	Outside diameter variation in a single radial plane	
V_{Dmp}	Mean outside diameter variation	
Δ_{Cs}	Deviation of a single outer ring width	
V_{Cs}	Variation of outer ring width	
Δ_{Dis}	Flange outside diameter deviation	
Δ_{Cis}	Flange width deviation	
K_{ea}	Radial runout of assembled bearing outer ring	
S_D	Variation of outside surface generatrix with inclination of outer ring benchmark face	
S_{ea}	Assembled bearing outer ring face runout with raceway	

Limit Tolerance Values (Metric) of Chamfer Dimensions of Radial Bearings

$r_{s\,min}$	d (mm)		$r_{s\,max}$		$r_{a\,max}$ (1)
	Over	Incl.	Radial	Axial	
0.05	–	–	0.1	0.2	0.05
0.08	–	–	0.16	0.3	0.08
0.1	–	–	0.2	0.4	0.1
0.15	–	–	0.3	0.6	0.15
0.2	–	–	0.5	0.8	0.2
0.3	–	40	0.6	1	0.3
	40	–	0.8	1	
0.6	–	40	1	2	0.6
	40	–	1.3	2	
1	–	50	1.5	3	1
	50	–	1.9	3	
1.1	–	120	2	3.5	1
	120	–	2.5	4	

Unit mm



$r_{s\,min}$ = smallest permissible single chamfer dimension (minimum limit)
$r_{s\,max}$ = largest permissible single chamfer dimension (maximum limit)
$r_{a\,max}$ = largest permissible single shaft and housing fillet radius

Note : The exact shape of the chamfer surface is not specified, but its contour in an axial plane shall not be allowed to project beyond the imaginary circular arc, of radius $r_{s\,min}$, tangential to the ring face and bore or outside cylindrical surface of the ring (see figure).

Normal Tolerances for Radial Bearings (Except Taper Roller Bearings)

Inner Ring

d		Δ_{dmp} 1)		V_{dmp}	K_{ia}
over	incl.	high	low	max	max
mm		µm		µm	µm
2,5	10	0	– 8	6	10
10	18	0	– 8	6	10
18	30	0	– 10	8	13
30	50	0	– 12	9	15
50	80	0	– 15	11	20
80	120	0	– 20	15	25
120	180	0	– 25	19	30
180	250	0	– 30	23	40
250	315	0	– 35	26	50
315	400	0	– 40	30	60
400	500	0	– 45	34	65
500	630	0	– 50	38	70
630	800	0	– 75	–	80
800	1000	0	– 100	–	90
1000	1250	0	– 125	–	100
1250	1600	0	– 160	–	120
1600	2000	0	– 200	–	140

1) Tolerances for tapered bores (taper 1:12 and 1:30)

Outer Ring

D		Δ_{Dmp} 1)		V_{Dmp}	K_{ea}
over	incl.	high	low	max	max
mm		µm		µm	µm
6	18	0	– 8	6	15
18	30	0	– 9	7	15
30	50	0	– 11	8	20
50	80	0	– 13	10	25
80	120	0	– 15	11	35
120	150	0	– 18	14	40
150	180	0	– 25	19	45
180	250	0	– 30	23	50
250	315	0	– 35	26	60
315	400	0	– 40	30	70
400	500	0	– 45	34	80
500	630	0	– 50	38	100
630	800	0	– 75	55	120
800	1000	0	– 100	75	140
1000	1250	0	– 125	–	160
1250	1600	0	– 160	–	190
1600	2000	0	– 200	–	220
2000	2500	0	– 250	–	250

1) Applies only to bearings of Diameter Series 2, 3 and 4

Normal Tolerances for Radial Bearings (Except Taper Roller Bearings)

Tolerances for Tapered Bore, Taper 1:12

Tolerances Classes Normal, P6						
d		Δ_{dmp}		V_{dp} [1]	Δ_{d1mp}	$-\Delta_{dmp}$
over	incl.	high	low	max	high	low
mm		µm		µm	µm	
18	30	+ 21	0	13	+ 21	0
30	50	+ 25	0	15	+ 25	0
50	80	+ 30	0	19	+ 30	0
80	120	+ 35	0	25	+ 35	0
120	180	+ 40	0	31	+ 40	0
180	250	+ 46	0	38	+ 46	0
250	315	+ 52	0	44	+ 52	0
315	400	+ 57	0	50	+ 57	0
400	500	+ 63	0	56	+ 63	0
500	630	+ 70	0	–	+ 70	0
630	800	+ 80	0	–	+ 80	0
800	1000	+ 90	0	–	+ 90	0
1000	1250	+ 105	0	–	+ 105	0
1250	1600	+ 125	0	–	+ 125	0
1600	2000	+ 150	0	–	+ 150	0

[1] Applies in any single radial plane of the bore

Tolerances for Tapered Bore, Taper 1:30

Tolerances Classes Normal						
d		Δ_{dmp}		V_{dp} [1]	Δ_{d1mp}	$-\Delta_{dmp}$
over	incl.	high	low	max	high	low
mm		µm		µm	µm	
80	120	+ 20	0	25	+ 40	0
120	180	+ 25	0	31	+ 50	0
180	250	+ 30	0	38	+ 55	0
250	315	+ 35	0	44	+ 60	0
315	400	+ 40	0	50	+ 65	0
400	500	+ 45	0	56	+ 75	0
500	630	+ 50	0	63	+ 85	0
630	800	+ 75	0	–	+ 100	0
800	1000	+ 100	0	–	+ 100	0
1000	1250	+ 125	0	–	+ 115	0
1250	1600	+ 160	0	–	+ 125	0
1600	2000	+ 200	0	–	+ 150	0

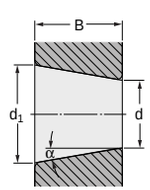
[1] Applies in any single radial plane of the bore

Tapered Bores

Half angle of taper α:

$\alpha = 2° 23' 9{,}4''$ (taper 1:12)

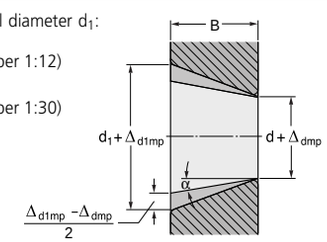
$\alpha = 0° 57' 17{,}4''$ (taper 1:30)



Largest theoretical diameter d_1:

$d_1 = d + \frac{1}{12} B$ (taper 1:12)

$d_1 = d + \frac{1}{30} B$ (taper 1:30)



Normal Tolerances for Taper Roller Bearings (Metric Sizes)

Inner Ring and Bearing Width

d		Δ_{dmp}		V_{dmp}	K_{ia}
over	incl.	high	low	max	max
mm		µm		µm	µm
10	18	0	– 12	9	15
18	30	0	– 12	9	18
30	50	0	– 12	9	20
50	80	0	– 15	11	25
80	120	0	– 20	15	30
120	180	0	– 25	19	35
180	250	0	– 30	23	50
250	315	0	– 35	26	60
315	400	0	– 40	30	70
400	500	0	– 45	34	70
500	630	0	– 50	38	85
630	800	0	– 75	56	100
800	1000	0	– 100	75	120
1000	1250	0	– 125	–	120
1250	1600	0	– 160	–	120
1600	2000	0	– 200	–	120

Outer Ring

D		Δ_{Dmp}		V_{Dmp}	K_{ea}
over	incl.	high	low	max	max
mm		µm		µm	µm
18	30	0	– 12	9	18
30	50	0	– 14	11	20
50	80	0	– 16	12	25
80	120	0	– 18	14	35
120	150	0	– 20	15	40
150	180	0	– 25	19	45
180	250	0	– 30	23	50
250	315	0	– 35	26	60
315	400	0	– 40	30	70
400	500	0	– 45	34	80
500	630	0	– 50	38	100
630	800	0	– 75	55	120
800	1000	0	– 100	75	120
1000	1250	0	– 125	94	120
1250	1600	0	– 160	120	120
1600	2000	0	– 200	–	120
2000	2500	0	– 250	–	120

Inner Ring

d		Δ_{ds}	
		Tolerances class	
		Normal	
over	incl.	high	low
mm		µm	
–	76,2	+ 13	0
76,2	101,6	+ 25	0
101,6	266,7	+ 25	0
266,7	304,8	+ 25	0
304,8	609,6	+ 51	0
609,6	914,4	+ 76	0
914,4	1219,2	+ 102	0
1219,2	–	+ 127	0

Outer Ring

D		Δ_{Ds}		K_{ia}, K_{ea}, S_{ia}, S_{ea}		
		Tolerances class		Tolerances class		
		Normal		Normal	CL3	CL0
over	incl.	high	low	max	max	max
mm		µm		µm		
–	266,7	+ 25	0	51	8	4
266,7	304,8	+ 25	0	51	8	4
304,8	609,6	+ 51	0	51	18	9
609,6	914,4	+ 76	0	76	51	26
914,4	1219,2	+ 102	0	76	76	38
1219,2	–	+ 127	0	76	76	–

Bearing Life

When bearing rotate, the inner, outer ring and rolling elements are constantly loaded. This produces material fatigue and eventually bearing failure. The total number of revolutions before a failure occurs is called the basic rating life.

Life of individual bearings varies considerably, even if they are of the same size, same material, same heat treatment and are under the same operating condition.

Statistically, the total number of revolutions reached or exceeded by 90% of a sufficiently large group of apparently identical bearings before the first evidence of material fatigue occurs is called the basic rating life.

Basic Dynamic Load Rating

The basic dynamic load rating of a bearing with rotating inner ring and stationary outer ring is that load of constant magnitude and size which a sufficiently large group of apparently identical bearings can endure for a basic rating life of one million revolutions.

Radial bearings take central load. Values given for C in the dimension tables of this catalogue are for standard high chromium steel. 80% to 85% of the chromium steel values should be used for stainless steel.

Life Formula

The equation for the basic rating life for dynamically loaded ball bearings is as follow:

$$L_{10} = \left(\frac{C_r}{P}\right)^3 \text{ (x } 10^6 \text{ Revolutions)} \qquad L_{10h} = \frac{16666}{n} \bullet \left(\frac{C_r}{P}\right)^3 \text{ (Hours)}$$

whereby : L_{10} = Basic Rating Life
C_r = Basic Dynamic Load Rating (kgf)
n = R.P.M. (Revolutions Per Minute)
f_n = Speed Factor
L_{10h} = Basic Rating Life in Operating Hours
P = Equivalent Load (kgf)
f_h = Life Factor

$$L_{10h} = 500 \bullet f_n^3 \quad , \quad f_h = f_n \bullet \frac{C_r}{P} \quad , \quad f_n = \left(\frac{33.3}{n}\right)^{1/3}$$



SPEED FACTOR



LIFE FACTOR

Examples of Rating Life L_{10h} Values Used:

Operating Conditions	Basic Rating Life L_{10h}
Infrequent operation.	500
Short or intermittent operation. Failure has little effect on function.	4,000 ~ 8,000
Intermittent operation. Failure has significant effect on function.	8,000 ~ 12,000
8 hours of non-continuous operation.	12,000 ~ 20,000
8 hours of continuous operation.	20,000 ~ 30,000
24 hours continuous operation.	40,000 ~ 60,000
24 hours of guaranteed trouble-free operation.	100,000 ~ 200,000

Life and Load Rating

Adjusted Life Formula

The above life formula is for general use. In cases where a reliability of over 90% is required and where influences apart from load and speed or operating frequency should be taken into account for the rating life, ISO 281, 1990 gives an extended life formula:

$$L_{na} = a_1 \times a_2 \times a_3 \times \left(\frac{C_r}{P}\right)^3 \quad (\times 10^6 \text{ Revolutions})$$

whereby : L_{na} = Adjusted rating life in millions of revolutions with a reliability of (100-n) % (n = the reliability rate)
C_r = Basic Dynamic Load Rating (kgf)
P = Equivalent Dynamic Load (kgf)
a_1 = Factor for a reliability other than 90%
a_2 = Factor for non-conventional materials
a_3 = Factor for non-conventional operating conditions, in particular lubrication

(1) Reliability Factor a_1

When a reliability of over 90% is required, the corresponding factor should be selected from the following table.

Reliability Factor a_1

Reliability (%)	90	91	92	93	94	95	96	97	98	99	(99.6)	(99.9)
a_1	1.00	0.92	0.84	0.77	0.64	0.62	0.53	0.44	0.33	0.21	(0.10)	(0.037)

(2) Material Factor a_2

Improvement in manufacturing techniques for raw material and for heat treatment of components have led to an extended fatigue life for bearings.

Our standard bearing material is a superior quality of vacuum degassed steel leading to an extended life for bearings.

The basic load ratings given in this catalogue have been established by taking this longer life into consideration. This gives an increase in the operating life in hours of a factor of 2.2 and a factor of 1.3 for the load carrying capacity. The material factor a_2 = 1.

(3) Operating Conditions Factor a_3

This is an adjustment factor to meet non-conventional operating conditions for lubrication, temperature and load.
Under good lubrication conditions with a permanent oil film between rolling elements and rings, the factor a_2 = 1.
In unfavourable conditions ($d_m \bullet n \leqq 10{,}000$), a factor $a_3 < 1$ must be selected. d_m = mean bearing diameter (D+d)/2
n = operating speed
At temperatures above 120°C, greater dimensional changes occur and the material hardness deteriorates which affects the bearing life.

The operating factor ft for temperature can be taken from the following table:

Operating Temperature and Life Compensation Factor f_t

Bearing Temperature (°C)	120	150	175	200	225	250	275	300
Temperature Factor (f_t)	1.00	0.90	0.85	0.75	0.65	0.60	0.52	0.45

Heat stabilized bearings, where the dimensions are stable above 120°C, are available on request.

Basic Static Load Rating "C_{or}"

The Basic Static Load Rating applies to bearings where rotating motion does not occurs only infrequently.

The Basic Load Ratings and Calculation methods in this catalogue are based on methods described in ISO Excessive static load causes brinelling at the contact point between the rolling element and raceway.

As a standard of permissible static load, the basic load rating C_{or} for radial bearings is specified as follows:

Maximum contact pressure at the contact point between rolling element and bearing ring to be 4200 MPa (428.6 kgf/mm^2) and total permanent deformation of the bearing of appr. 1/10000th of the rolling element's diameter.

Basic Static Load Rating for stainless steel is 75 - 80% of that for standard bearing steel.

Equivalent Dynamic Bearing Load "P"

Load conditions on bearing are usually a combination of radial and axial loads. In order to establish the equivalent radial load with definite force and direction and direction we use the following formula:

Radial Load Factor and Axial Load Factor

$\frac{C_{or}}{F_a}$	e	$\frac{F_a}{F_r} \leqq e$		$\frac{F_a}{F_r} > e$	
		X	Y	X	Y
5	0.35	1	0	0.56	1.26
10	0.29	1	0	0.56	1.49
15	0.27	1	0	0.56	1.64
20	0.25	1	0	0.56	1.76
25	0.24	1	0	0.56	1.85
30	0.23	1	0	0.56	1.92
50	0.20	1	0	0.56	2.13
70	0.19	1	0	0.56	2.28

$P = XF_r + YF_a$ (kgf)
X = Radial Load Factor
Y = Axial Load Factor
F_r = Radial Load (kgf)
F_a = Axial Load (kgf)

Equivalent Static Radial Load "P_0"

For ball bearings subject to both radial and axial load, the static radial load with definite force and direction is called the Equivalent Static Radial Load.

The higher value from the two formulae shown below should be used.

$$P_0 = 0.6 \times F_r + 0.5 \times F_a, \quad P_0 = F_r$$

Safety Modulus

Permissible equivalent static load depends on basic static load rating.
But using limit of bearing change by using condition. Accordingly we use safety modulus which is experimental value.

$$f_s = \frac{C_{or}}{P_0}$$

f_s : Safety Modulus
C_{or} : Basic Static Load Rating (N)
P_0 : Equivalent Static Radial Load (N)

Using Condition	f_s
Normal Operation	1.0
Shock Load	1.5
Silent and High Accurate Rotation	2.0

Fits & Tolerances

The Importance of Correct Fitting

A bearing can only perform to its full capacity when it is correctly fitted on the shaft and in the housing. Insufficient interference on fitting surface could cause bearing rings to creep in a circumferential direction. Once this happens, considerable wear occurs on the fitting surface and both shaft and housing are damaged. Furthermore, abrasive particles may enter the bearing causing vibration, excessive heat and damage to raceways. It is therefore necessary to provide bearing rings under rotating load with an adequate interference fit to prevent creep. When using thin-type bearings under low load, the bearings should be fastened by a nut. Statically loaded bearings generally do not need to be fitted with an interference fit. Only when subject to a high degree of vibration do both inner and outer rings require fitting with an interference fit.

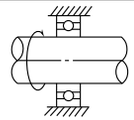
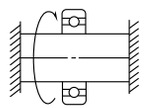
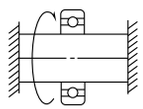
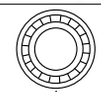
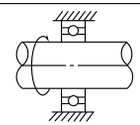
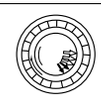
Fitting of Bearing and Shaft

Condition (Steel Shaft)		Shaft Bore Diameter	Shaft Tolerance Class	
			Thin-Type	Others
Inner Ring Rotating Load or Indeterminate Load Direction	Light Load ≦ 0.06C_r or Fluctuating Load	10≦d≦18	h5	js5
		18≦d≦30	h5	js5
		30≦d≦50	h5	js5
	Standard Load = 0.06 ~ 0.12C_r	10≦d≦18	js5	j5
		18≦d≦30	js5	k5
		30≦d≦50	js5	k5
Outer Ring Rotating Load	Necessary for Inner Ring turning Easily Around Shaft	All Bore Diameters	g5	g6
	Unnecessary for Inner Ring Turning Easily Around Shaft	All Bore Diameters	h5	h6

Fitting of Bearing and Housing

Condition (One-Piece Housing)		Axial Directional Movement of Outer Ring	Tolerance Class of Housing Seats	
			Thin-Type	Others
Inner Ring Rotating Load	Varying Loads	Easy to Move	H6	H7
	Light or Standard Load	Easy to Move	H7	H8
	High Temperature of Lnner Ring and Shaft	Easy to Move	G6	G7
	Light or Standard Load	As a Rule, Impossible to Move	K5	K6
	Precise Rotation	Possible to Move	JS6	J6
	Quiet Operation	Easy to Move	H6	H6
Indeterminate Load Direction	Light or Standard Load	In General, Possible to Move	JS6	J7
	Standard or Heavy Load	As a Rule, Impossible to Move	K5	K7
	Large Shock Load	Impossible to Move	M5	M7
	Light or Fluctuating Load	Impossible to Move	M5	M7
Outer Ring Rotating Load	Standard or Heavy Load	Impossible to Move	N5	N7
	Thin-Type Housing Seats Heavy Load or Large Shock Load	Impossible to Move	P6	P7

Characteristics of Load and Fitting

ROTATING RING	LOAD	LOAD CONDITION	FITTING
Inner Ring 	Static 	Inner Ring Rotating Load Outer Ring Static Load	Interference Fit for Inner Ring Clearance Fit for Outer Ring
Outer Ring 	Rotating 		
Outer Ring 	Static 	Outer Ring Rotating Load Inner Ring Static Load	Clearance Fit for Inner Ring Interference Fit for Outer Ring
Inner Ring 	Rotating 		
In the Case of Fluctuating Load Direction or Unbalanced Load	Rotating or Static	Indeterminate Load Direction	Interference Fit for Inner and Outer Ring

Tolerance of Shaft (Unit : μm)

Diameter (mm) Over	Incl.	Average Bore Diameter Tolerance of Bearing (Class 0) Δ_{dmp}	d6	e6	f6	g5	g6	h5	h6	h7	h8	h9	h10	js6	js6	j6	j6	j7	k6	k6	k7	m5	m6	n6	p6	r6	r7
3	6	0 −8	−30 −38	−20 −28	−10 −18	−4 −9	−4 −12	0 −5	0 −8	0 −12	0 −18	0 −30	0 −48	±2.5	±4	+3 −2	+6 −2	+8 −4	+6 +1	+9 +1	+13 +1	+9 +4	+12 +4	+16 +8	+20 +12	+23 +15	+27 +15
6	10	0 −8	−40 −49	−25 −34	−13 −22	−5 −11	−5 −14	0 −6	0 −9	0 −15	0 −22	0 −36	0 −58	±3	±4.5	+4 −2	+7 −2	+10 −6	+7 +1	+10 +1	+16 +1	+12 +6	+15 +6	+19 +10	+24 +15	+28 +19	+34 +19
10	18	0 −8	−50 −61	−32 −43	−16 −27	−6 −14	−6 −17	0 −8	0 −11	0 −18	0 −27	0 −43	0 −70	±4	±5.5	+5 −3	+8 −3	+12 −6	+9 +1	+12 +1	+19 +1	+15 +7	+18 +7	+23 +12	+29 +18	+34 +23	+41 +23
18	30	0 −10	−65 −78	−40 −53	−20 −33	−7 −16	−7 −20	0 −9	0 −13	0 −21	0 −33	0 −52	0 −84	±4.5	±6.5	+5 −4	+9 −4	+13 −8	+11 +2	+15 +2	+23 +2	+17 +8	+21 +8	+28 +15	+35 +22	+41 +28	+49 +28
30	50	0 −12	−80 −96	−50 −66	−25 −41	−9 −20	−9 −25	0 −11	0 −16	0 −25	0 −39	0 −62	0 −100	±5.5	±8	+6 −5	+11 −5	+15 −10	+13 +2	+18 +2	+27 +2	+20 +9	+25 +9	+33 +17	+42 +26	+50 +34	+59 +34

Tolerance of Housing (Unit : μm)

Diameter (mm) Over	Incl.	Average Bore Diameter Tolerance of Bearing (Class 0) Δ_{dmp}	E6	F6	F7	G6	G7	H6	H7	H8	J6	J7	JS6	JS7	K5	K6	K7	M5	M6	M7	N5	N6	N7	P6	P7
10	18	0 −8	+43 +32	+27 +16	+34 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	+6 −5	+10 −8	±5.5	±9	+2 −6	+2 −9	+6 −12	−4 −12	−4 −15	0 −18	−9 −17	−9 −20	−5 −23	−15 −26	−11 −29
18	30	0 −9	+53 +40	+33 +20	+41 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	+8 −5	+12 −9	±6.5	±10	+1 −8	+2 −11	+6 −15	−5 −14	−4 −17	0 −21	−12 −21	−11 −24	−7 −28	−18 −31	−14 −35
30	50	0 −11	+66 +50	+41 +25	+50 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	+10 −6	+14 −11	±8	±1.2	+2 −9	+3 −13	+7 −18	−5 −16	−4 −20	0 −25	−13 −24	−12 −28	−8 −33	−21 −37	−17 −42
50	80	0 −13	+79 +60	+49 +30	+60 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	+13 −6	+18 −12	±9.5	±1.5	+3 −10	+4 −15	+9 −21	−6 −19	−5 −24	0 −30	−15 −28	−14 −33	−9 −39	−26 −45	−21 −51

Common Problems & Solutions

Problems		Causes	Solutions
Noise	High pitched metallic noise	Poor lubrication Clearance too small Poor fitting Excessive load	Improve lubrication Correct clearance Investigate mounting method and seating Examine shaft and housing tolerances for closing effect
	Low pitched metallic noise	Brinelled raceway surface	Avoid shock loads
	Regular noise	Rust and damage Flaking of raceway surface	Check and replace seals and relubricate Improve lubrication and check fitting, clearance and fixing method
	Irregular noise	Ingress of foreign matter Excessive clearance Damage and Flaking of railing element	Check and replace seals and relubricate Correct clearance Reduce loads and /or clearance
	Variable noise	Variable clearance due to temperature changes Damage to raceways	Check fits taking housing material and temperature into consideration Improve lubrication and check fitting, clearance and fixing method
Corrosion	Rust inside bearing	Poor storage Condensation	Careful storage and handling
	Rust on fitting surface	Fretting Fluctuating load	Increase interference fit Us oil as lubricant
	Corrosion	Ingress of acid, alkali or gas Chemical reaction with lubricant	Check sealing Use correct lubricant

Dimensions and Identifying Numbers for Bearings

Formulation of Bearing Numbers

Bearing numbers are alphanumeric combinations that indicate the bearing type, boundary dimensions, dimensional and running accuracies, internal clearance, and other related specifications. They consist of basic numbers and supplementary symbols. The boundary dimensions of commonly used bearings mostly conform to the organizational concept of ISO, and the bearing numbers of these standard bearings are specified by JIS B 1513 (Bearing Numbers for Rolling Bearings). Due to a need for more detailed classification, OID uses auxiliary symbols other than those specified by JIS.

(Example 1) 6 3 08 ZZ C3

- C3: Radial Clearance **C3** (Internal Clearance Symbol)
- ZZ: Shields on Both Sides (Shield Symbol)
- 08: Bearing Bore **40 mm** (Bore Number)
- 3: Diameter Series **3**
- 63: Single-Row Deep Groove Ball Bearing

(3 and 63: Bearing Series Symbol)

(Example 2) 7 2 20 A DB C3

- C3: Axial Clearance **C3**
- DB: Back-to-Back Arrangement
- A: Contact Angle **30°**
- 20: Bearing Bore **100 mm**
- 2: Diameter Series **2**
- 72: Single-Row Angular Contact Ball Bearing

(Example 3) 1 2 06 K +H206X

- +H206X: Adapter with **25 mm** Bore
- K: Tapered Bore (Taper **1:12**)
- 06: Bearing Bore **30 mm**
- 2: Diameter Series **2**
- 12: Self-Aligning Ball Bearing

(Example 4) NU 3 18 M CM

- CM: Radial Clearance for Electric-Motor Bearings **CM**
- M: Machined Brass Cage
- 18: Bearing Bore **90 mm**
- 3: Diameter Series **3**
- NU: **NU** Type Cylindrical Roller Bearing

(Example 5) NN 3 0 17 K CC1 P4

- P4: Accuracy of ISO **Class 4**
- CC1: Radial Clearance in Non-Interchangeable Cylindrical Roller Bearings **CC1**
- K: Tapered Bore (Taper **1:12**)
- 17: Bearing Bore **85 mm**
- 0: Diameter Series **0**
- 3: Width Series **3**
- NN: **NN** Type Cylindrical Roller Bearing

(Example 6) HR 3 0 2 07 J

- J: Small Diameter of Cup Raceway and Contact Angle Conform to ISO
- 07: Bearing Bore **35 mm**
- 2: Diameter Series **2**
- 0: Width Series **0**
- 3: Tapered Roller Bearing
- HR: High Capacity Bearing

(Example 7) 2 4 0 /1000 M K30 E4 C3

- C3: Radial Clearance **C3**
- E4: Outer Ring with Oil Groove and Oil Holes
- K30: Tapered Bore (Taper **1:30**)
- M: Machined Brass Cage
- /1000: Bearing Bore **1000 mm**
- 0: Diameter Series **0**
- 4: Width Series **4**
- 240: Spherical Roller Bearing

(Example 8) 5 1 2 15

- 15: Bearing Bore **75 mm**
- 2: Diameter Series **2**
- 1: Height Series **1**
- 51: Thrust Ball Bearing

Bearing Series Symbols

Bearing Type	Bearing Series Symbols	Type Symbols	Dimension Symbols: Width Symbols	Dimension Symbols: Diameter Symbols
Single-Row Deep Groove Ball Bearings	68	6	(1)	8
	69	6	(1)	9
	60	6	(1)	0
	62	6	(0)	2
	63	6	(0)	3
Single-Row Angular Contact Ball Bearings	79	7	(1)	9
	70	7	(1)	0
	72	7	(0)	2
	73	7	(0)	3
Self-Aligning Ball Bearings	12	1	(0)	2
	13	1	(0)	3
	22	(1)	2	2
	23	(1)	2	3
Single-Row Cylindrical Roller Bearings	NU10	NU	1	0
	NU2	NU	(0)	2
	NU22	NU	2	2
	NU3	NU	(0)	3
	NU23	NU	2	3
	NU4	NU	(0)	4
	NJ2	NJ	(0)	2
	NJ22	NJ	2	2
	NJ3	NJ	(0)	3
	NJ23	NJ	2	3
	NJ4	NJ	(0)	4
	NUP2	NUP	(0)	2
	NUP22	NUP	2	2
	NUP3	NUP	(0)	3
	NUP23	NUP	2	3
	NUP4	NUP	(0)	4
	N10	N	1	0
	N2	N	(0)	2
	N3	N	(0)	3
	N4	N	(0)	4
	NF2	NF	(0)	2
	NF3	NF	(0)	3
	NF4	NF	(0)	4
Double-Row Cylindrical Roller Bearings	NNU49	NNU	4	9
	NN30	NN	3	0
Needle Roller Bearings	NA48	NA	4	8
	NA49	NA	4	9
	NA59	NA	5	9
	NA69	NA	6	9
Tapered Roller Bearings	329	3	2	9
	320	3	2	0
	330	3	3	0
	331	3	3	1
	302	3	0	2
	322	3	2	2
	332	3	3	2
	303	3	0	3
	323	3	2	3
Spherical Roller Bearings	230	2	3	0
	231	2	3	1
	222	2	2	2
	232	2	3	2
	213 (1)	2	0	3
	223	2	2	3
Thrust Ball Bearings with Flat Seats	511	5	1	1
	512	5	1	2
	513	5	1	3
	514	5	1	4
	522	5	2	2
	523	5	2	3
	524	5	2	4
Spherical Thrust Roller Bearings	292	2	9	2
	293	2	9	3
	294	2	9	4

Note (1) Bearing Series Symbol 213 should logically be 203, but customarily it is numbered 213.

Remarks Numbers in ( ) in the column of width symbols are usually omitted from the bearing number.

Dimensions and Identifying Numbers for Bearings

Formulation of Bearing Numbers

Basic Numbers

Bearing Series Symbols

Symbol	Meaning
68 69 60 : 70 72 73 : 12 13 22 : NU10 NJ 2 N 3 NN 30 :	Single-Row Deep Groove Ball Bearings Single-Row Angular Contact Ball Bearings Self-Aligning Ball Bearings Cylindrical Roller Bearings
NA48 NA49 NA69 :	Needle Roller Bearings
320 322 323 :	Tapered Roller Bearings
230 222 223 :	Spherical Roller Bearings
511 512 513 :	Thrust Ball Bearing with Flat Seats
292 293 294 :	Thrust Spherical Roller Bearings

Bore Number

Symbol	Meaning (Bearing Bore 1mm)
1	1
2	2
3	3
⋮	⋮
9	9
00	10
01	12
02	15
03	17
/22	22
/28	28
/32	32
04(3)	20
05	25
06	30
⋮	⋮
88	440
92	460
96	480
/500	500
/530	530
/560	560
⋮	⋮
/2 360	2 360
/2 500	2 500

Contact Angle Symbol

Symbol	Meaning
Angular Contact Ball Bearings	
A	Standard Contact Angle of 30°
A5	Standard Contact Angle of 25°
B	Standard Contact Angle of 40°
C	Standard Contact Angle of 15°
Contact Angle in Tapered Roller Bearings	
Omitted	Less than 17°
C	about 20°
D	about 28°

Internal Design Symbol

Symbol	Meaning
A	Internal Design Differs from Standard One
J	Smaller Diameter of Outer Ring Raceway, Contact Angle, and Outer Ring Width of Tapered Roller Bearings Conform to ISO 355
For High Capacity Bearings	
C CA CD EA	Spherical Roller Bearings
E	Cylindrical Roller Bearings
E	Spherical Thrust Roller Bearings

Material Symbol

Symbol	Meaning
g	Case-Hardened Steel Used in Rings, Rolling Elements
h	Stainless Steel Used in Rings, Rolling Elements

Cage Symbol

Symbol	Meaning
M	Machined Brass Cage
W	Pressed Steel Cage
T	Synthetic Resin Cage
V	Without Cage

External Features — Seals, Shields Symbol

Symbol	Meaning
Z ZS	Shield on One Side Only
ZZ ZZS	Shields on Both Sides
RS	Contact Rubber Seal on One Side Only
2RS	Contact Rubber Seals on Both Sides
V	Non-Contact Rubber Seal on One Side Only
VV	Non-Contact Rubber Seals on Both Sides

HR	High Capacity Tapered Roller Bearings, and others

Symbols and Numbers Conform to JIS(1) — OID Symbol — OID Symbol

Marked on Bearings — Not Marked on Bearings

Auxiliary Symbols

Symbol for Design of Rings

Symbol	Meaning
K	Tapered Bore of Inner Ring (Taper 1:12)
K30	Tapered Bore of Inner Ring (Taper 1:30)
E	Notch or Lubricating Groove in Ring
E4	Lubricating Groove in Outside Surface and Holes in Outer Ring
N	Snap Ring Groove in Outer Ring
NR	Snap Ring Groove with Snap Ring in Outer Ring

Arrangement Symbol

Symbol	Meaning
DB	Back-to-Back Arrangement
DF	Face-to-Face Arrangement
DT	Tandem Arrangement

Internal Clearance Symbol Preload Symbol

Symbol	Meaning (radial clearance)
For All Radial Brgs.	
C1	Clearance Less than C2
C2	Clearance Less than CN
Omitted	CN Clearance
C3	Clearance Greater than CN
C4	Clearance Greater than C3
C5	Clearance Greater than C4
For Non-Interchangeable Cylindrical Roller Brgs.	
CC1	Clearance Less than CC2
CC2	Clearance Less than CC
CC	Normal Clearance
CC3	Clearance Greater than CC
CC4	Clearance Greater than CC3
CC5	Clearance Greater than CC4
For Extra-Small and Miniature Ball Brgs.	
MC1	Clearance Less than MC2
MC2	Clearance Less than MC3
MC3	Normal Clearance
MC4	Clearance Greater than MC3
MC5	Clearance Greater than MC4
MC6	Clearance Greater than MC5
CM	Clearance in Deep Groove Ball Bearings for Electric Motors
CT CM	Clearance in Cylindrical Roller Bearings for Electric Motors
Preload of Angular Contact Ball Bearing	
EL	Extra light Preload
L	Light Preload
M	Medium Preload
H	Heavy Preload

Tolerance Class Symbol

Symbol	Meaning
Omitted	ISO Normal
P6	ISO Class 6
P6X	ISO Class 6X
P5	ISO Class 5
P4	ISO Class 4
P2	ISO Class 2
ABMA(7) Tapered roller bearing	
Omitted	Class 4
PN2	Class 2
PN3	Class 3
PN0	Class 0
PN00	Class 00

Special Specification Symbol

Symbol	Meaning
Bearings treated for Dimensional Stabilization	
X26	Working Temperature Lower than 150 °C
X28	Working Temperature Lower than 200 °C
X29	Working Temperature Lower than 250 °C
Spherical Roller Bearings	
S11	Dimensional Stabilizing Treatment Working Temperature Lower than 200 °C

Spacer or Sleeve Symbol

Symbol	Meaning
+K	Bearings with Outer Ring Spacers
+L	Bearings with Inner Ring Spacers
+KL	Bearings with Both Inner and Outer Ring Spacers
H	Adapter Designation
AH	Withdrawal Sleeve Designation
HJ	Thrust Collar Designation

Grease Symbol

Symbol	Meaning
X62	XIN SHARTON 6601-L2
X63	XIN SHARTON 6601-L3
X64	XIN SHARTON 6601-L4 (Standard OID Grease)
X65	XIN SHARTON 6601-L5
X73	XIN SHARTON 7701-L3

Partially the same as JIS(1) — Same as JIS(1) — OID Symbol — Partially the same as JIS(1)/ BAS(2) — Same as JIS(1) — OID Symbol, Partially the same as JIS(1)

In Principle, Marked on Bearings — Not Marked on Bearings

Notes
(1) JIS : Japanese Industrial Standards.
(2) BAS : The Japan Bearing Industrial Association Standard.
(3) ABMA : The American Bearing Manufacturers Association.

OID MECHANICAL PARTS BEARINGS



Ball Bearings

Deep Groove Ball Bearings

DESIGN, TYPES, AND FEATURES

SINGLE-ROW DEEP GROOVE BALL BEARINGS

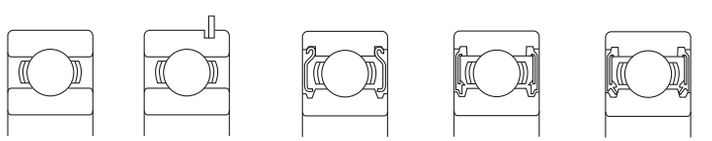
Single-Row Deep Groove Ball Bearings are classified into the types shown below.

The proper amount of good quality grease is packed in shielded and sealed ball bearings. A comparison of the features of each type

Features of Sealed Ball Bearings

Type	Shielded Type (ZZ Type)	Non-Contact Rubber Sealed Type (VV Type)	Contact Rubber Sealed Type (2RS Type)
Torque	Low	Low	Higher than ZZ, VV types due to contact seal
Speed capability	Good	Good	Limited by contact seals
Grease sealing effectiveness	Good	Better than ZZ type	A little better than VV type
Dust resistance	Good	Better than ZZ type (usable in moderately dusty environment)	Best (usable even in very dusty environment)
Water resistance	Not suitable	Not suitable	Good (usable even if fluid is splashed on bearing)
Operating temperature (1)	−10 to +110°C	−10 to +110°C	−10 to +100°C

Note (1) The above temperature range applies to standard bearings. By using cold or heat resistant grease and changing the type of rubber, the operating temperature range can be extended. For such applications, please contact OID.



Open Type | With Snap Ring | Shielded Type (ZZ Type) | Non-Contact Rubber Sealed Type (VV Type) | Contact Rubber Sealed Type (2RS Type)

For deep groove ball bearings, pressed cages are usually used. For big bearings, machined brass cages are used. Machined cages are also used for high speed applications.

Standard Cages for Deep Groove Ball Bearings

Series	Pressed Steel Cages	Machined Brass Cages
68	6800 - 6838	6840 - 68/800
69	6900 - 6936	6938 - 69/800
160	16001 - 16026	16028 - 16064
60	6000 - 6040	6044 - 60/670
62	6200 - 6240	6244 - 6272
63	6300 - 6332	6334 - 6356

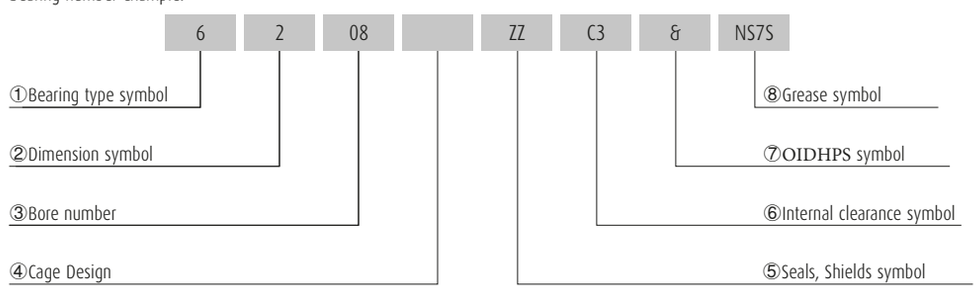
Standard Cages for Double Row Deep Grove Ball Bearings

Series	Polyamid Cages
42xxB	4200B - 4218B
43xxB	4302B - 4315B

☐ Formulation of Bearing Numbers

Single-Row Deep Groove Ball Bearings

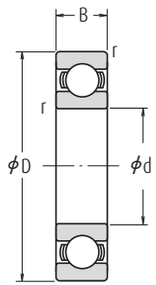
Bearing number example:



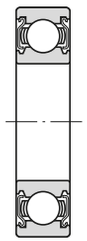
①Bearing type symbol	6 : Single-Row Deep Groove Ball Bearings : 4 Double Row Deep Groove Ball Bearing
②Dimension symbol	2 : 02 Series, 3 : 03 Series, 9 : 19 Series, 0 : 10 Series
③Bore number	Less than 03, Bearing bore 00 : 10mm, 01 : 12mm, 02 : 15mm, 03 : 17mm Over 04, Bearing bore Bore number X 5 (mm)
④Cage Design	BTNG = Polyiamid Cage
⑤Seals, Shields symbol	ZZ : Shield on Both Side , 2RS : Contact Rubber Seal on Both Side, VV: Non-Contact Rubber Sealed on Both Side
⑥Internal clearance symbol	Omitted : CN clearance*1, C3 : Clearance greater than CN, C4 : Clearance greater than C3, CM : For Electric Motors*1
⑦OIDHPS symbol	& : OIDHPS Bearings
⑧Grease symbol	NS7 : NS HI-LUBE

*1 The CM clearance can be used in substitute of the CN clearance. (The opposite is not available.)

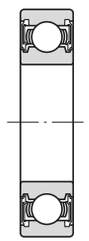
Bore Diameter 10 – 17 mm



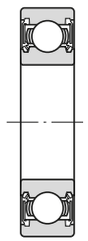
Open Type



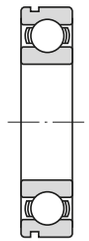
Shielded Type
ZZ



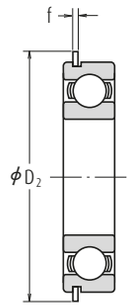
Non-Contact
Sealed Type
VV



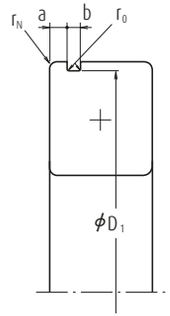
Contact
Sealed Type
2RSR · 2RS

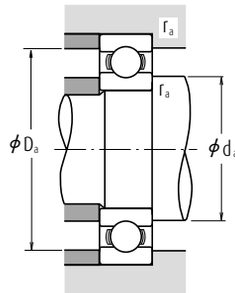


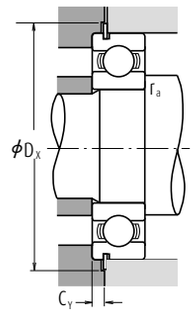
With Snap
Ring Groove
N



With
Snap Ring
NR







Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
10	19	5	0.3	1 720	840	14.8	34 000	24 000	40 000	6800	ZZ	VV	2RSR
	22	6	0.3	2 700	1 270	14.0	32 000	22 000	38 000	6900	ZZ	VV	2RSR
	26	8	0.3	4 550	1 970	12.4	30 000	22 000	36 000	6000	ZZ	VV	2RS
	30	9	0.6	5 100	2 390	13.2	24 000	18 000	30 000	6200	ZZ	VV	2RS
	30	9	0.6	5 350	2 390	13.2	28 000	18 000	34 000	6200*	ZZ	VV	2RS
	35	11	0.6	8 100	3 450	11.2	22 000	17 000	26 000	6300	ZZ	VV	2RS
	35	11	0.6	8 500	3 450	11.2	26 000	17 000	30 000	6300*	ZZ	VV	2RS
12	21	5	0.3	1 920	1 040	15.3	32 000	20 000	38 000	6801	ZZ	VV	2RSR
	24	6	0.3	2 890	1 460	14.5	30 000	20 000	36 000	6901	ZZ	VV	2RSR
	28	7	0.3	5 100	2 370	13.0	28 000	–	32 000	16001	–	–	–
	28	8	0.3	5 100	2 370	13.0	28 000	18 000	32 000	6001	ZZ	VV	2RS
	28	8	0.3	5 350	2 370	13.0	32 000	18 000	38 000	6001*	ZZ	VV	2RS
	32	10	0.6	6 800	3 050	12.3	22 000	17 000	28 000	6201	ZZ	VV	2RS
	32	10	0.6	7 150	3 050	12.3	26 000	17 000	32 000	6201*	ZZ	VV	2RS
	37	12	1	9 700	4 200	11.1	20 000	16 000	24 000	6301	ZZ	VV	2RS
	37	12	1.0	10 200	4 200	11.1	24 000	16 000	28 000	6301*	ZZ	VV	2RS
15	24	5	0.3	2 070	1 260	15.8	28 000	17 000	34 000	6802	ZZ	VV	2RSR
	28	7	0.3	4 350	2 260	14.3	26 000	17 000	30 000	6902	ZZ	VV	2RSR
	32	8	0.3	5 600	2 830	13.9	24 000	–	28 000	16002	–	–	–
	32	9	0.3	5 600	2 830	13.9	24 000	15 000	28 000	6002	ZZ	VV	2RS
	32	9	0.3	5 850	2 830	13.9	26 000	15 000	32 000	6002*	ZZ	VV	2RS
	35	11	0.6	7 650	3 750	13.2	20 000	14 000	24 000	6202	ZZ	VV	2RS
	35	11	0.6	8 000	3 750	13.2	22 000	14 000	28 000	6202*	ZZ	VV	2RS
	42	13	1	11 400	5 450	12.3	17 000	13 000	20 000	6302	ZZ	VV	2RS
	42	13	1.0	12 000	5 450	12.3	19 000	13 000	24 000	6302*	ZZ	VV	2RS
17	26	5	0.3	2 630	1 570	15.7	26 000	15 000	30 000	6803	ZZ	VV	2RSR
	30	7	0.3	4 600	2 550	14.7	24 000	15 000	28 000	6903	ZZ	VV	2RS
	35	8	0.3	6 000	3 250	14.4	22 000	–	26 000	16003	–	–	–
	35	10	0.3	6 000	3 250	14.4	22 000	13 000	26 000	6003	ZZ	VV	2RS
	35	10	0.3	6 300	3 250	14.4	24 000	13 000	28 000	6003*	ZZ	VV	2RS
	40	12	0.6	9 550	4 800	13.2	17 000	12 000	20 000	6203	ZZ	VV	2RS
	40	12	0.6	10 100	4 800	13.2	20 000	12 000	24 000	6203*	ZZ	VV	2RS
	47	14	1	13 600	6 650	12.4	15 000	11 000	18 000	6303	ZZ	VV	2RS
	47	14	1.0	14 300	6 650	12.4	17 000	11 000	20 000	6303*	ZZ	VV	2RS

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
–	–	–	–	–	–	–	–	–	12	12	17	0.3	–	–	0.005
N(3)	NR(3)	1.05	0.80	20.80	0.20	0.2	24.8	0.70	12	12.5	20	0.3	25.5	1.5	0.009
N(4)	NR(4)	1.35	0.87	24.50	0.20	0.3	28.7	0.84	12	13	24	0.3	29.4	1.9	0.018
N	NR	2.06	1.35	28.17	0.40	0.5	34.7	1.12	14	16	26	0.6	35.5	2.9	0.032
N	NR	2.06	1.35	28.17	0.40	0.5	34.7	1.12	14	16	26	0.6	35.5	2.9	0.032
N	NR	2.06	1.35	33.17	0.40	0.5	39.7	1.12	14	16.5	31	0.6	40.5	2.9	0.052
N	NR	2.06	1.35	33.17	0.40	0.5	39.7	1.12	14	16.5	31	0.6	40.5	2.9	0.052
–	–	–	–	–	–	–	–	–	14	14	19	0.3	–	–	0.006
N	NR	1.05	0.80	22.80	0.20	0.2	26.8	0.70	14	14.5	22	0.3	27.5	1.5	0.010
–	–	–	–	–	–	–	–	–	14	–	26	0.3	–	–	0.019
N(4)	NR(4)	1.35	0.87	26.50	0.20	0.3	30.7	0.84	14	15.5	26	0.3	31.4	1.9	0.022
N(4)	NR(4)	1.35	0.87	26.50	0.20	0.3	30.7	0.84	14	15.5	26	0.3	31.4	1.9	0.022
N	NR	2.06	1.35	30.15	0.40	0.5	36.7	1.12	16	17	28	0.6	37.5	2.9	0.037
N	NR	2.06	1.35	30.15	0.40	0.5	36.7	1.12	16	17	28	0.6	37.5	2.9	0.037
N	NR	2.06	1.35	34.77	0.40	0.5	41.3	1.12	17	18	32	1	42	2.9	0.060
N	NR	2.06	1.35	34.77	0.40	0.5	41.3	1.12	17	18	32	1	42	2.9	0.060
–	–	–	–	–	–	–	–	–	17	17	22	0.3	–	–	0.007
N	NR	1.30	0.95	26.70	0.25	0.3	30.8	0.85	17	17	26	0.3	31.5	1.8	0.015
–	–	–	–	–	–	–	–	–	17	–	30	0.3	–	–	0.027
N	NR	2.06	1.35	30.15	0.40	0.3	36.7	1.12	17	19	30	0.3	37.5	2.9	0.031
N	NR	2.06	1.35	30.15	0.40	0.3	36.7	1.12	17	19	30	0.3	37.5	2.9	0.031
N	NR	2.06	1.35	33.17	0.40	0.5	39.7	1.12	19	20.5	31	0.6	40.5	2.9	0.045
N	NR	2.06	1.35	33.17	0.40	0.5	39.7	1.12	19	20.5	31	0.6	40.5	2.9	0.045
N	NR	2.06	1.35	39.75	0.40	0.5	46.3	1.12	20	22.5	37	1	47	2.9	0.083
N	NR	2.06	1.35	39.75	0.40	0.5	46.3	1.12	20	22.5	37	1	47	2.9	0.083
–	–	–	–	–	–	–	–	–	19	19	24	0.3	–	–	0.007
N	NR	1.30	0.95	28.70	0.25	0.3	32.8	0.85	19	19.5	28	0.3	33.5	1.8	0.017
–	–	–	–	–	–	–	–	–	19	–	33	0.3	–	–	0.033
N	NR	2.06	1.35	33.17	0.40	0.3	39.7	1.12	19	21.5	33	0.3	40.5	2.9	0.041
N	NR	2.06	1.35	33.17	0.40	0.3	39.7	1.12	19	21.5	33	0.3	40.5	2.9	0.041
N	NR	2.06	1.35	38.10	0.40	0.5	44.6	1.12	21	23.5	36	0.6	45.5	2.9	0.067
N	NR	2.06	1.35	38.10	0.40	0.5	44.6	1.12	21	23.5	36	0.6	45.5	2.9	0.067
N	NR	2.46	1.35	44.60	0.40	0.5	52.7	1.12	22	25.5	42	1	53.5	3.3	0.113
N	NR	2.46	1.35	44.60	0.40	0.5	52.7	1.12	22	25.5	42	1	53.5	3.3	0.113

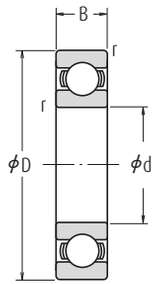
Notes

(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Snap ring groove dimensions and snap ring dimensions are not conformed to ISO15.

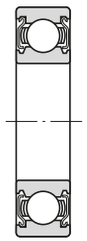
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

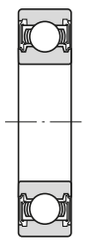
Bore Diameter 20 – 30 mm



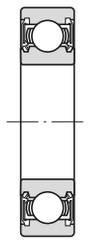
Open Type



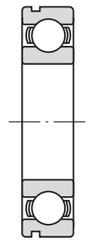
Shielded Type
ZZ



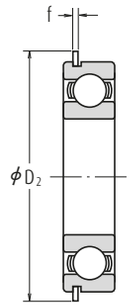
Non-Contact
Sealed Type
VV



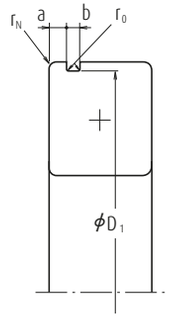
Contact
Sealed Type
2RSR · 2RS

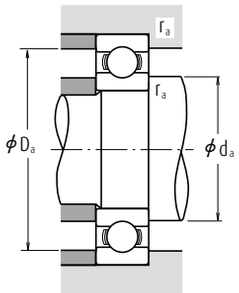


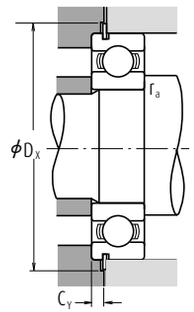
With Snap
Ring Groove
N



With
Snap Ring
NR







Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
20	32	7	0.3	4 000	2 470	15.5	22 000	13 000	26 000	**6804**	**ZZ**	**VV**	2RSR
	37	9	0.3	6 400	3 700	14.7	19 000	12 000	22 000	**6904**	**ZZ**	**VV**	2RS
	42	8	0.3	7 900	4 450	14.5	18 000	–	20 000	**16004**	–	–	–
	42	12	0.6	9 400	5 000	13.8	18 000	11 000	20 000	**6004**	**ZZ**	**VV**	2RS
	42	12	0.6	9 850	5 000	13.8	20 000	11 000	24 000	**6004***	**ZZ**	**VV**	2RS
	47	14	1	12 800	6 600	13.1	15 000	11 000	18 000	**6204**	**ZZ**	**VV**	2RS
	47	14	1.0	13 400	6 600	13.1	17 000	11 000	20 000	**6204***	**ZZ**	**VV**	2RS
	52	15	1.1	15 900	7 900	12.4	14 000	10 000	17 000	**6304**	**ZZ**	**VV**	2RS
	52	15	1.1	16 700	7 900	12.4	16 000	10 000	19 000	**6304***	**ZZ**	**VV**	2RS
22	44	12	0.6	9 400	5 050	14.0	17 000	11 000	20 000	**60/22**	**ZZ**	**VV**	2RS
	50	14	1	12 900	6 800	13.5	14 000	9 500	16 000	**62/22**	**ZZ**	**VV**	2RS
	56	16	1.1	18 400	9 250	12.4	13 000	9 500	16 000	**63/22**	**ZZ**	**VV**	2RS
25	37	7	0.3	4 500	3 150	16.1	18 000	10 000	22 000	**6805**	**ZZ**	**VV**	2RSR
	42	9	0.3	7 050	4 550	15.4	16 000	10 000	19 000	**6905**	**ZZ**	**VV**	2RS
	47	8	0.3	8 850	5 600	15.1	15 000	–	18 000	**16005**	–	–	–
	47	12	0.6	10 100	5 850	14.5	15 000	9 500	18 000	**6005**	**ZZ**	**VV**	2RS
	47	12	0.6	10 600	5 850	14.5	18 000	9 500	22 000	**6005***	**ZZ**	**VV**	2RS
	52	15	1	14 000	7 850	13.9	13 000	9 000	15 000	**6205**	**ZZ**	**VV**	2RS
	52	15	1.0	14 700	7 850	13.9	15 000	9 000	18 000	**6205***	**ZZ**	**VV**	2RS
	62	17	1.1	20 600	11 200	13.2	11 000	8 000	13 000	**6305**	**ZZ**	**VV**	2RS
	62	17	1.1	21 600	11 200	13.2	13 000	8 000	16 000	**6305***	**ZZ**	**VV**	2RS
28	52	12	0.6	12 500	7 400	14.5	14 000	8 500	16 000	**60/28**	**ZZ**	**VV**	2RS
	58	16	1	16 600	9 500	13.9	12 000	8 000	14 000	**62/28**	**ZZ**	**VV**	2RS
	68	18	1.1	26 700	14 000	12.4	10 000	7 500	13 000	**63/28**	**ZZ**	**VV**	2RS
30	42	7	0.3	4 700	3 650	16.4	15 000	9 000	18 000	**6806**	**ZZ**	**VV**	2RSR
	47	9	0.3	7 250	5 000	15.8	14 000	8 500	17 000	**6906**	**ZZ**	**VV**	2RS
	55	9	0.3	11 200	7 350	15.2	13 000	–	15 000	**16006**	–	–	–
	55	13	1	13 200	8 300	14.7	13 000	8 000	15 000	**6006**	**ZZ**	**VV**	2RS
	55	13	1.0	13 900	8 300	14.7	15 000	8 000	18 000	**6006***	**ZZ**	**VV**	2RS
	62	16	1	19 500	11 300	13.8	11 000	7 500	13 000	**6206**	**ZZ**	**VV**	2RS
	62	16	1.0	20 400	11 300	13.8	12 000	7 500	15 000	**6206***	**ZZ**	**VV**	2RS
	72	19	1.1	26 700	15 000	13.3	9 500	6 700	12 000	**6306**	**ZZ**	**VV**	2RS
	72	19	1.1	28 000	15 000	13.3	11 000	6 700	13 000	**6306***	**ZZ**	**VV**	2RS

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	1.30	0.95	30.70	0.25	0.3	34.8	0.85	22	22	30	0.3	35.5	1.8	0.017
N	**NR**	1.70	0.95	35.70	0.25	0.3	39.8	0.85	22	24	35	0.3	40.5	2.3	0.037
–	–	–	–	–	–	–	–	–	22	–	40	0.3	–	–	0.048
N	**NR**	2.06	1.35	39.75	0.40	0.5	46.3	1.12	24	25.5	38	0.6	47	2.9	0.068
N	**NR**	2.06	1.35	39.75	0.40	0.5	46.3	1.12	24	25.5	38	0.6	47	2.9	0.068
N	**NR**	2.46	1.35	44.60	0.40	0.5	52.7	1.12	25	26.5	42	1	53.5	3.3	0.107
N	**NR**	2.46	1.35	44.60	0.40	0.5	52.7	1.12	25	26.5	42	1	53.5	3.3	0.107
N	**NR**	2.46	1.35	49.73	0.40	0.5	57.9	1.12	26.5	28	45.5	1	58.5	3.3	0.145
N	**NR**	2.46	1.35	49.73	0.40	0.5	57.9	1.12	26.5	28	45.5	1	58.5	3.3	0.145
N	**NR**	2.06	1.35	41.75	0.40	0.5	48.3	1.12	26	26.5	40	0.6	49	2.9	0.074
N	**NR**	2.46	1.35	47.60	0.40	0.5	55.7	1.12	27	29.5	45	1	56.5	3.3	0.119
N	**NR**	2.46	1.35	53.60	0.40	0.5	61.7	1.12	28.5	30.5	49.5	1	62.5	3.3	0.179
N	**NR**	1.30	0.95	35.70	0.25	0.3	39.8	0.85	27	27	35	0.3	40.5	1.8	0.021
N	**NR**	1.70	0.95	40.70	0.25	0.3	44.8	0.85	27	28.5	40	0.3	45.5	2.3	0.042
–	–	–	–	–	–	–	–	–	27	–	45	0.3	–	–	0.059
N	**NR**	2.06	1.35	44.60	0.40	0.5	52.7	1.12	29	30	43	0.6	53.5	2.9	0.079
N	**NR**	2.06	1.35	44.60	0.40	0.5	52.7	1.12	29	30	43	0.6	53.5	2.9	0.079
N	**NR**	2.46	1.35	49.73	0.40	0.5	57.9	1.12	30	32	47	1	58.5	3.3	0.129
N	**NR**	2.46	1.35	49.73	0.40	0.5	57.9	1.12	30	32	47	1	58.5	3.3	0.129
N	**NR**	3.28	1.90	59.61	0.60	0.5	67.7	1.70	31.5	36	55.5	1	68.5	4.6	0.235
N	**NR**	3.28	1.90	59.61	0.60	0.5	67.7	1.70	31.5	36	55.5	1	68.5	4.6	0.235
N	**NR**	2.06	1.35	49.73	0.40	0.5	57.9	1.12	32	34	48	0.6	58.5	2.9	0.096
N	**NR**	2.46	1.35	55.60	0.40	0.5	63.7	1.12	33	35.5	53	1	64.5	3.3	0.175
N	**NR**	3.28	1.90	64.82	0.60	0.5	74.6	1.70	34.5	38	61.5	1	76	4.6	0.287
N	**NR**	1.30	0.95	40.70	0.25	0.3	44.8	0.85	32	32	40	0.3	45.5	1.8	0.024
N	**NR**	1.70	0.95	45.70	0.25	0.3	49.8	0.85	32	34	45	0.3	50.5	2.3	0.052
–	–	–	–	–	–	–	–	–	32	–	53	0.3	–	–	0.087
N	**NR**	2.08	1.35	52.60	0.40	0.5	60.7	1.12	35	36.5	50	1	61.5	2.9	0.116
N	**NR**	2.08	1.35	52.60	0.40	0.5	60.7	1.12	35	36.5	50	1	61.5	2.9	0.116
N	**NR**	3.28	1.90	59.61	0.60	0.5	67.7	1.70	35	38.5	57	1	68.5	4.6	0.199
N	**NR**	3.28	1.90	59.61	0.60	0.5	67.7	1.70	35	38.5	57	1	68.5	4.6	0.199
N	**NR**	3.28	1.90	68.81	0.60	0.5	78.6	1.70	36.5	42.5	65.5	1	80	4.6	0.345
N	**NR**	3.28	1.90	68.81	0.60	0.5	78.6	1.70	36.5	42.5	65.5	1	80	4.6	0.345

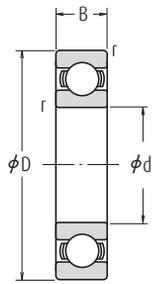
Notes

(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Snap ring groove dimensions and snap ring dimensions are not conformed to ISO15.

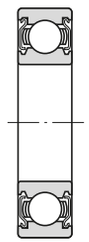
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

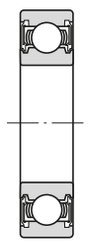
Bore Diameter 32 – 45 mm



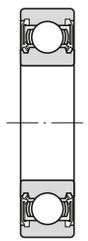
Open Type



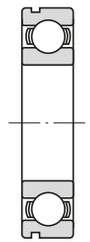
Shielded Type
ZZ



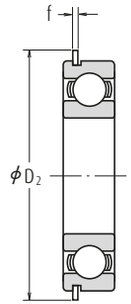
Non-Contact
Sealed Type
VV



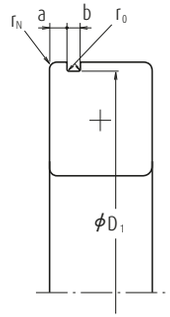
Contact
Sealed Type
2RSR · 2RS

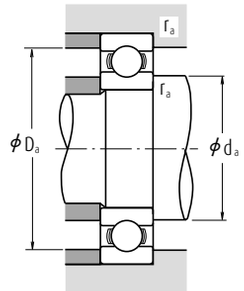


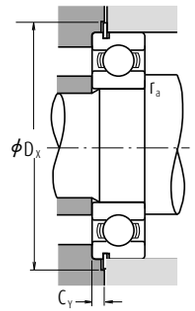
With Snap
Ring Groove
N



With
Snap Ring
NR







Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
32	58	13	1	15 100	9 150	14.5	12 000	7 500	14 000	**60/32**	**ZZ**	**VV**	2RS
	65	17	1	20 700	11 600	13.6	10 000	7 100	12 000	**62/32**	**ZZ**	**VV**	2RS
	75	20	1.1	29 900	17 000	13.2	9 000	6 300	11 000	**63/32**	**ZZ**	**VV**	2RS
35	47	7	0.3	4 900	4 100	16.7	14 000	7 500	16 000	**6807**	**ZZ**	**VV**	2RSR
	55	10	0.6	10 600	7 250	15.5	12 000	7 500	15 000	**6907**	**ZZ**	**VV**	2RS
	62	9	0.3	11 700	8 200	15.6	11 000	—	13 000	**16007**	—	—	—
	62	14	1	16 000	10 300	14.8	11 000	6 700	13 000	**6007**	**ZZ**	**VV**	2RS
	62	14	1.0	16 800	10 300	14.8	13 000	6 700	15 000	**6007***	**ZZ**	**VV**	2RS
	72	17	1.1	25 700	15 300	13.8	9 500	6 300	11 000	**6207**	**ZZ**	**VV**	2RS
	72	17	1.1	27 000	15 300	13.8	11 000	6 300	13 000	**6207***	**ZZ**	**VV**	2RS
	80	21	1.5	33 500	19 200	13.2	8 500	6 000	10 000	**6307**	**ZZ**	**VV**	2RS
	80	21	1.5	35 000	19 200	13.2	10 000	6 000	12 000	**6307***	**ZZ**	**VV**	2RS
40	52	7	0.3	6 350	5 550	17.0	12 000	6 700	14 000	**6808**	**ZZ**	**VV**	2RSR
	62	12	0.6	13 700	10 000	15.7	11 000	6 300	13 000	**6908**	**ZZ**	**VV**	2RS
	68	9	0.3	12 600	9 650	16.0	10 000	—	12 000	**16008**	—	—	—
	68	15	1	16 800	11 500	15.3	10 000	6 000	12 000	**6008**	**ZZ**	**VV**	2RS
	68	15	1.0	17 600	11 500	15.3	12 000	6 000	14 000	**6008***	**ZZ**	**VV**	2RS
	80	18	1.1	29 100	17 900	14.0	8 500	5 600	10 000	**6208**	**ZZ**	**VV**	2RS
	80	18	1.1	30 500	17 900	14.0	9 500	5 600	12 000	**6208***	**ZZ**	**VV**	2RS
	90	23	1.5	40 500	24 000	13.2	7 500	5 300	9 000	**6308**	**ZZ**	**VV**	2RS
	90	23	1.5	43 000	24 000	13.2	9 000	5 300	11 000	**6308***	**ZZ**	**VV**	2RS
45	58	7	0.3	6 600	6 150	17.2	11 000	6 000	13 000	**6809**	**ZZ**	**VV**	2RSR
	68	12	0.6	14 100	10 900	15.9	9 500	5 600	12 000	**6909**	**ZZ**	**VV**	2RS
	75	10	0.6	14 900	11 400	15.9	9 000	—	11 000	**16009**	—	—	—
	75	16	1	20 900	15 200	15.3	9 000	5 300	11 000	**6009**	**ZZ**	**VV**	2RS
	75	16	1.0	22 000	15 200	15.3	10 000	5 300	12 000	**6009***	**ZZ**	**VV**	2RS
	85	19	1.1	31 500	20 400	14.4	7 500	5 300	9 000	**6209**	**ZZ**	**VV**	2RS
	85	19	1.1	33 000	20 400	14.4	9 000	5 300	11 000	**6209***	**ZZ**	**VV**	2RS
	100	25	1.5	53 000	32 000	13.1	6 700	4 800	8 000	**6309**	**ZZ**	**VV**	2RS
	100	25	1.5	55 500	32 000	13.1	7 500	4 800	9 500	**6309***	**ZZ**	**VV**	2RS

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	2.08	1.35	55.60	0.40	0.5	63.7	1.12	37	38.5	53	1	64.5	2.9	0.122
N	**NR**	3.28	1.90	62.60	0.60	0.5	70.7	1.70	37	40	60	1	71.5	4.6	0.225
N	**NR**	3.28	1.90	71.83	0.60	0.5	81.6	1.70	38.5	44.5	68.5	1	83	4.6	0.389
N	**NR**	1.30	0.95	45.70	0.25	0.3	49.8	0.85	37	37	45	0.3	50.5	1.8	0.027
N	**NR**	1.70	0.95	53.70	0.25	0.5	57.8	0.85	39	39	51	0.6	58.5	2.3	0.075
—	—	—	—	—	—	—	—	—	37	—	60	0.3	—	—	0.107
N	**NR**	2.08	1.90	59.61	0.60	0.5	67.7	1.70	40	41.5	57	1	68.5	3.4	0.151
N	**NR**	2.08	1.90	59.61	0.60	0.5	67.7	1.70	40	41.5	57	1	68.5	3.4	0.151
N	**NR**	3.28	1.90	68.81	0.60	0.5	78.6	1.70	41.5	44.5	65.5	1	80	4.6	0.284
N	**NR**	3.28	1.90	68.81	0.60	0.5	78.6	1.70	41.5	44.5	65.5	1	80	4.6	0.284
N	**NR**	3.28	1.90	76.81	0.60	0.5	86.6	1.70	43	47	72	1.5	88	4.6	0.464
N	**NR**	3.28	1.90	76.81	0.60	0.5	86.6	1.70	43	47	72	1.5	88	4.6	0.464
N	**NR**	1.30	0.95	50.70	0.25	0.3	54.8	0.85	42	42	50	0.3	55.5	1.8	0.031
N	**NR**	1.70	0.95	60.70	0.25	0.5	64.8	0.85	44	46	58	0.6	65.5	2.3	0.112
—	—	—	—	—	—	—	—	—	42	—	66	0.3	—	—	0.13
N	**NR**	2.49	1.90	64.82	0.60	0.5	74.6	1.70	45	47.5	63	1	76	3.8	0.19
N	**NR**	2.49	1.90	64.82	0.60	0.5	74.6	1.70	45	47.5	63	1	76	3.8	0.19
N	**NR**	3.28	1.90	76.81	0.60	0.5	86.6	1.70	46.5	50.5	73.5	1	88	4.6	0.366
N	**NR**	3.28	1.90	76.81	0.60	0.5	86.6	1.70	46.5	50.5	73.5	1	88	4.6	0.366
N	**NR**	3.28	2.70	86.79	0.60	0.5	96.5	2.46	48	53	82	1.5	98	5.4	0.636
N	**NR**	3.28	2.70	86.79	0.60	0.5	96.5	2.46	48	53	82	1.5	98	5.4	0.636
N	**NR**	1.30	0.95	56.70	0.25	0.3	60.8	0.85	47	47.5	56	0.3	61.5	1.8	0.038
N	**NR**	1.70	0.95	66.70	0.25	0.5	70.8	0.85	49	50	64	0.6	72	2.3	0.126
—	—	—	—	—	—	—	—	—	49	—	71	0.6	—	—	0.167
N	**NR**	2.49	1.90	71.83	0.60	0.5	81.6	1.70	50	53.5	70	1	83	3.8	0.241
N	**NR**	2.49	1.90	71.83	0.60	0.5	81.6	1.70	50	53.5	70	1	83	3.8	0.241
N	**NR**	3.28	1.90	81.81	0.60	0.5	91.6	1.70	51.5	55.5	78.5	1	93	4.6	0.42
N	**NR**	3.28	1.90	81.81	0.60	0.5	91.6	1.70	51.5	55.5	78.5	1	93	4.6	0.42
N	**NR**	3.28	2.70	96.80	0.60	0.5	106.50	2.46	53	61.5	92	1.5	108	5.4	0.829
N	**NR**	3.28	2.70	96.80	0.60	0.5	106.50	2.46	53	61.5	92	1.5	108	5.4	0.829

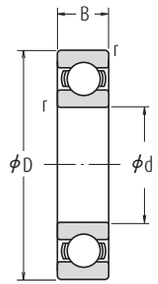
Notes

(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Snap ring groove dimensions and snap ring dimensions are not conformed to ISO15.

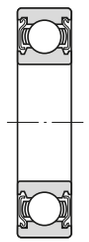
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

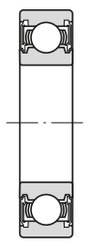
Bore Diameter 50 – 60 mm



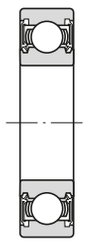
Open Type



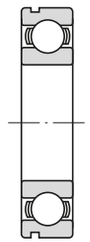
Shielded Type
ZZ



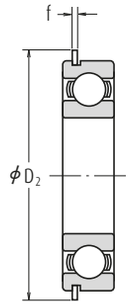
Non-Contact
Sealed Type
VV



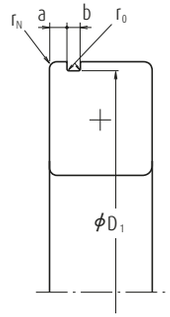
Contact
Sealed Type
2RSR · 2RS

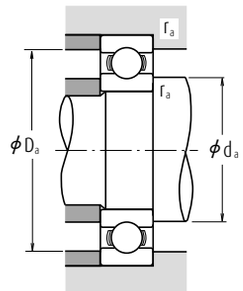


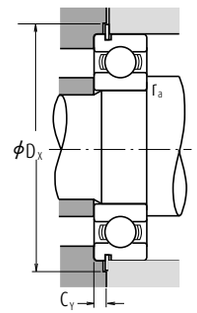
With Snap
Ring Groove
N



With
Snap Ring
NR







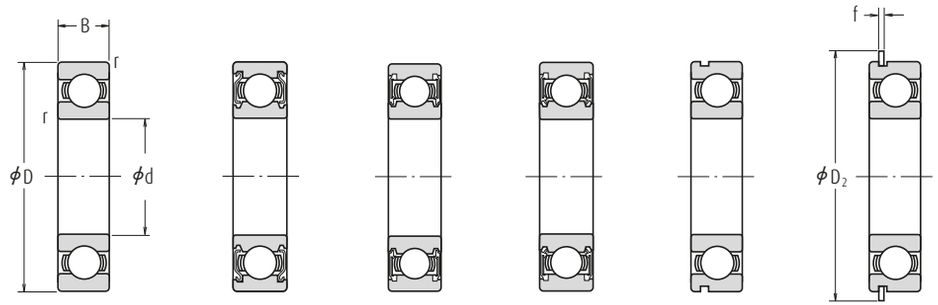
Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
50	65	7	0.3	6 400	6 200	17.2	9 500	5 300	11 000	**6810**	**ZZ**	**VV**	2RS
	72	12	0.6	14 500	11 700	16.1	9 000	5 300	11 000	**6910**	**ZZ**	**VV**	2RS
	80	10	0.6	15 400	12 400	16.1	8 500	—	10 000	**16010**	—	—	—
	80	16	1	21 800	16 600	15.6	8 500	4 800	10 000	**6010**	**ZZ**	**VV**	2RS
	80	16	1.0	22 900	16 600	15.6	9 500	4 800	11 000	**6010***	**ZZ**	**VV**	2RS
	90	20	1.1	35 000	23 200	14.4	7 100	4 800	8 500	**6210**	**ZZ**	**VV**	2RS
	90	20	1.1	37 000	23 200	14.4	8 500	4 800	10 000	**6210***	**ZZ**	**VV**	2RS
	110	27	2	62 000	38 500	13.2	6 000	4 300	7 500	**6310**	**ZZ**	**VV**	2RS
	110	27	2.0	65 000	38 500	13.2	7 100	4 300	8 500	**6310***	**ZZ**	**VV**	2RS
55	72	9	0.3	8 800	8 500	17.0	8 500	4 800	10 000	**6811**	**ZZ**	**VV**	2RS
	80	13	1	16 000	13 300	16.2	8 000	4 500	9 500	**6911**	**ZZ**	**VV**	2RS
	90	11	0.6	19 400	16 300	16.2	7 500	—	9 000	**16011**	—	—	—
	90	18	1.1	28 300	21 200	15.3	7 500	4 500	9 000	**6011**	**ZZ**	**VV**	2RS
	90	18	1.1	29 700	21 200	15.3	8 500	4 500	10 000	**6011***	**ZZ**	**VV**	2RS
	100	21	1.5	43 500	29 300	14.3	6 300	4 300	7 500	**6211**	**ZZ**	**VV**	2RS
	100	21	1.5	45 500	29 300	14.3	7 500	4 300	9 000	**6211***	**ZZ**	**VV**	2RS
	120	29	2	71 500	44 500	13.1	5 600	4 000	6 700	**6311**	**ZZ**	**VV**	2RS
	120	29	2.0	75 000	44 500	13.1	6 700	4 000	8 000	**6311***	**ZZ**	**VV**	2RS
60	78	10	0.3	11 500	10 900	16.9	8 000	4 500	9 500	**6812**	**ZZ**	**VV**	2RSR
	85	13	1	19 400	16 300	16.2	7 500	4 300	9 000	**6912**	**ZZ**	**VV**	2RS
	95	11	0.6	20 000	17 500	16.3	7 100	—	8 500	**16012**	—	—	—
	95	18	1.1	29 500	23 200	15.6	7 100	4 000	8 500	**6012**	**ZZ**	**VV**	2RS
	95	18	1.1	31 000	23 200	15.6	8 000	4 000	9 500	**6012***	**ZZ**	**VV**	2RS
	110	22	1.5	52 500	36 000	14.3	5 600	3 800	7 100	**6212**	**ZZ**	**VV**	2RS
	110	22	1.5	55 000	36 000	14.3	6 700	3 800	8 000	**6212***	**ZZ**	**VV**	2RS
	130	31	2.1	82 000	52 000	13.1	5 300	3 600	6 300	**6312**	**ZZ**	**VV**	2RS
	130	31	2.1	86 000	52 000	13.1	6 000	3 600	7 100	**6312***	**ZZ**	**VV**	2RS

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	1.30	0.95	63.7	0.25	0.3	67.8	0.85	52	52.5	63	0.3	68.5	1.8	0.050
N	**NR**	1.70	0.95	70.7	0.25	0.5	74.8	0.85	54	55	68	0.6	76	2.3	0.135
—	—	—	—	—	—	—	—	—	54	—	76	0.6	—	—	0.175
N	**NR**	2.49	1.90	76.81	0.60	0.5	86.6	1.70	55	58.5	75	1	88	3.8	0.261
N	**NR**	2.49	1.90	76.81	0.60	0.5	86.6	1.70	55	58.5	75	1	88	3.8	0.261
N	**NR**	3.28	2.70	86.79	0.60	0.5	96.5	2.46	56.5	60	83.5	1	98	5.4	0.459
N	**NR**	3.28	2.70	86.79	0.60	0.5	96.5	2.46	56.5	60	83.5	1	98	5.4	0.459
N	**NR**	3.28	2.70	106.81	0.60	0.5	116.6	2.46	59	68	101	2	118	5.4	1.06
N	**NR**	3.28	2.70	106.81	0.60	0.5	116.6	2.46	59	68	101	2	118	5.4	1.06
N	**NR**	1.70	0.95	70.7	0.25	0.3	74.8	0.85	57	59	70	0.3	76	2.3	0.081
N	**NR**	2.10	1.30	77.9	0.40	0.5	84.4	1.12	60	61.5	75	1	86	2.9	0.189
—	—	—	—	—	—	—	—	—	59	—	86	0.6	—	—	0.257
N	**NR**	2.87	2.70	86.79	0.60	0.5	96.5	2.46	61.5	64	83.5	1	98	5.0	0.381
N	**NR**	2.87	2.70	86.79	0.60	0.5	96.5	2.46	61.5	64	83.5	1	98	5.0	0.381
N	**NR**	3.28	2.70	96.8	0.60	0.5	106.5	2.46	63	66.5	92	1.5	108	5.4	0.619
N	**NR**	3.28	2.70	96.8	0.60	0.5	106.5	2.46	63	66.5	92	1.5	108	5.4	0.619
N	**NR**	4.06	3.10	115.21	0.60	0.5	129.7	2.82	64	72.5	111	2	131.5	6.5	1.37
N	**NR**	4.06	3.10	115.21	0.60	0.5	129.7	2.82	64	72.5	111	2	131.5	6.5	1.37
N	**NR**	1.70	1.30	76.2	0.40	0.3	82.7	1.12	62	64	76	0.3	84	2.5	0.103
N	**NR**	2.10	1.30	82.9	0.40	0.5	89.4	1.12	65	66	80	1	91	2.9	0.192
—	—	—	—	—	—	—	—	—	64	—	91	0.6	—	—	0.281
N	**NR**	2.87	2.70	91.82	0.60	0.5	101.6	2.46	66.5	69	88.5	1	103	5.0	0.412
N	**NR**	2.87	2.70	91.82	0.60	0.5	101.6	2.46	66.5	69	88.5	1	103	5.0	0.412
N	**NR**	3.28	2.70	106.81	0.60	0.5	116.6	2.46	68	74.5	102	1.5	118	5.4	0.783
N	**NR**	3.28	2.70	106.81	0.60	0.5	116.6	2.46	68	74.5	102	1.5	118	5.4	0.783
N	**NR**	4.06	3.10	125.22	0.60	0.5	139.7	2.82	71	79	119	2	141.5	6.5	1.72
N	**NR**	4.06	3.10	125.22	0.60	0.5	139.7	2.82	71	79	119	2	141.5	6.5	1.72

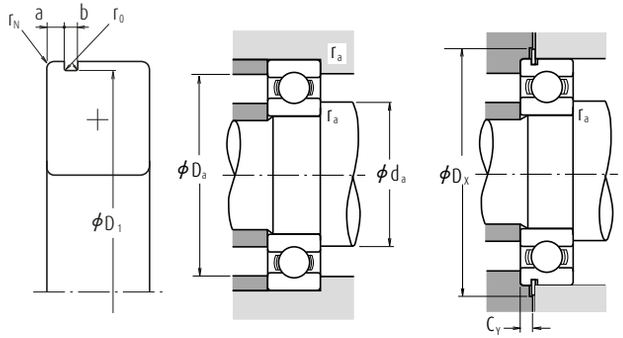
Notes
(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Not conformed to ISO15.

Remarks
1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

Bore Diameter 65 – 75 mm



Open Type | Shielded Type ZZ | Non-Contact Sealed Type VV | Contact Sealed Type 2RSR · 2RS | With Snap Ring Groove N | With Snap Ring NR



Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
65	85	10	0.6	11 900	12 100	17.0	7 500	4 000	8 500	**6813**	**ZZ**	**VV**	2RSR
	90	13	1	17 400	16 100	16.6	7 100	4 000	8 500	**6913**	**ZZ**	**VV**	2RS
	100	11	0.6	20 500	18 700	16.5	6 700	—	8 000	**16013**	—	—	—
	100	18	1.1	30 500	25 200	15.8	6 700	4 000	8 000	**6013**	**ZZ**	**VV**	2RS
	100	18	1.1	32 000	25 200	15.8	7 500	4 000	9 000	**6013***	**ZZ**	**VV**	2RS
	120	23	1.5	57 500	40 000	14.4	5 300	3 600	6 300	**6213**	**ZZ**	**VV**	2RS
	120	23	1.5	60 000	40 000	14.4	6 300	3 600	7 500	**6213***	**ZZ**	**VV**	2RS
	140	33	2.1	92 500	60 000	13.2	4 800	3 400	6 000	**6313**	**ZZ**	**VV**	2RS
	140	33	2.1	97 500	60 000	13.2	5 600	3 400	6 700	**6313***	**ZZ**	**VV**	2RS
70	90	10	0.6	12 100	12 700	17.2	6 700	3 800	8 000	**6814**	**ZZ**	**VV**	2RSR
	100	16	1	23 700	21 200	16.3	6 300	3 600	7 500	**6914**	**ZZ**	**VV**	2RS
	110	13	0.6	26 800	23 600	16.3	6 000	—	7 100	**16014**	—	—	—
	110	20	1.1	38 000	31 000	15.6	6 000	3 600	7 100	**6014**	**ZZ**	**VV**	2RS
	110	20	1.1	40 000	31 000	15.6	7 100	3 600	8 500	**6014***	**ZZ**	**VV**	2RS
	125	24	1.5	62 000	44 000	14.5	5 000	3 400	6 300	**6214**	**ZZ**	**VV**	2RS
	125	24	1.5	65 500	44 000	14.5	6 000	3 400	7 100	**6214***	**ZZ**	**VV**	2RS
	150	35	2.1	104 000	68 000	13.2	4 500	3 200	5 300	**6314**	**ZZ**	**VV**	2RS
	150	35	2.1	109 000	68 000	13.2	5 300	3 200	6 300	**6314***	**ZZ**	**VV**	2RS
75	95	10	0.6	12 500	13 900	17.3	6 300	3 600	7 500	**6815**	**ZZ**	**VV**	2RS
	105	16	1	24 400	22 600	16.5	6 000	3 400	7 100	**6915**	**ZZ**	**VV**	2RS
	115	13	0.6	27 600	25 300	16.4	5 600	—	6 700	**16015**	—	—	—
	115	20	1.1	39 500	33 500	15.8	5 600	3 400	6 700	**6015**	**ZZ**	**VV**	2RS
	115	20	1.1	41 500	33 500	15.8	6 700	3 400	8 000	**6015***	**ZZ**	**VV**	2RS
	130	25	1.5	66 000	49 500	14.7	4 800	3 200	5 600	**6215**	**ZZ**	**VV**	2RS
	130	25	1.5	69 500	49 500	14.7	5 600	3 200	6 700	**6215***	**ZZ**	**VV**	2RS
	160	37	2.1	113 000	77 000	13.2	4 300	2 800	5 000	**6315**	**ZZ**	**VV**	2RS
	160	37	2.1	119 000	77 000	13.2	4 800	2 800	6 000	**6315***	**ZZ**	**VV**	2RS

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	1.70	1.30	82.9	0.40	0.5	89.4	1.12	69	69	81	0.6	91	2.5	0.128
N	**NR**	2.10	1.30	87.9	0.40	0.5	94.4	1.12	70	71.5	85	1	96	2.9	0.218
—	—	—	—	—	—	—	—	—	69	—	96	0.6	—	—	0.30
N	**NR**	2.87	2.70	96.8	0.60	0.5	106.5	2.46	71.5	73	93.5	1	108	5.0	0.439
N	**NR**	2.87	2.70	96.8	0.60	0.5	106.5	2.46	71.5	73	93.5	1	108	5.0	0.439
N	**NR**	4.06	3.10	115.21	0.60	0.5	129.7	2.82	73	80	112	1.5	131.5	6.5	1.0
N	**NR**	4.06	3.10	115.21	0.60	0.5	129.7	2.82	73	80	112	1.5	131.5	6.5	1.0
N	**NR**	4.90	3.10	135.23	0.60	0.5	149.7	2.82	76	85.5	129	2	152	7.3	2.11
N	**NR**	4.90	3.10	135.23	0.60	0.5	149.7	2.82	76	85.5	129	2	152	7.3	2.11
N	**NR**	1.70	1.30	87.9	0.40	0.5	94.4	1.12	74	74.5	86	0.6	96	2.5	0.134
N	**NR**	2.50	1.30	97.9	0.40	0.5	104.4	1.12	75	77.5	95	1	106	3.3	0.349
—	—	—	—	—	—	—	—	—	74	—	106	0.6	—	—	0.441
N	**NR**	2.87	2.70	106.81	0.60	0.5	116.6	2.46	76.5	80.5	103.5	1	118	5.0	0.608
N	**NR**	2.87	2.70	106.81	0.60	0.5	116.6	2.46	76.5	80.5	103.5	1	118	5.0	0.608
N	**NR**	4.06	3.10	120.22	0.60	0.5	134.7	2.82	78	84	117	1.5	136.5	6.5	1.09
N	**NR**	4.06	3.10	120.22	0.60	0.5	134.7	2.82	78	84	117	1.5	136.5	6.5	1.09
N	**NR**	4.90	3.10	145.24	0.60	0.5	159.7	2.82	81	92	139	2	162	7.3	2.57
N	**NR**	4.90	3.10	145.24	0.60	0.5	159.7	2.82	81	92	139	2	162	7.3	2.57
N	**NR**	1.70	1.30	92.9	0.40	0.5	99.4	1.12	79	79.5	91	0.6	101	2.5	0.149
N	**NR**	2.50	1.30	102.60	0.40	0.5	110.7	1.12	80	82	100	1	112	3.3	0.364
—	—	—	—	—	—	—	—	—	79	—	111	0.6	—	—	0.463
N	**NR**	2.87	2.70	111.81	0.60	0.5	121.6	2.46	81.5	85.5	108.5	1	123	5.0	0.649
N	**NR**	2.87	2.70	111.81	0.60	0.5	121.6	2.46	81.5	85.5	108.5	1	123	5.0	0.649
N	**NR**	4.06	3.10	125.22	0.60	0.5	139.7	2.82	83	90	122	1.5	141.5	6.5	1.19
N	**NR**	4.06	3.10	125.22	0.60	0.5	139.7	2.82	83	90	122	1.5	141.5	6.5	1.19
N	**NR**	4.90	3.10	155.22	0.60	0.5	169.7	2.82	86	98.5	149	2	172	7.3	3.08
N	**NR**	4.90	3.10	155.22	0.60	0.5	169.7	2.82	86	98.5	149	2	172	7.3	3.08

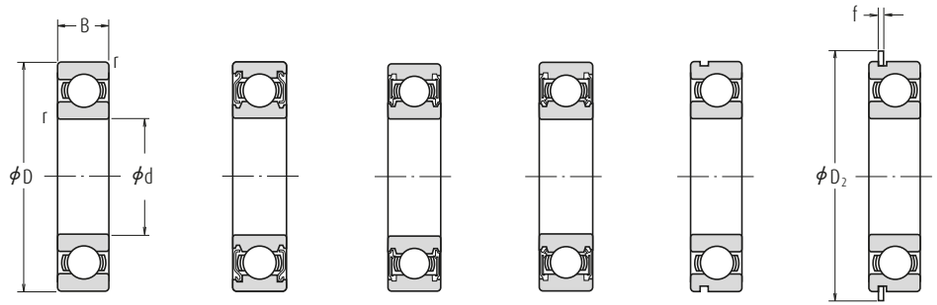
Notes

(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Not conformed to ISO15.

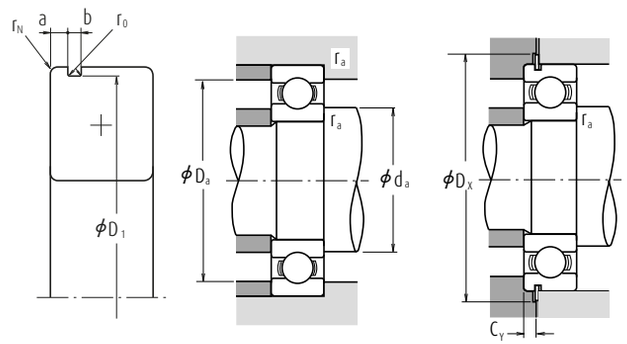
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

Bore Diameter 80 – 90 mm



Open Type | Shielded Type ZZ | Non-Contact Sealed Type VV | Contact Sealed Type 2RSR · 2RS | With Snap Ring Groove N | With Snap Ring NR



Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
80	100	10	0.6	12 700	14 500	17.4	6 000	3 400	7 100	**6816**	**ZZ**	**VV**	2RS
	110	16	1	25 000	24 000	16.6	5 600	3 200	6 700	**6916**	**ZZ**	**VV**	2RS
	125	14	0.6	32 000	29 600	16.4	5 300	—	6 300	**16016**	—	—	—
	125	22	1.1	47 500	40 000	15.6	5 300	3 200	6 300	**6016**	**ZZ**	**VV**	2RS
	125	22	1.1	50 000	40 000	15.6	6 300	3 200	7 100	**6016***	**ZZ**	**VV**	2RS
	140	26	2	72 500	53 000	14.6	4 500	3 000	5 300	**6216**	**ZZ**	**VV**	2RS
	140	26	2.0	76 500	53 000	14.6	5 300	3 000	6 300	**6216***	**ZZ**	**VV**	2RS
	170	39	2.1	123 000	86 500	13.3	4 000	2 800	4 800	**6316**	**ZZ**	**VV**	2RS
	170	39	2.1	129 000	86 500	13.3	4 500	2 800	5 600	**6316***	**ZZ**	**VV**	2RS
85	110	13	1	18 700	20 000	17.1	5 600	3 200	6 700	**6817**	**ZZ**	**VV**	2RS
	120	18	1.1	32 000	29 600	16.4	5 300	3 000	6 300	**6917**	**ZZ**	**VV**	2RS
	130	14	0.6	33 000	31 500	16.5	5 000	—	6 000	**16017**	—	—	—
	130	22	1.1	49 500	43 000	15.8	5 000	3 000	6 000	**6017**	**ZZ**	**VV**	2RS
	130	22	1.1	52 000	43 000	15.8	6 000	3 000	7 100	**6017***	**ZZ**	**VV**	2RS
	150	28	2	84 000	62 000	14.5	4 300	2 800	5 000	**6217**	**ZZ**	**VV**	2RS
	150	28	2.0	88 000	62 000	14.5	4 800	2 800	6 000	**6217***	**ZZ**	**VV**	2RS
	180	41	3	133 000	97 000	13.3	3 800	2 600	4 500	**6317**	**ZZ**	**VV**	2RS
	180	41	3.0	139 000	97 000	13.3	4 300	2 600	5 000	**6317***	**ZZ**	**VV**	2RS
90	115	13	1	19 000	21 000	17.2	5 300	3 000	6 300	**6818**	**ZZ**	**VV**	2RS
	125	18	1.1	33 000	31 500	16.5	5 000	2 800	6 000	**6918**	**ZZ**	**VV**	2RS
	140	16	1	41 500	39 500	16.3	4 800	—	5 600	**16018**	—	—	—
	140	24	1.5	58 000	50 000	15.6	4 800	2 800	5 600	**6018**	**ZZ**	**VV**	2RS
	140	24	1.5	61 000	50 000	15.6	5 600	2 800	6 300	**6018***	**ZZ**	**VV**	2RS
	160	30	2	96 000	71 500	14.5	4 000	2 600	4 800	**6218**	**ZZ**	**VV**	2RS
	160	30	2.0	101 000	71 500	14.5	4 500	2 600	5 600	**6218***	**ZZ**	**VV**	2RS
	190	43	3	143 000	107 000	13.3	3 600	2 400	4 300	**6318**	**ZZ**	**VV**	2RS
	190	43	3.0	150 000	107 000	13.3	4 000	2 400	4 800	**6318***	**ZZ**	**VV**	2RS

Notes

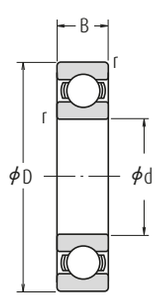
(1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.
(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.
(4) Not conformed to ISO15.

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	1.70	1.3	97.9	0.4	0.5	104.4	1.12	84	84.5	96	0.6	106	2.5	0.151
N	**NR**	2.50	1.3	107.60	0.4	0.5	115.7	1.12	85	87.5	105	1	117	3.3	0.391
—	—	—	—	—	—	—	—	—	84	—	121	0.6	—	—	0.621
N	**NR**	2.87	3.1	120.22	0.6	0.5	134.7	2.82	86.5	91	118.5	1	136.5	5.3	0.872
N	**NR**	2.87	3.1	120.22	0.6	0.5	134.7	2.82	86.5	91	118.5	1	136.5	5.3	0.872
N	**NR**	4.90	3.1	135.23	0.6	0.5	149.7	2.82	89	95.5	131	2	152	7.3	1.42
N	**NR**	4.90	3.1	135.23	0.6	0.5	149.7	2.82	89	95.5	131	2	152	7.3	1.42
N	**NR**	5.69	3.5	163.65	0.6	0.5	182.9	3.10	91	104.5	159	2	185	8.4	3.67
N	**NR**	5.69	3.5	163.65	0.6	0.5	182.9	3.10	91	104.5	159	2	185	8.4	3.67
N	**NR**	2.10	1.3	107.60	0.4	0.5	115.7	1.12	90	90.5	105	1	117	2.9	0.263
N	**NR**	3.30	1.3	117.60	0.4	0.5	125.7	1.12	91.5	94.5	113.5	1	127	4.1	0.55
—	—	—	—	—	—	—	—	—	89	—	126	0.6	—	—	0.652
N	**NR**	2.87	3.1	125.22	0.6	0.5	139.7	2.82	91.5	96	123.5	1	141.5	5.3	0.918
N	**NR**	2.87	3.1	125.22	0.6	0.5	139.7	2.82	91.5	96	123.5	1	141.5	5.3	0.918
N	**NR**	4.90	3.1	145.24	0.6	0.5	159.7	2.82	94	102	141	2	162	7.3	1.76
N	**NR**	4.90	3.1	145.24	0.6	0.5	159.7	2.82	94	102	141	2	162	7.3	1.76
N	**NR**	5.69	3.5	173.66	0.6	0.5	192.9	3.10	98	110.5	167	2.5	195	8.4	4.28
N	**NR**	5.69	3.5	173.66	0.6	0.5	192.9	3.10	98	110.5	167	2.5	195	8.4	4.28
N	**NR**	2.10	1.3	112.60	0.4	0.5	120.7	1.12	95	95.5	110	1	122	2.9	0.276
N	**NR**	3.30	1.3	122.60	0.4	0.5	130.7	1.12	96.5	98.5	118.5	1	132	4.1	0.585
—	—	—	—	—	—	—	—	—	95	—	135	1	—	—	0.873
N	**NR**	3.71	3.1	135.23	0.6	0.5	149.7	2.82	98	103	132	1.5	152	6.1	1.19
N	**NR**	3.71	3.1	135.23	0.6	0.5	149.7	2.82	98	103	132	1.5	152	6.1	1.19
N	**NR**	4.90	3.1	155.22	0.6	0.5	169.7	2.82	99	107.5	151	2	172	7.3	2.18
N	**NR**	4.90	3.1	155.22	0.6	0.5	169.7	2.82	99	107.5	151	2	172	7.3	2.18
N	**NR**	5.69	3.5	183.64	0.6	0.5	202.9	3.10	103	117	177	2.5	205	8.4	4.98
N	**NR**	5.69	3.5	183.64	0.6	0.5	202.9	3.10	103	117	177	2.5	205	8.4	4.98

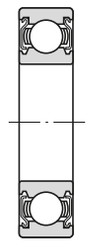
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

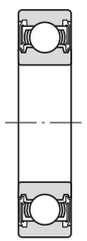
Bore Diameter 95 – 105 mm



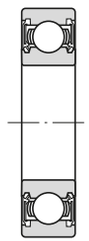
Open Type



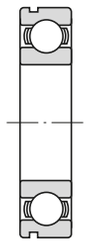
Shielded Type
ZZ · ZZS



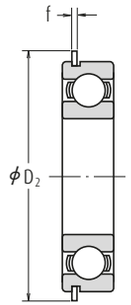
Non-Contact
Sealed Type
VV



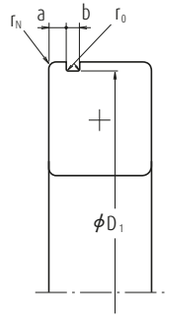
Contact
Sealed Type
2RSR · 2RS

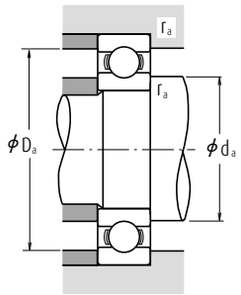


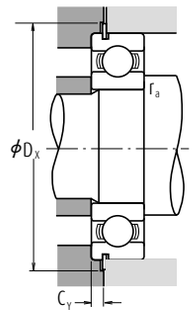
With Snap
Ring Groove
N



With
Snap Ring
NR







Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
95	120	13	1	19 300	22 000	17.2	5 000	2 800	6 000	**6819**	**ZZ**	**VV**	2RSR
	130	18	1.1	33 500	33 500	16.6	4 800	2 800	5 600	**6919**	**ZZ**	**VV**	2RS
	145	16	1	43 000	42 000	16.4	4 500	–	5 300	**16019**	–	–	–
	145	24	1.5	60 500	54 000	15.8	4 500	2 600	5 300	**6019**	**ZZ**	**VV**	2RS
	145	24	1.5	63 500	54 000	15.8	5 300	2 600	6 000	**6019***	**ZZ**	**VV**	2RS
	170	32	2.1	109 000	82 000	14.4	3 800	2 600	4 500	**6219**	**ZZ**	**VV**	2RS
	170	32	2.1	114 000	82 000	14.4	4 300	2 600	5 000	**6219***	**ZZ**	**VV**	2RS
	200	45	3	153 000	119 000	13.3	3 000	2 400	3 600	**6319**	**ZZ**	**VV**	2RS
	200	45	3.0	160 000	119 000	13.3	3 400	2 400	4 300	**6319***	**ZZ**	**VV**	2RS
100	125	13	1	19 600	23 000	17.3	4 800	2 800	5 600	**6820**	**ZZ**	**VV**	2RSR
	140	20	1.1	43 000	42 000	16.4	4 500	2 600	5 300	**6920**	**ZZ**	**VV**	2RS
	150	16	1	42 500	42 000	16.5	4 300	–	5 300	**16020**	–	–	–
	150	24	1.5	60 000	54 000	15.9	4 300	2 600	5 300	**6020**	**ZZ**	**VV**	2RS
	150	24	1.5	63 000	54 000	15.9	5 000	2 600	6 000	**6020***	**ZZ**	**VV**	2RS
	180	34	2.1	122 000	93 000	14.4	3 600	2 400	4 300	**6220**	**ZZ**	**VV**	2RS
	180	34	2.1	128 000	93 000	14.4	4 000	2 400	4 800	**6220***	**ZZ**	**VV**	2RS
	215	47	3	173 000	141 000	13.2	2 800	2 200	3 400	**6320**	**ZZ**	**VV**	2RS
105	130	13	1	19 800	23 900	17.4	4 800	2 600	5 600	**6821**	**ZZ**	**VV**	2RS
	145	20	1.1	42 500	42 000	16.5	4 300	–	5 300	**6921**	**ZZ**	**VV**	–
	160	18	1	52 000	50 500	16.3	4 000	–	4 800	**16021**	–	–	–
	160	26	2	72 500	66 000	15.8	4 000	2 400	4 800	**6021**	**ZZ**	**VV**	2RS
	160	26	2.0	76 000	66 000	15.8	4 500	2 400	5 600	**6021***	**ZZ**	**VV**	2RS
	190	36	2.1	133 000	105 000	14.4	3 400	2 200	4 000	**6221**	**ZZ**	**VV**	2RS
	190	36	2.1	140 000	105 000	14.4	3 800	2 200	4 500	**6221***	**ZZ**	**VV**	2RS
	225	49	3	184 000	154 000	13.2	2 600	2 000	3 200	**6321**	**ZZ**	–	2RS

Notes

(1) For tolerances for the snap ring grooves and snap ring dimensions, .

(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.

(3) Ring types N and NR applicable only to open-type bearings. Please consult OID about the snap ring groove dimensions of sealed or shielded bearings.

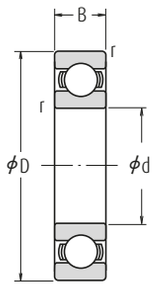
(4) Not conformed to ISO15.

With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	2.10	1.3	117.60	0.4	0.5	125.7	1.12	100	101.5	115	1	127	2.9	0.297
N	**NR**	3.30	1.3	127.60	0.4	0.5	135.7	1.12	101.5	103.5	123.5	1	137	4.1	0.601
–	–	–	–	–	–	–	–	–	100	–	140	1	–	–	0.904
N	**NR**	3.71	3.1	140.23	0.6	0.5	154.7	2.82	103	108.5	137	1.5	157	6.1	1.23
N	**NR**	3.71	3.1	140.23	0.6	0.5	154.7	2.82	103	108.5	137	1.5	157	6.1	1.23
N	**NR**	5.69	3.5	163.65	0.6	0.5	182.9	3.10	106	114	159	2	185	8.4	2.64
N	**NR**	5.69	3.5	163.65	0.6	0.5	182.9	3.10	106	114	159	2	185	8.4	2.64
N	**NR**	5.69	3.5	193.65	0.6	0.5	212.9	3.10	108	123.5	187	2.5	215	8.4	5.76
N	**NR**	5.69	3.5	193.65	0.6	0.5	212.9	3.10	108	123.5	187	2.5	215	8.4	5.76
N	**NR**	2.10	1.3	122.60	0.4	0.5	130.7	1.12	105	105.5	120	1	132	2.9	0.31
N	**NR**	3.30	1.9	137.60	0.6	0.5	145.7	1.70	106.5	111	133.5	1	147	4.7	0.828
–	–	–	–	–	–	–	–	–	105	–	145	1	–	–	0.945
N	**NR**	3.71	3.1	145.24	0.6	0.5	159.7	2.82	108	112.5	142	1.5	162	6.1	1.29
N	**NR**	3.71	3.1	145.24	0.6	0.5	159.7	2.82	108	112.5	142	1.5	162	6.1	1.29
N	**NR**	5.69	3.5	173.66	0.6	0.5	192.9	3.10	111	121.5	169	2	195	8.4	3.17
N	**NR**	5.69	3.5	173.66	0.6	0.5	192.9	3.10	111	121.5	169	2	195	8.4	3.17
–	–	–	–	–	–	–	–	–	113	133	202	2.5	–	–	7.04
N	**NR**	2.10	1.3	127.60	0.4	0.5	135.7	1.12	110	110.5	125	1	137	2.9	0.324
N	**NR**	3.30	1.9	142.60	0.6	0.5	150.7	1.70	111.5	116	138.5	1	152	4.7	0.856
–	–	–	–	–	–	–	–	–	110	–	155	1	–	–	1.24
N	**NR**	3.71	3.1	155.22	0.6	0.5	169.7	2.82	114	120	151	2	172	6.1	1.58
N	**NR**	3.71	3.1	155.22	0.6	0.5	169.7	2.82	114	120	151	2	172	6.1	1.58
N	**NR**	5.69	3.5	183.64	0.6	0.5	202.9	3.10	116	127.5	179	2	205	8.4	3.79
N	**NR**	5.69	3.5	183.64	0.6	0.5	202.9	3.10	116	127.5	179	2	205	8.4	3.79
–	–	–	–	–	–	–	–	–	118	138	212	2.5	–	–	8.09

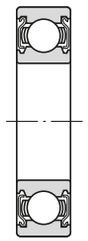
Remarks

1. Diameter Series 7 (extra thin section bearings) are also available, please contact OID.
2. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

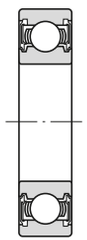
Bore Diameter 110 – 150 mm



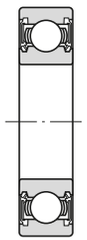
Open Type



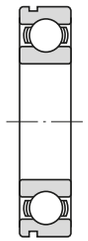
Shielded Type
ZZ · ZZS



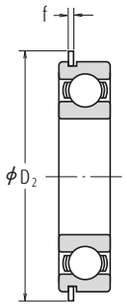
Non-Contact
Sealed Type
VV



Contact
Sealed Type
2RSR · 2RS



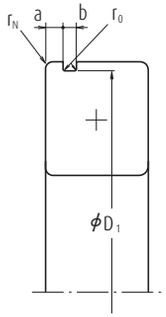
With Snap
Ring Groove
N

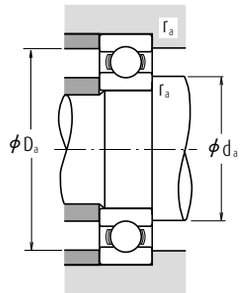


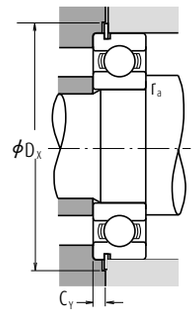
With
Snap Ring
NR

Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
110	140	16	1	28 100	32 500	17.1	4 300	2 400	5 300	**6822**	**ZZ**	**VV**	2RS
	150	20	1.1	43 500	44 500	16.6	4 300	2 400	5 000	**6922**	**ZZ**	**VV**	2RS
	170	19	1	57 500	56 500	16.3	3 800	–	4 500	**16022**	–	–	–
	170	28	2	85 000	73 000	15.5	3 800	2 200	4 500	**6022**	**ZZ**	**VV**	2RS
	170	28	2.0	89 000	73 000	15.5	4 500	2 200	5 300	**6022***	**ZZ**	**VV**	2RS
	200	38	2.1	144 000	117 000	14.3	2 800	2 200	3 400	**6222**	**ZZ**	**VV**	2RS
	240	50	3	205 000	179 000	13.2	2 400	–	3 000	**6322**	**ZZ**	–	–
120	150	16	1	28 900	35 500	17.3	4 000	2 200	4 800	**6824**	**ZZ**	**VV**	2RSR
	165	22	1.1	53 000	54 000	16.5	3 800	–	4 500	**6924**	**ZZ**	–	–
	180	19	1	56 500	57 500	16.5	3 600	–	4 300	**16024**	–	–	–
	180	28	2	88 000	80 000	15.7	3 600	2 200	4 300	**6024**	**ZZ**	**VV**	2RS
	180	28	2.0	92 500	80 000	15.7	4 000	2 200	4 800	**6024***	**ZZ**	**VV**	2RS
	215	40	2.1	155 000	131 000	14.4	2 600	2 000	3 200	**6224**	**ZZ**	**VV**	2RS
	260	55	3	207 000	185 000	13.5	2 200	1 800	2 800	**6324**	**ZZS**	–	2RS
130	165	18	1.1	37 000	44 000	17.1	3 600	2 000	4 300	**6826**	**ZZS**	**VV**	2RSR
	180	24	1.5	65 000	67 500	16.5	3 400	–	4 000	**6926**	**ZZ**	–	–
	200	22	1.1	75 500	77 500	16.4	3 000	–	3 600	**16026**	–	–	–
	200	33	2	106 000	101 000	15.8	3 000	1 900	3 600	**6026**	**ZZ**	–	2RS
	230	40	3	167 000	146 000	14.5	2 400	–	3 000	**6226**	**ZZ**	–	–
	280	58	4	229 000	214 000	13.6	2 200	–	2 600	**6326**	**ZZS**	–	–
140	175	18	1.1	38 500	48 000	17.3	3 400	1 900	4 000	**6828**	**ZZ**	**VV**	2RS
	190	24	1.5	66 500	72 000	16.6	3 200	–	3 800	**6928**	**ZZS**	**VV**	–
	210	22	1.1	77 500	82 500	16.5	2 800	–	3 400	**16028**	–	–	–
	210	33	2	110 000	109 000	16.0	2 800	1 800	3 400	**6028**	**ZZ**	–	2RS
	250	42	3	166 000	150 000	14.9	2 200	1 700	2 800	**6228**	**ZZS**	–	2RS
	300	62	4	253 000	246 000	13.6	2 000	–	2 400	**6328**	**ZZS**	–	–
150	190	20	1.1	47 500	58 500	17.1	3 200	1 800	3 800	**6830**	**ZZ**	**VV**	2RS
	210	28	2	85 000	90 500	16.5	2 600	1 700	3 200	**6930**	**ZZS**	–	2RS
	225	24	1.1	84 000	91 000	16.6	2 600	–	3 000	**16030**	–	–	–
	225	35	2.1	126 000	126 000	15.9	2 600	1 700	3 000	**6030**	**ZZ**	**VV**	2RS
	270	45	3	176 000	168 000	15.1	2 000	–	2 600	**6230**	**ZZS**	–	–
	320	65	4	274 000	284 000	13.9	1 800	–	2 200	**6330**	**ZZS**	–	–

Notes (1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.



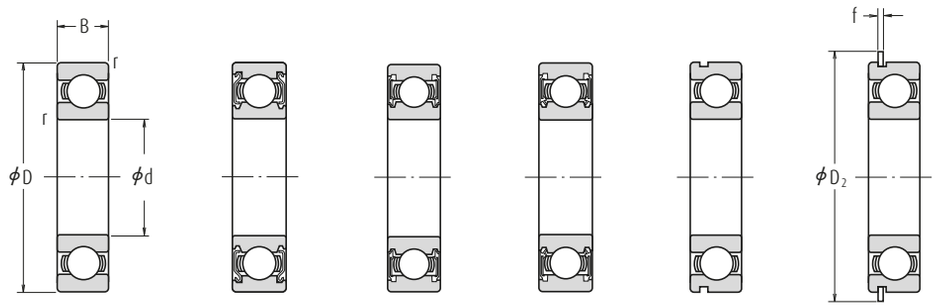




With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_y max.	approx.
N	**NR**	2.50	1.9	137.60	0.6	0.5	145.7	1.7	115	117	135	1	147	3.9	0.497
N	**NR**	3.30	1.9	147.60	0.6	0.5	155.7	1.7	116.5	121	143.5	1	157	4.7	0.893
–	–	–	–	–	–	–	–	–	115	–	165	1	–	–	1.51
N	**NR**	3.71	3.5	163.65	0.6	0.5	182.9	3.1	119	124.5	161	2	185	6.4	1.94
N	**NR**	3.71	3.5	163.65	0.6	0.5	182.9	3.1	119	124.5	161	2	185	6.4	1.94
N	**NR**	5.69	3.5	193.65	0.6	0.5	212.9	3.1	121	134	189	2	215	8.4	4.45
–	–	–	–	–	–	–	–	–	123	147	227	2.5	–	–	9.51
N	**NR**	2.50	1.9	147.60	0.6	0.5	155.7	1.7	125	127	145	1	157	3.9	0.537
N	**NR**	3.70	1.9	161.80	0.6	0.5	171.5	1.7	126.5	132	158.5	1	173	5.1	1.21
–	–	–	–	–	–	–	–	–	125	–	175	1	–	–	1.6
N	**NR**	3.71	3.5	173.66	0.6	0.5	192.9	3.1	129	134.5	171	2	195	6.4	2.08
N	**NR**	3.71	3.5	173.66	0.6	0.5	192.9	3.1	129	134.5	171	2	195	6.4	2.08
–	–	–	–	–	–	–	–	–	131	146	204	2	–	–	5.29
–	–	–	–	–	–	–	–	–	133	161	247	2.5	–	–	12.5
N	**NR**	3.30	1.9	161.80	0.6	0.5	171.5	1.7	136.5	138	158.5	1	173	4.7	0.758
N	**NR**	3.70	1.9	176.80	0.6	0.5	186.5	1.7	138	144	172	1.5	188	5.1	1.57
–	–	–	–	–	–	–	–	–	136.5	–	193.5	1	–	–	2.4
N	**NR**	5.69	3.5	193.65	0.6	0.5	212.9	3.1	139	148.5	191	2	215	8.4	3.26
–	–	–	–	–	–	–	–	–	143	157	217	2.5	–	–	5.96
–	–	–	–	–	–	–	–	–	146	175	264	3	–	–	15.2
N	**NR**	3.30	1.9	171.80	0.6	0.5	181.5	1.7	146.5	148.5	168.5	1	183	4.7	0.832
N	**NR**	3.70	1.9	186.80	0.6	0.5	196.5	1.7	148	153.5	182	1.5	198	5.1	1.67
–	–	–	–	–	–	–	–	–	146.5	–	203.5	1	–	–	2.84
–	–	–	–	–	–	–	–	–	149	158.5	201	2	–	–	3.48
–	–	–	–	–	–	–	–	–	153	171.5	237	2.5	–	–	7.68
–	–	–	–	–	–	–	–	–	156	187	284	3	–	–	18.5
N	**NR**	3.30	1.9	186.80	0.6	0.5	196.5	1.7	156.5	160	183.5	1	198	4.7	1.15
–	–	–	–	–	–	–	–	–	159	166	201	2	–	–	3.01
–	–	–	–	–	–	–	–	–	156.5	–	218.5	1	–	–	3.62
–	–	–	–	–	–	–	–	–	161	170	214	2	–	–	4.24
–	–	–	–	–	–	–	–	–	163	186	257	2.5	–	–	10
–	–	–	–	–	–	–	–	–	166	203	304	3	–	–	22.7

Remarks
1. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
2. Please consult OID about the snap ring groove dimensions of sealed and shielded bearings when the diameter of dimension series 18 and 19 is 50 mm or more.
3. The bearings denoted by an asterisk(*) are OIDHPS Deep groove ball bearings.

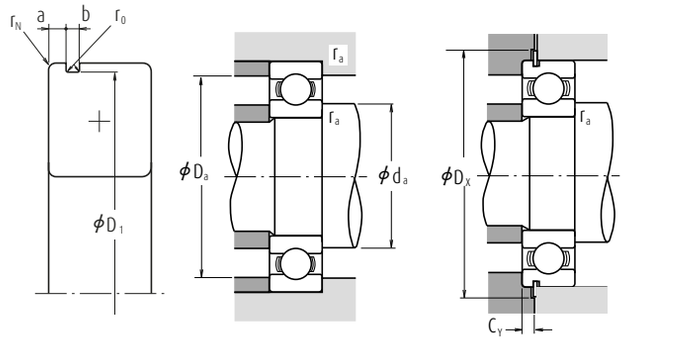
Bore Diameter 160 mm



Open Type | Shielded Type ZZ · ZZS | Non-Contact Sealed Type VV | Contact Sealed Type 2RSR · 2RS | With Snap Ring Groove N | With Snap Ring NR

Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min⁻¹)			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{or}	f_o	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
160	200	20	1.1	48 500	61 000	17.2	2 600	1 700	3 200	**6832**	**ZZS**	**VV**	2RS
	220	28	2	87 000	96 000	16.6	2 600	1 600	3 000	**6932**	**ZZS**	—	2RS
	240	25	1.5	99 000	108 000	16.5	2 400	—	2 800	**16032**	—	—	—
	240	38	2.1	137 000	135 000	15.9	2 400	1 600	2 800	**6032**	**ZZ**	—	2RS
	290	48	3	185 000	186 000	15.4	1 900	—	2 400	**6232**	**ZZS**	—	—
	340	68	4	278 000	287 000	13.9	1 700	—	2 000	**6332**	**ZZS**	—	—

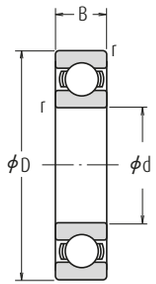
Notes (1) For tolerances for the snap ring grooves and snap ring dimensions, .
(2) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.



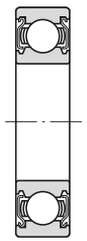
With Snap Ring Groove	With Snap Ring	Snap Ring Groove Dimensions (1) (mm)					Snap Ring (1) Dimensions (mm)		Abutment and Fillet Dimensions (mm)						Mass (kg)
		a max.	b min.	D_1 max.	r_o max.	r_N min.	D_2 max.	f max.	d_a(2) min.	d_a(2) max.	D_a(2) max.	r_a max.	D_x min.	C_Y max.	approx.
N	**NR**	3.30	1.9	196.80	0.6	0.5	206.5	1.7	166.5	170.5	193.5	1	208	4.7	1.23
—	—	—	—	—	—	—	—	—	169	176	211	2	—	—	2.71
—	—	—	—	—	—	—	—	—	168	—	232	1.5	—	—	4.2
—	—	—	—	—	—	—	—	—	171	181.5	229	2	—	—	5.15
—	—	—	—	—	—	—	—	—	173	202	277	2.5	—	—	12.8
—	—	—	—	—	—	—	—	—	176	215.5	324	3	—	—	26.2

Remarks
1. When using bearings with rotating outer rings, contact OID if they are sealed, shielded, or have snap rings.
2. Please consult OID about the snap ring groove dimensions of sealed and shielded bearings when the diameter of dimension series 18 and 19 is 50 mm or more.

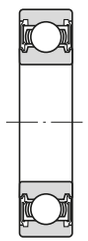
Bore Diameter 170 – 240 mm



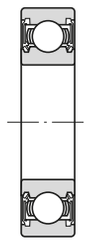
Open Type



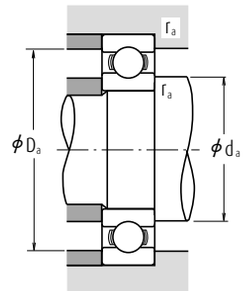
Shielded Type
ZZS



Non-Contact
Sealed Type
VV



Contact
Sealed Type
2RS



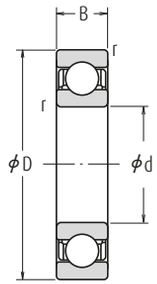
Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min^{-1})			Bearing Numbers			
							Grease		Oil				
d	D	B	r min.	C_r	C_{0r}	f_0	Open Z · ZZ V · VV	RS 2RS	Open Z	Open	Shielded	Sealed	
170	215	22	1.1	60 000	75 000	17.1	2 600	1 600	3 000	**6834**	**ZZS**	**VV**	2RS
	230	28	2	86 000	97 000	16.7	2 400	–	2 800	**6934**	**ZZS**	–	–
	260	28	1.5	114 000	126 000	16.5	2 200	–	2 600	**16034**	–	–	–
	260	42	2.1	161 000	161 000	15.8	2 200	–	2 600	**6034**	**ZZS**	**VV**	–
	310	52	4	212 000	224 000	15.3	1 800	–	2 200	**6234**	**ZZS**	–	–
	360	72	4	325 000	355 000	13.6	1 600	–	2 000	**6334**	–	–	–
180	225	22	1.1	60 500	78 500	17.2	2 400	–	2 800	**6836**	–	**VV**	–
	250	33	2	119 000	128 000	16.4	2 200	–	2 600	**6936**	**ZZS**	–	–
	280	31	2	145 000	157 000	16.3	2 000	–	2 400	**16036**	–	–	–
	280	46	2.1	180 000	185 000	15.6	2 000	–	2 400	**6036**	**ZZS**	**VV**	–
	320	52	4	227 000	241 000	15.1	1 700	–	2 000	**6236**	**ZZS**	–	–
	380	75	4	355 000	405 000	13.9	1 500	–	1 800	**6336**	–	–	–
190	240	24	1.5	73 000	93 500	17.1	2 200	–	2 600	**6838**	–	**VV**	–
	260	33	2	113 000	127 000	16.6	2 200	–	2 600	**6938**	–	–	–
	290	31	2	149 000	168 000	16.4	2 000	–	2 400	**16038**	–	–	–
	290	46	2.1	188 000	201 000	15.8	2 000	–	2 400	**6038**	**ZZS**	–	–
	340	55	4	255 000	282 000	15.0	1 600	–	2 000	**6238**	**ZZS**	–	–
	400	78	5	355 000	415 000	14.1	1 400	–	1 700	**6338**	–	–	–
200	250	24	1.5	74 000	98 000	17.2	2 200	–	2 600	**6840**	–	–	–
	280	38	2.1	143 000	158 000	16.4	2 000	–	2 400	**6940**	**ZZS**	–	–
	310	34	2	161 000	180 000	16.4	1 900	–	2 200	**16040**	–	–	–
	310	51	2.1	207 000	226 000	15.6	1 900	–	2 200	**6040**	**ZZS**	–	–
	360	58	4	269 000	310 000	15.2	1 500	–	1 800	**6240**	**ZZS**	–	–
	420	80	5	380 000	445 000	13.8	1 300	–	1 600	**6340**	–	–	–
220	270	24	1.5	76 500	107 000	17.4	1 900	–	2 400	**6844**	**ZZS**	–	–
	300	38	2.1	146 000	169 000	16.6	1 800	–	2 200	**6944**	**ZZS**	–	–
	340	37	2.1	180 000	217 000	16.5	1 600	–	2 000	**16044**	–	–	–
	340	56	3	235 000	271 000	15.6	1 700	–	2 000	**6044**	**ZZS**	–	–
	400	65	4	310 000	375 000	15.1	1 300	–	1 600	**6244**	–	–	–
	460	88	5	410 000	520 000	14.3	1 200	–	1 500	**6344**	–	–	–
240	300	28	2	98 500	137 000	17.3	1 700	–	2 000	**6848**	–	–	–
	320	38	2.1	154 000	190 000	16.8	1 700	–	2 000	**6948**	**ZZS**	–	–
	360	37	2.1	196 000	243 000	16.5	1 500	–	1 900	**16048**	–	–	–
	360	56	3	244 000	296 000	15.9	1 500	–	1 900	**6048**	–	–	–
	440	72	4	340 000	430 000	15.2	1 200	–	1 500	**6248**	–	–	–
	500	95	5	470 000	625 000	14.2	1 100	–	1 300	**6348**	–	–	–

Abutment and Fillet Dimensions (mm)				Mass (kg)
d_a(1) min.	d_a(1) max.	D_a(1) max.	r_a max.	approx.
176.5	182.0	208.5	1	1.86
179	186.0	221	2	3.34
178	–	252	1.5	5.71
181	194.5	249	2	6.89
186	215.0	294	3	15.8
186	–	344	3	36.6
186.5	192.0	218.5	1	1.98
189	198.5	241	2	4.16
189	–	271	2	7.5
191	208.0	269	2	8.88
196	223.0	304	3	15.9
196	–	364	3	43.1
198	202.5	232	1.5	2.53
199	–	251	2	5.18
199	–	281	2	7.78
201	218.0	279	2	9.39
206	236.0	324	3	22.3
210	–	380	4	49.7
208	–	242	1.5	2.67
211	222.0	269	2	7.28
209	–	301	2	10
211	231.5	299	2	12
216	252.0	344	3	26.7
220	–	400	4	55.3
228	233.5	262	1.5	2.9
231	242.0	289	2	7.88
231	–	329	2	13.1
233	254.5	327	2.5	18.6
236	–	384	3	37.4
240	–	440	4	73.9
249	–	291	2	4.48
251	262.0	309	2	8.49
251	–	349	2	13.9
253	–	347	2.5	19.9
256	–	424	3	50.5
260	–	480	4	94.4

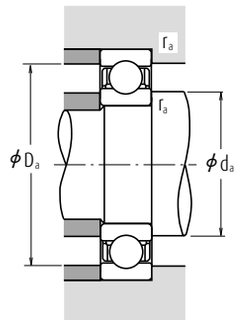
Note (1) When heavy axial loads are applied, increase d_a and decrease D_a from the above values.

Remark When using bearings with rotating outer rings, contact OID if they are sealed or shielded.

Bore Diameter 260 – 360 mm



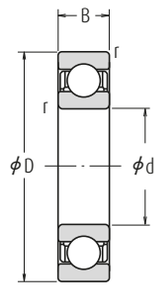
Open Type



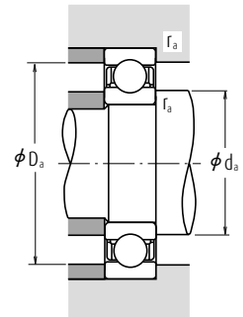
Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min^{-1})		Bearing Numbers	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	C_r	C_{0r}	f_0	Grease	Oil	Open	d_a(1) min.	D_a(1) max.	r_a max.	approx.
260	320	28	2	101 000	148 000	17.4	1 600	1 900	**6852**	269	311	2	4.84
	360	46	2.1	204 000	255 000	16.5	1 500	1 800	**6952**	271	349	2	14
	400	44	3	237 000	310 000	16.4	1 400	1 700	**16052**	273	387	2.5	21.1
	400	65	4	291 000	375 000	15.8	1 400	1 700	**6052**	276	384	3	29.4
	480	80	5	400 000	540 000	15.1	1 100	1 300	**6252**	280	460	4	67
	540	102	6	505 000	710 000	14.6	1 000	1 200	**6352**	286	514	5	118
280	350	33	2	133 000	191 000	17.3	1 500	1 700	**6856**	289	341	2	7.2
	380	46	2.1	209 000	272 000	16.6	1 400	1 700	**6956**	291	369	2	15.1
	420	44	3	243 000	330 000	16.5	1 300	1 600	**16056**	293	407	2.5	22.7
	420	65	4	300 000	410 000	16.0	1 300	1 600	**6056**	296	404	3	31.2
	500	80	5	400 000	550 000	15.2	1 000	1 300	**6256**	300	480	4	70.4
	580	108	6	570 000	840 000	14.5	900	1 100	**6356**	306	554	5	144
300	380	38	2.1	166 000	233 000	17.1	1 300	1 600	**6860**	311	369	2	10.3
	420	56	3	269 000	370 000	16.4	1 300	1 500	**6960**	313	407	2.5	23.9
	460	50	4	285 000	405 000	16.4	1 200	1 400	**16060**	316	444	3	31.5
	460	74	4	355 000	500 000	15.8	1 200	1 400	**6060**	316	444	3	44.2
	540	85	5	465 000	670 000	15.1	950	1 200	**6260**	320	520	4	87.8
320	400	38	2.1	168 000	244 000	17.2	1 300	1 500	**6864**	331	389	2	10.8
	440	56	3	266 000	375 000	16.5	1 200	1 400	**6964**	333	427	2.5	25.3
	480	50	4	293 000	430 000	16.5	1 100	1 300	**16064**	336	464	3	33.2
	480	74	4	390 000	570 000	15.7	1 100	1 300	**6064**	336	464	3	46.5
	580	92	5	530 000	805 000	15.0	850	1 100	**6264**	340	560	4	111
340	420	38	2.1	175 000	265 000	17.3	1 200	1 400	**6868**	351	409	2	11.5
	460	56	3	273 000	400 000	16.6	1 100	1 300	**6968**	353	447	2.5	26.6
	520	82	5	440 000	660 000	15.6	1 000	1 200	**6068**	360	500	4	62.3
	620	92	6	530 000	820 000	15.3	800	1 000	**6268**	366	594	5	129
360	440	38	2.1	192 000	290 000	17.3	1 100	1 300	**6872**	371	429	2	11.8
	480	56	3	280 000	425 000	16.7	1 100	1 300	**6972**	373	467	2.5	27.9
	540	82	5	460 000	720 000	15.7	950	1 200	**6072**	380	520	4	65.3
	650	95	6	555 000	905 000	15.4	750	950	**6272**	386	624	5	145

Note (1) When heavy axial loads are applied. increase d_a and decrease D_a from the above values.

Bore Diameter 380 – 600 mm



Open Type

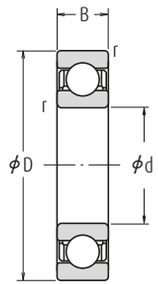


Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min^{-1})		Bearing Numbers
d	D	B	r min.	C_r	C_{0r}	f_0	Grease	Oil	Open
380	480	46	2.1	238 000	375 000	17.1	1 000	1 200	**6876**
	520	65	4	325 000	510 000	16.6	950	1 200	**6976**
	560	82	5	455 000	725 000	15.9	900	1 100	**6076**
400	500	46	2.1	241 000	390 000	17.2	950	1 200	**6880**
	540	65	4	335 000	540 000	16.7	900	1 100	**6980**
	600	90	5	510 000	825 000	15.7	850	1 000	**6080**
420	520	46	2.1	245 000	410 000	17.3	900	1 100	**6884**
	560	65	4	340 000	570 000	16.8	900	1 100	**6984**
	620	90	5	530 000	895 000	15.8	800	1 000	**6084**
440	540	46	2.1	248 000	425 000	17.4	900	1 100	**6888**
	600	74	4	395 000	680 000	16.6	800	1 000	**6988**
	650	94	6	550 000	965 000	16.0	750	900	**6088**
460	580	56	3	310 000	550 000	17.1	800	1 000	**6892**
	620	74	4	405 000	720 000	16.7	800	950	**6992**
	680	100	6	605 000	1 080 000	15.8	710	850	**6092**
480	600	56	3	315 000	575 000	17.2	800	950	**6896**
	650	78	5	450 000	815 000	16.6	750	900	**6996**
	700	100	6	605 000	1 090 000	15.9	710	850	**6096**
500	620	56	3	320 000	600 000	17.3	750	900	**68/500**
	670	78	5	460 000	865 000	16.7	710	850	**69/500**
	720	100	6	630 000	1 170 000	16.0	670	800	**60/500**
530	650	56	3	325 000	625 000	17.4	710	850	**68/530**
	710	82	5	455 000	870 000	16.8	670	800	**69/530**
	780	112	6	680 000	1 300 000	16.0	600	750	**60/530**
560	680	56	3	330 000	650 000	17.4	670	800	**68/560**
	750	85	5	525 000	1 040 000	16.7	600	750	**69/560**
	820	115	6	735 000	1 500 000	16.2	560	670	**60/560**
600	730	60	3	355 000	735 000	17.5	600	710	**68/600**
	800	90	5	550 000	1 160 000	16.9	560	670	**69/600**
	870	118	6	790 000	1 640 000	16.1	530	630	**60/600**

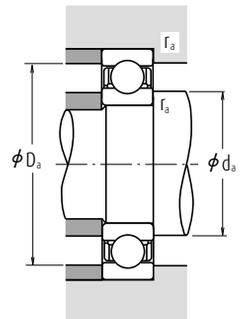
Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a (1) min.	D_a (1) max.	r_a max.	approx.
391	469	2	19.5
396	504	3	40
400	540	4	68
411	489	2	20.5
416	524	3	42
420	580	4	88.4
431	509	2	21.4
436	544	3	43.6
440	600	4	92.2
451	529	2	22.3
456	584	3	60.2
466	624	5	106
473	567	2.5	34.3
476	604	3	62.6
486	654	5	123
493	587	2.5	35.4
500	630	4	73.5
506	674	5	127
513	607	2.5	37.2
520	650	4	82
526	694	5	131
543	637	2.5	39.8
550	690	4	89.8
556	754	5	184
573	667	2.5	41.5
580	730	4	105
586	793.5	5	203
613	717	2.5	50.9
620	780	4	120
626	844	5	236

Note (1) When heavy axial loads are applied. increase d_a and decrease D_a from the above values.

Bore Diameter 630 – 800 mm



Open Type



Boundary Dimensions (mm)				Basic Load Ratings (N)		Factor	Limiting Speeds (min^{-1})		Bearing Numbers
d	D	B	r min.	C_r	C_{0r}	f_0	Grease	Oil	Open
630	780	69	4	420 000	890 000	17.3	560	670	**68/630**
	850	100	6	625 000	1 350 000	16.7	530	630	**69/630**
	920	128	7.5	750 000	1 620 000	16.4	480	600	**60/630**
670	820	69	4	435 000	965 000	17.4	500	630	**68/670**
	900	103	6	675 000	1 460 000	16.7	480	560	**69/670**
	980	136	7.5	765 000	1 730 000	16.6	450	530	**60/670**
710	870	74	4	480 000	1 100 000	17.4	480	560	**68/710**
	950	106	6	715 000	1 640 000	16.8	450	530	**69/710**
750	920	78	5	525 000	1 260 000	17.4	430	530	**68/750**
	1 000	112	6	785 000	1 840 000	16.7	400	500	**69/750**
800	980	82	5	530 000	1 310 000	17.5	400	480	**68/800**
	1 060	115	6	825 000	2 050 000	16.8	380	450	**69/800**

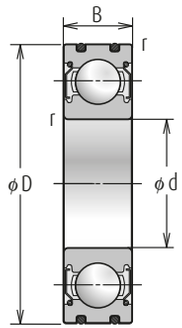
Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a(1) min.	D_a(1) max.	r_a max.	approx.
646	764	3	71.3
656	824	5	163
662	888	6	285
686	804	3	75.4
696	874	5	181
702	948	6	351
726	854	3	92.6
736	924	5	208
770	900	4	110
776	974	5	245
820	960	4	132
826	1034	5	275

Note (1) When heavy axial loads are applied. increase d_a and decrease D_a from the above values.

Bore Diameter 10 – 100 mm

Bearing bore diameter d (mm)	Bearing outer diameter D (mm)	Bearing width B (mm)	Basic load ratings		Recommended fits (1)
			C_r(N)	C_{0r}(N)	
10	26	8	4 550	1 970	H7 or G6
	30	9	5 100	2 390	
	35	11	8 100	3 450	
12	28	8	5 100	2 370	
	32	10	6 800	3 050	
	37	12	9 700	4 200	
15	32	9	5 600	2 830	
	35	11	7 650	3 750	
	42	13	11 400	5 450	
17	35	10	6 000	3 250	
	40	12	9 550	4 800	
	47	14	13 600	6 650	
20	42	12	9 400	5 000	
	47	14	12 800	6 600	
	52	15	15 900	7 900	
25	47	12	10 100	5 850	
	52	15	14 000	7 850	
	62	17	20 600	11 200	
30	55	13	13 200	8 300	
	62	16	19 500	11 300	
	72	19	26 700	15 000	
35	62	14	16 000	10 300	
	72	17	25 700	15 300	
	80	21	33 500	19 200	
40	68	15	16 800	11 500	
	80	18	29 100	17 900	
	90	23	40 500	24 000	
45	75	16	20 900	15 200	
	85	19	31 500	20 400	
	100	25	53 000	32 000	
50	80	16	21 800	16 600	
	90	20	35 000	23 200	
	110	27	62 000	38 500	
55	90	18	28 300	21 200	
	100	21	43 500	29 300	
	120	29	71 500	44 500	
60	95	18	29 500	23 200	
	110	22	52 500	36 000	
	130	31	82 000	52 000	
65	100	18	30 500	25 200	
	120	23	57 500	40 000	
	140	33	92 500	60 000	
70	110	20	38 000	31 000	
	125	24	62 000	44 000	
	150	35	104 000	68 000	
75	115	20	39 500	33 500	
	130	25	66 000	49 500	
80	125	22	47 500	40 000	
	140	26	72 500	53 000	
85	130	22	49 500	43 000	
	150	28	84 000	62 000	
90	140	24	58 000	50 000	
95	145	24	60 500	54 000	
100	150	24	60 000	54 000	

Bearing number			
Basic number(Open type)	Shield type	Contact seal type (2)	Non-contact seal type
6000 6200 6300	ZZ	2RS	VV
6001 6201 6301	ZZ	2RS	VV
6002 6202 6302	ZZ	2RS	VV
6003 6203 6303	ZZ	2RS	VV
6004 6204 6304	ZZ	2RS	VV
6005 6205 6305	ZZ	2RS	VV
6006 6206 6306	ZZ	2RS	VV
6007 6207 6307	ZZ	2RS	VV
6008 6208 6308	ZZ	2RS	VV
6009 6209 6309	ZZ	2RS	VV
6010 6210 6310	ZZ	2RS	VV
6011 6211 6311	ZZ	2RS	VV
6012 6212 6312	ZZ	2RS	VV
6013 6213 6313	ZZ	2RS	VV
6014 6214 6314	ZZ	2RS	VV
6015 6215	ZZ	2RS	VV
6016 6216	ZZ	2RS	VV
6017 6217	ZZ	2RS	VV
6018	ZZ	2RS	VV
6019	ZZ	2RS	VV
6020	ZZ	2RS	VV



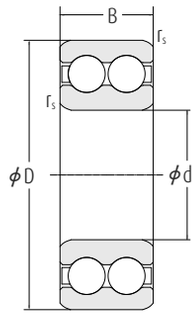
Notes

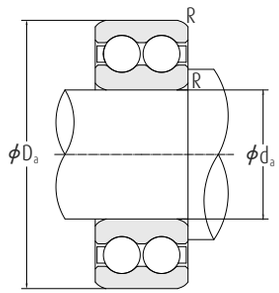
(1) Although recommended fits are H7 or G6. G6 is recommended when used under conditions that prioritize insertion under light preload.

(2) Low-contact seal available for seal type bearings. Contact OID for details.

Deep Groove Ball Bearings

Double Row | Bore 10 - 90 mm



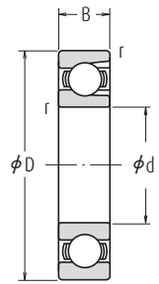


Dimensions				Abbreviation	Load ratings	
d	D	B	$_{2RSR}$ min		dyn. C	stat. C_o
	mm				kN	
10	30	14	0.6	4200BTNG	9.15	5.2
12	32	14	0.6	4201BTNG	9.30	5.5
15	35	14	0.6	4202BTNG	10.4	6.7
	42	17	1.0	4302BTNG	14.6	9.2
17	40	16	0.6	4203BTNG	14.6	9.5
	47	19	1.0	4303BTNG	19.6	13.2
20	47	18	1.0	4204BTNG	18.0	12.7
	52	21	1,1	4304BTNG	23.2	16.0
25	52	18	1.0	4205BTNG	19.3	14.6
	62	24	1.1	4305BTNG	31.5	22.4
30	62	20	1.0	4206BTNG	26.0	20.8
	72	27	1.1	4306BTNG	40.0	30.5
35	72	23	1.1	4207BTNG	32.0	26.0
	80	31	1.5	4307BTNG	51.0	38.0
40	80	23	1.1	4208BTNG	34.0	30.0
	90	33	1.5	4308BTNG	63.0	48.0
45	85	23	1.1	4209BTNG	36.0	33.5
	100	36	1.5	4309BTNG	72.0	60.0
50	90	23	1.1	4210BTNG	37.5	36.5
	110	40	2.0	4310BTNG	90.0	75.0
55	100	25	1.5	4211BTNG	43.0	43.0
	120	43	2.0	4311BTNG	104.0	90.0
60	110	28	1.5	4212BTNG	57.0	58.5
	130	46	2.1	4312BTNG	120.0	106.0
65	120	31	1.5	4213BTNG	67.0	67.0
	140	48	2.1	4313BTNG	129.0	98.0
70	125	31	1.5	4214BTNG	69.5	73.5
	150	51	2.1	4314BTNG	146.0	114.0
75	130	31	1.5	4215BTNG	73.5	80.0
	160	55	2.1	4315BTNG	170.0	134.0
80	140	33	2.0	4216BTNG	80.0	90.0
85	150	36	2.0	4217BTNG	93.0	106.0
90	160	40	2.0	4218BTNG	112.0	122.0

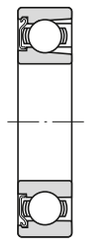
Speed limits		Abutment dimensions			Weight
Grease	Oil	d_a min	D_a max	R min	
min^{-1}					kg
18 000	24 000	14.0	26.0	0.6	0.049
16 000	20 000	16.0	28.0	0.6	0.053
14 000	18 000	19.0	31.0	0.6	0.059
13 000	17 000	20.0	37.0	1.0	0.120
13 000	18 000	21.0	36.0	1.0	0.090
11 000	17 000	22.0	42.0	1.0	0.160
10 000	14 000	25.0	42.0	1.0	0.140
9 500	13 000	26.5	45.5	1.0	0.210
9 000	12 000	30.0	47.0	1.0	0.160
8 000	10 000	31.5	55.5	1.0	0.340
7 500	9 500	35.0	57.0	1.0	0.260
6 700	8 500	36.5	65.5	1.0	0.500
6 700	8 500	41.5	65.5	1.0	0.400
6 300	8 000	43.0	72.0	1.5	0.690
6 000	7 500	46.5	73.5	1.0	0.500
5 600	7 000	48.0	82.0	1.5	0.950
5 600	7 000	51.5	78.5	1.0	0.540
4 800	6 000	53.0	92.0	1.5	1.250
5 000	6 300	56.5	83.5	1.0	0.580
4 300	5 300	59.0	101.0	2.0	1.700
4 500	5 600	63.0	92.0	1.5	0.800
4 000	5 000	64.0	111.0	2.0	2.150
4 000	5 000	68.0	102.0	1.5	1.100
3 600	4 500	71.0	119.0	2.0	2.650
3 800	4 800	73.0	112.0	1.5	1.450
3 600	4 500	76.0	129.0	2.0	3.250
3 600	4 500	78.0	117.0	1.5	1.500
3 200	4 000	81.0	139.0	2.0	3.950
3 400	4 300	83.0	122.0	1.5	1.600
3 000	3 800	86.0	149.0	2.0	5.380
3 200	4 000	89.0	131.0	2.0	2.000
3 000	3 800	94.0	141.0	2.0	2.550
2 800	3 600	99.0	151.0	2.0	3.200

Maximum Type Ball Bearings

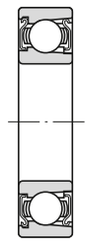
Bore Diameter 25 – 110 mm



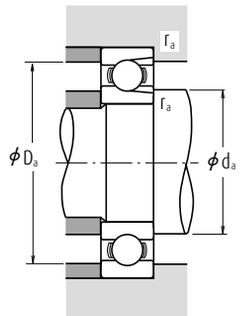
Open Type

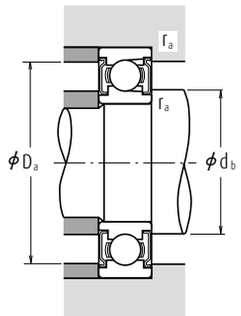


Shielded Type
(One Shield) Z



Shielded Type
(Two Shields) ZZ





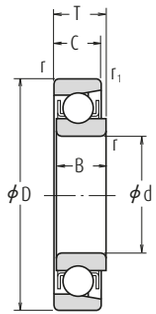
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min⁻¹) Grease	Limiting Speeds (min⁻¹) Oil	
d	D	B	r min.	C_r	C_{0r}	Open Z · ZZ	Open Z	Open
25	52	15	1	14 400	10 500	12 000	15 000	**BL 205**
	62	17	1.1	21 500	15 500	11 000	13 000	**BL 305**
30	62	16	1	21 000	16 300	10 000	12 000	**BL 206**
	72	19	1.1	27 900	20 700	9 000	11 000	**BL 306**
35	72	17	1.1	27 800	22 100	9 000	11 000	**BL 207**
	80	21	1.5	37 000	29 100	8 000	9 500	**BL 307**
40	80	18	1.1	35 500	28 800	8 000	9 500	**BL 208**
	90	23	1.5	46 500	36 000	7 500	9 000	**BL 308**
45	85	19	1.1	37 000	32 000	7 500	9 000	**BL 209**
	100	25	1.5	55 500	44 000	6 300	8 000	**BL 309**
50	90	20	1.1	39 000	35 000	6 700	8 500	**BL 210**
	110	27	2	65 000	52 500	6 000	7 100	**BL 310**
55	100	21	1.5	48 000	44 000	6 300	7 500	**BL 211**
	120	29	2	75 000	61 500	5 600	6 700	**BL 311**
60	110	22	1.5	58 000	54 000	5 600	6 700	**BL 212**
	130	31	2.1	85 500	71 500	5 000	6 000	**BL 312**
65	120	23	1.5	63 500	60 000	5 300	6 300	**BL 213**
	140	33	2.1	103 000	89 500	4 800	5 600	**BL 313**
70	125	24	1.5	69 000	66 000	5 000	6 000	**BL 214**
	150	35	2.1	115 000	102 000	4 300	5 300	**BL 314**
75	130	25	1.5	72 000	72 000	4 500	5 600	**BL 215**
	160	37	2.1	126 000	116 000	4 000	5 000	**BL 315**
80	140	26	2	84 000	85 000	4 300	5 300	**BL 216**
	170	39	2.1	136 000	130 000	3 800	4 500	**BL 316**
85	150	28	2	93 000	93 000	4 000	5 000	**BL 217**
	180	41	3	147 000	145 000	3 600	4 300	**BL 317**
90	160	30	2	107 000	107 000	3 800	4 500	**BL 218**
	190	43	3	158 000	161 000	3 400	4 000	**BL 318**
95	170	32	2.1	121 000	123 000	3 600	4 300	**BL 219**
	200	45	3	169 000	178 000	2 800	3 600	**BL 319**
100	180	34	2.1	136 000	140 000	3 400	4 000	**BL 220**
105	190	36	2.1	148 000	157 000	3 200	3 800	**BL 221**
110	200	38	2.1	160 000	176 000	2 800	3 400	**BL 222**

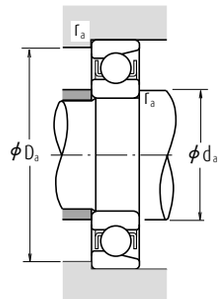
Bearing Numbers		Abutment and Fillet Dimensions (mm)				Mass (kg)
With One Shielded	With Two Shields	d_a min.	d_b max.	D_a max.	r_a max.	approx.
BL 205 Z	**BL 205 ZZ**	30	32	47	1	0.133
BL 305 Z	**BL 305 ZZ**	31.5	36	55.5	1	0.246
BL 206 Z	**BL 206 ZZ**	35	38.5	57	1	0.215
BL 306 Z	**BL 306 ZZ**	36.5	42	65.5	1	0.364
BL 207 Z	**BL 207 ZZ**	41.5	44.5	65.5	1	0.307
BL 307 Z	**BL 307 ZZ**	43	44.5	72	1.5	0.486
BL 208 Z	**BL 208 ZZ**	46.5	50	73.5	1	0.394
BL 308 Z	**BL 308 ZZ**	48	52.5	82	1.5	0.685
BL 209 Z	**BL 209 ZZ**	51.5	55.5	78.5	1	0.449
BL 309 Z	**BL 309 ZZ**	53	61.5	92	1.5	0.883
BL 210 Z	**BL 210 ZZ**	56.5	60	83.5	1	0.504
BL 310 Z	**BL 310 ZZ**	59	68	101	2	1.16
BL 211 Z	**BL 211 ZZ**	63	66.5	92	1.5	0.667
BL 311 Z	**BL 311 ZZ**	64	72.5	111	2	1.49
BL 212 Z	**BL 212 ZZ**	68	74.5	102	1.5	0.856
BL 312 Z	**BL 312 ZZ**	71	79	119	2	1.88
BL 213 Z	**BL 213 ZZ**	73	80	112	1.5	1.09
BL 313 Z	**BL 313 ZZ**	76	85.5	129	2	2.36
BL 214 Z	**BL 214 ZZ**	78	84	117	1.5	1.19
BL 314 Z	**BL 314 ZZ**	81	92	139	2	2.87
BL 215 Z	**BL 215 ZZ**	83	90	122	1.5	1.29
BL 315 Z	**BL 315 ZZ**	86	98.5	149	2	3.43
BL 216 Z	**BL 216 ZZ**	89	95.5	131	2	1.61
BL 316 Z	**BL 316 ZZ**	91	104.5	159	2	4.08
BL 217 Z	**BL 217 ZZ**	94	102	141	2	1.97
BL 317 Z	**BL 317 ZZ**	98	110.5	167	2.5	4.77
BL 218 Z	**BL 218 ZZ**	99	107.5	151	2	2.43
BL 318 Z	**BL 318 ZZ**	103	117	177	2.5	5.45
BL 219 Z	**BL 219 ZZ**	106	114	159	2	2.95
BL 319 Z	**BL 319 ZZ**	108	124	187	2.5	6.4
BL 220 Z	**BL 220 ZZ**	111	121.5	169	2	3.54
BL 221 Z	**BL 221 ZZ**	116	127.5	179	2	4.23
—	—	121	—	189	2	4.84

Remark When using Maximum Type Ball Bearings, please contact OID.

Magneto Bearings

Bore Diameter 4 – 20 mm





Boundary Dimensions (mm)					Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing Numbers	
d	D	B,C,T	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil	E Series	EN Series
4	16	5	0.15	0.1	1 650	288	34 000	40 000	**E 4**	**EN 4**
5	16	5	0.15	0.1	1 650	288	34 000	40 000	**E 5**	**EN 5**
6	21	7	0.3	0.15	2 490	445	30 000	36 000	**E 6**	**EN 6**
7	22	7	0.3	0.15	2 490	445	30 000	36 000	**E 7**	**EN 7**
8	24	7	0.3	0.15	3 450	650	28 000	34 000	**E 8**	**EN 8**
9	28	8	0.3	0.15	4 550	880	24 000	30 000	**E 9**	**EN 9**
10	28	8	0.3	0.15	4 550	880	24 000	30 000	**E 10**	**EN 10**
11	32	7	0.3	0.15	4 400	845	22 000	26 000	**E 11**	**EN 11**
12	32	7	0.3	0.15	4 400	845	22 000	26 000	**E 12**	**EN 12**
13	30	7	0.3	0.15	4 400	845	22 000	26 000	**E 13**	**EN 13**
14	35	8	0.3	0.15	5 800	1 150	19 000	22 000	—	**EN 14**
15	35	8	0.3	0.15	5 800	1 150	19 000	22 000	**E 15**	**EN 15**
	40	10	0.6	0.3	7 400	1 500	17 000	20 000	**BO 15**	—
16	38	10	0.6	0.2	6 900	1 380	17 000	22 000	—	**EN 16**
17	40	10	0.6	0.3	7 400	1 500	17 000	20 000	**L 17**	—
	44	11	0.6	0.3	7 350	1 500	16 000	19 000	—	**EN 17**
	44	11	0.6	0.3	7 350	1 500	16 000	19 000	**BO 17**	—
18	40	9	0.6	0.2	5 050	1 030	17 000	20 000	—	**EN 18**
19	40	9	0.6	0.2	5 050	1 030	17 000	20 000	**E 19**	**EN 19**
20	47	12	1	0.6	11 000	2 380	14 000	17 000	**E 20**	**EN 20**
	47	14	1	0.6	11 000	2 380	14 000	17 000	**L 20**	—

Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a min.	D_a max.	r_a max.	approx.
5.2	14.8	0.15	0.005
6.2	14.8	0.15	0.004
8	19	0.3	0.011
9	20	0.3	0.013
10	22	0.3	0.014
11	26	0.3	0.022
12	26	0.3	0.021
13	30	0.3	0.029
14	30	0.3	0.028
15	28	0.3	0.021
16	33	0.3	0.035
17	33	0.3	0.034
19	36	0.6	0.055
20	34	0.6	0.049
21	36	0.6	0.051
21	40	0.6	0.080
21	40	0.6	0.080
22	36	0.6	0.051
23	36	0.6	0.049
25	42	1	0.089
25	42	1	0.101

Remarks 1. The outside diameters of Magneto Bearings Series E always have plus tolerances.
2. When using Magneto Bearings other than E, please contact OID.

OID MECHANICAL PARTS BEARINGS

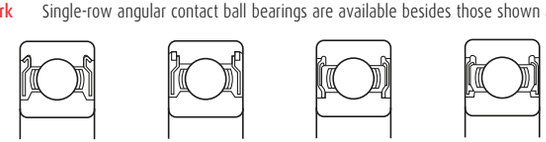


Extra Small Ball Bearings

Design, Types, and Type Symbols

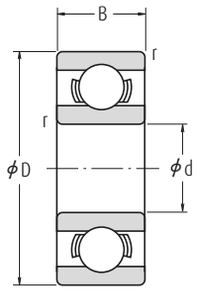
Design · Types		Type Symbols				Remarks
		Metric	Inch	Special		
				Metric	Inch	
Single-Row Deep Groove Ball Bearings		6 ○ ○	R	MR	–	Shielded · sealed bearings are available.
	Thin section	–	–	SMT	–	
	 With flange	F6 ○ ○	FR	MF	–	Shielded · sealed bearings are available.
	 Extended inner ring	–	–	–	RW	Shielded bearings are available.
	 With flange and extended inner ring	–	–	–	FRW	Shielded bearings are available.
	 For synchro motors	–	–	–	SR00X00	Shielded bearings are available.
Pivot Ball Bearings		–	–	BCF	–	
Thrust Ball Bearings		–	–	F	–	

Remark Single-row angular contact ball bearings are available besides those shown above.

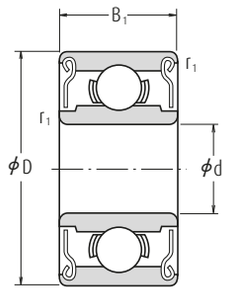


ZZ ZZS 2RSR VV

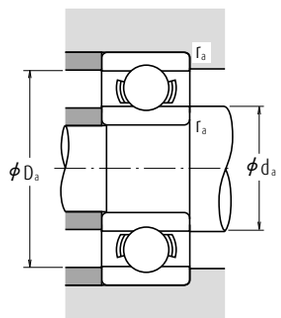
Metric Design
Bore Diameter 1 – 4 mm

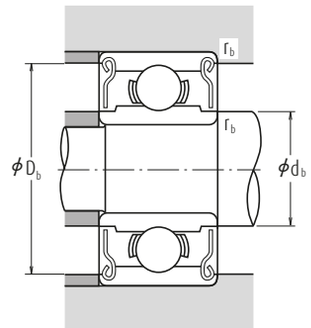


Open Type



Shielded Type
ZZ · ZZ1





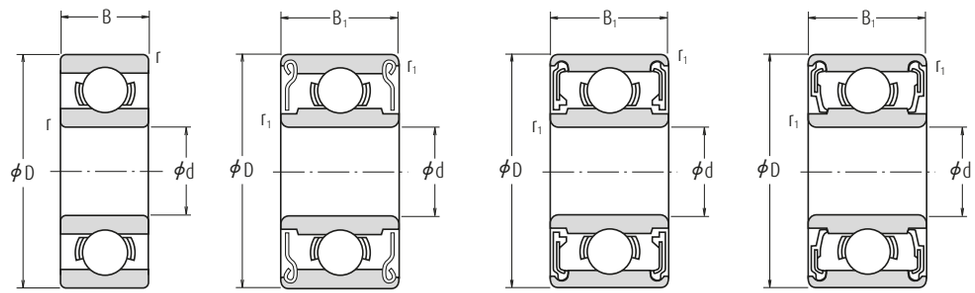
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹) Grease	Limiting Speeds (min⁻¹) Oil	
d	D	B	B_1	r(1) min.	r_1(1) min.	C_r	C_{0r}	Open Z · ZZ	Open Z	Open
1	3	1	–	0.05	–	80	23	130 000	150 000	**681**
	3	1.5	–	0.05	–	80	23	130 000	150 000	**MR 31**
	4	1.6	–	0.1	–	138	35	100 000	120 000	**691**
1.2	4	1.8	2.5	0.1	0.1	138	35	110 000	130 000	**MR 41 X**
1.5	4	1.2	2	0.05	0.05	112	33	100 000	120 000	**681 X**
	5	2	2.6	0.15	0.15	237	69	85 000	100 000	**691 X**
	6	2.5	3	0.15	0.15	330	98	75 000	90 000	**601 X**
2	5	1.5	2.3	0.08	0.08	169	50	85 000	100 000	**682**
	5	2	2.5	0.1	0.1	187	58	85 000	100 000	**MR 52 B**
	6	2.3	3	0.15	0.15	330	98	75 000	90 000	**692**
	6	2.5	2.5	0.15	0.15	330	98	75 000	90 000	**MR 62**
	7	2.5	3	0.15	0.15	385	127	63 000	75 000	**MR 72**
	7	2.8	3.5	0.15	0.15	385	127	63 000	75 000	**602**
2.5	6	1.8	2.6	0.08	0.08	208	74	71 000	80 000	**682 X**
	7	2.5	3.5	0.15	0.15	385	127	63 000	75 000	**692 X**
	8	2.5	–	0.2	–	560	179	60 000	67 000	**MR 82 X**
	8	2.8	4	0.15	0.15	550	175	60 000	71 000	**602 X**
3	6	2	2.5	0.1	0.1	208	74	71 000	80 000	**MR 63**
	7	2	3	0.1	0.1	390	130	63 000	75 000	**683 A**
	8	2.5	–	0.15	–	560	179	60 000	67 000	**MR 83**
	8	3	4	0.15	0.15	560	179	60 000	67 000	**693**
	9	2.5	4	0.2	0.15	570	187	56 000	67 000	**MR 93**
	9	3	5	0.15	0.15	570	187	56 000	67 000	**603**
	10	4	4	0.15	0.15	630	218	50 000	60 000	**623**
	13	5	5	0.2	0.2	1 300	485	40 000	48 000	**633**
4	7	2	–	0.1	–	310	115	60 000	67 000	**MR 74**
	7	–	2.5	–	0.1	255	107	60 000	71 000	–
	8	2	3	0.15	0.1	395	139	56 000	67 000	**MR 84**
	9	2.5	4	(0.15)	(0.15)	640	225	53 000	63 000	**684 A**
	10	3	4	0.2	0.15	710	270	50 000	60 000	**MR 104 B**
	11	4	4	0.15	0.15	960	345	48 000	56 000	**694**
	12	4	4	0.2	0.2	960	345	48 000	56 000	**604**
	13	5	5	0.2	0.2	1 300	485	40 000	48 000	**624**
	16	5	5	0.3	0.3	1 730	670	36 000	43 000	**634**

Bearing Numbers			Abutment and Fillet Dimensions (mm)						Mass (g) approx.	
Shielded	Sealed		d_a min.	d_b max.	D_a max.	D_b min.	r_a max.	r_b max.	Open	Shielded
–	–	–	1.4	–	2.6	–	0.05	–	0.03	–
–	–	–	1.4	–	2.6	–	0.05	–	0.04	–
–	–	–	1.8	–	3.2	–	0.1	–	0.09	–
MR 41 XZZ	–	–	2.0	1.9	3.2	3.5	0.1	0.1	0.10	0.14
681 XZZ	–	–	1.9	2.1	3.6	3.6	0.05	0.05	0.07	0.11
691 XZZ	–	–	2.7	2.5	3.8	4.3	0.15	0.15	0.17	0.20
601 XZZ	–	–	2.7	3.0	4.8	5.4	0.15	0.15	0.33	0.38
682 ZZ	–	–	2.6	2.7	4.4	4.2	0.08	0.08	0.12	0.17
MR 52 BZZ	–	–	2.8	2.7	4.2	4.4	0.1	0.1	0.16	0.23
692 ZZ	–	–	3.2	3.0	4.8	5.4	0.15	0.15	0.28	0.38
MR 62 ZZ	–	–	3.2	3.0	4.8	5.2	0.15	0.15	0.30	0.29
MR 72 ZZ	–	–	3.2	3.8	5.8	6.2	0.15	0.15	0.45	0.49
602 ZZ	–	–	3.2	3.8	5.8	6.2	0.15	0.15	0.51	0.58
682 XZZ	–	–	3.1	3.7	5.4	5.4	0.08	0.08	0.23	0.29
692 XZZ	–	–	3.7	3.8	5.8	6.2	0.15	0.15	0.41	0.55
–	–	–	4.1	–	6.4	–	0.2	–	0.56	–
602 XZZ	–	–	3.7	4.1	6.8	7.0	0.15	0.15	0.63	0.83
MR 63 ZZ	–	–	3.8	3.7	5.2	5.4	0.1	0.1	0.20	0.27
683 AZZ	–	–	3.8	4.0	6.2	6.4	0.1	0.1	0.32	0.45
–	–	–	4.2	–	6.8	–	0.15	–	0.54	–
693 ZZ	–	–	4.2	4.3	6.8	7.3	0.15	0.15	0.61	0.83
MR 93 ZZ	–	–	4.6	4.3	7.4	7.9	0.2	0.15	0.73	1.18
603 ZZ	–	–	4.2	4.3	7.8	7.9	0.15	0.15	0.87	1.45
623 ZZ	–	–	4.2	4.3	8.8	8.0	0.15	0.15	1.65	1.66
633 ZZ	–	–	4.6	6.0	11.4	11.3	0.2	0.2	3.38	3.33
–	–	–	4.8	–	6.2	–	0.1	–	0.22	–
MR 74 ZZ	–	–	–	4.8	–	6.3	–	0.1	–	0.29
MR 84 ZZ	–	–	5.2	5.0	6.8	7.4	0.15	0.1	0.36	0.56
684 AZZ	–	–	4.8	5.2	8.2	8.1	0.1	0.1	0.63	1.01
MR 104 BZZ	–	–	5.6	5.9	8.4	8.8	0.2	0.15	1.04	1.42
694 ZZ	–	–	5.2	5.6	9.8	9.9	0.15	0.15	1.7	1.75
604 ZZ	–	–	5.6	5.6	10.4	9.9	0.2	0.2	2.25	2.29
624 ZZ	–	–	5.6	6.0	11.4	11.3	0.2	0.2	3.03	3.04
634 ZZ1	–	–	6.0	7.5	14.0	13.8	0.3	0.3	5.24	5.21

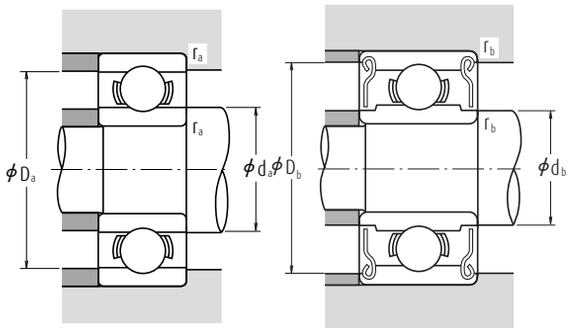
Note (1) The values in parentheses are not based on ISO 15.

Remark When using bearings with a rotating outer ring, please contact OID if they are shielded.

Metric Design
Bore Diameter 5 – 9 mm



Open Type | Shielded Type ZZ · ZZ1 | Non-Contact Sealed Type VV | Contact Sealed Type 2RSR



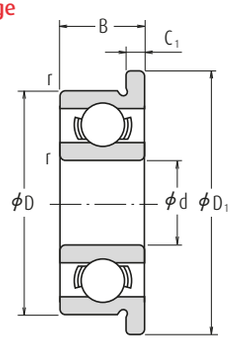
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹) Grease		Oil	
d	D	B	B_1	r(1) min.	r_1(1) min.	C_r	C_{0r}	Open Z · ZZ V · VV	D · 2RSR	Open Z	Open
5	8	2	–	0.1	–	310	120	53 000	–	63 000	MR 85
	8	–	2.5	–	0.1	278	131	53 000	–	63 000	–
	9	2.5	3	0.15	0.15	430	168	50 000	–	60 000	MR 95
	10	3	4	0.15	0.15	430	168	50 000	–	60 000	MR 105
	11	–	4	–	0.15	715	276	48 000	–	56 000	–
	11	3	5	0.15	0.15	715	281	45 000	–	53 000	685
	13	4	4	0.2	0.2	1 080	430	43 000	40 000	50 000	695
	14	5	5	0.2	0.2	1 330	505	40 000	38 000	50 000	605
	16	5	5	0.3	0.3	1 730	670	36 000	32 000	43 000	625
	19	6	6	0.3	0.3	2 340	885	32 000	30 000	40 000	635
6	10	2.5	3	0.15	0.1	495	218	45 000	–	53 000	MR 106
	12	3	4	0.2	0.15	715	292	43 000	40 000	50 000	MR 126
	13	3.5	5	0.15	0.15	1 080	440	40 000	38 000	50 000	686 A
	15	5	5	0.2	0.2	1 730	670	40 000	36 000	45 000	696
	17	6	6	0.3	0.3	2 260	835	38 000	34 000	45 000	606
	19	6	6	0.3	0.3	2 340	885	32 000	30 000	40 000	626
	22	7	7	0.3	0.3	3 300	1 370	30 000	28 000	36 000	636
7	11	2.5	3	0.15	0.1	455	201	43 000	–	50 000	MR 117
	13	3	4	0.2	0.15	540	276	40 000	–	48 000	MR 137
	14	3.5	5	0.15	0.15	1 170	510	40 000	34 000	45 000	687
	17	5	5	0.3	0.3	1 610	710	36 000	28 000	43 000	697
	19	6	6	0.3	0.3	2 340	885	36 000	32 000	43 000	607
	22	7	7	0.3	0.3	3 300	1 370	30 000	28 000	36 000	627
	26	9	9	0.3	0.3	4 550	1 970	28 000	22 000	34 000	637
8	12	2.5	3.5	0.15	0.1	545	274	40 000	–	48 000	MR 128
	14	3.5	4	0.2	0.15	820	385	38 000	32 000	45 000	MR 148
	16	4	5	0.2	0.2	1 610	710	36 000	28 000	43 000	688 A
	19	6	6	0.3	0.3	2 240	910	36 000	28 000	43 000	698
	22	7	7	0.3	0.3	3 300	1 370	34 000	28 000	40 000	608
	24	8	8	0.3	0.3	3 350	1 430	28 000	24 000	34 000	628
	28	9	9	0.3	0.3	4 550	1 970	28 000	22 000	34 000	638
9	17	4	5	0.2	0.2	1 330	665	36 000	24 000	43 000	689
	20	6	6	0.3	0.3	1 720	840	34 000	24 000	40 000	699
	24	7	7	0.3	0.3	3 350	1 430	32 000	24 000	38 000	609
	26	8	8	(0.6)	(0.6)	4 550	1 970	28 000	22 000	34 000	629
	30	10	10	0.6	0.6	5 100	2 390	24 000	–	30 000	639

Bearing Numbers			Abutment and Fillet Dimensions (mm)						Mass (g) approx.	
Shielded	Sealed		d_a min.	d_b max.	D_a max.	D_b min.	r_a max.	r_b max.	Open	Shielded
–	–	–	5.8	–	7.2	–	0.1	–	0.26	–
MR 85 ZZ	–	–	–	5.8	–	7.4	–	0.1	–	0.34
MR 95 ZZ1	–	–	6.2	6.0	7.8	8.2	0.15	0.15	0.50	0.58
MR 105 ZZ	–	–	6.2	6.0	8.8	8.4	0.15	0.15	0.95	1.29
MR 115 ZZ	VV	–	–	6.3	–	9.8	–	0.15	–	1.49
685 ZZ	–	–	6.2	6.2	9.8	9.9	0.15	0.15	1.2	1.96
695 ZZ	VV	2RSR	6.6	6.6	11.4	11.2	0.2	0.2	2.45	2.5
605 ZZ	–	2RSR	6.6	6.9	12.4	12.2	0.2	0.2	3.54	3.48
625 ZZ1	VV	2RSR	7.0	7.5	14.0	13.8	0.3	0.3	4.95	4.86
635 ZZ1	VV	2RSR	7.0	8.5	17.0	16.5	0.3	0.3	8.56	8.34
MR 106 ZZ1	–	–	7.2	7.0	8.8	9.3	0.15	0.1	0.56	0.68
MR 126 ZZ	–	2RSR	7.6	7.2	10.4	10.9	0.2	0.15	1.27	1.74
686 AZZ	VV	2RSR	7.2	7.4	11.8	11.7	0.15	0.15	1.91	2.69
696 ZZ1	VV	2RSR	7.6	7.9	13.4	13.3	0.2	0.2	3.88	3.72
606 ZZ	VV	2RSR	8.0	8.2	15.0	14.8	0.3	0.3	5.97	6.08
626 ZZ1	VV	2RSR	8.0	8.5	17.0	16.5	0.3	0.3	8.15	7.94
636 ZZ	VV	2RSR	8.0	10.5	20.0	19.0	0.3	0.3	14	14
MR 117 ZZ	–	–	8.2	8.0	9.8	10.5	0.15	0.1	0.62	0.72
MR 137 ZZ	–	–	8.6	9.0	11.4	11.6	0.2	0.15	1.58	2.02
687 ZZ1	VV	2RSR	8.2	8.5	12.8	12.7	0.15	0.15	2.13	2.97
697 ZZ1	VV	2RSR	9.0	10.2	15.0	14.8	0.3	0.3	5.26	5.12
607 ZZ1	VV	2RSR	9.0	9.1	17.0	16.5	0.3	0.3	7.67	7.51
627 ZZ	VV	2RSR	9.0	10.5	20.0	19.0	0.3	0.3	12.7	12.9
637 ZZ1	VV	2RSR	9.0	12.8	24.0	22.8	0.3	0.3	24	25
MR 128 ZZ1	–	–	9.2	9.0	10.8	11.3	0.15	0.1	0.71	0.97
MR 148 ZZ	VV	2RSR	9.6	9.2	12.4	12.8	0.2	0.15	1.86	2.16
688 AZZ1	VV	2RSR	9.6	10.2	14.4	14.2	0.2	0.2	3.12	4.02
698 ZZ	VV	2RSR	10.0	10.0	17.0	16.5	0.3	0.3	7.23	7.18
608 ZZ	VV	2RSR	10.0	10.5	20.0	19.0	0.3	0.3	12.1	12.2
628 ZZ	VV	2RSR	10.0	12.0	22.0	20.5	0.3	0.3	17.2	17.4
638 ZZ1	VV	2RSR	10.0	12.8	26.0	22.8	0.3	0.3	28.3	28.6
689 ZZ1	VV	2RSR	10.6	11.5	15.4	15.2	0.2	0.2	3.53	4.43
699 ZZ1	VV	2RSR	11.0	12.0	18.0	17.2	0.3	0.3	8.45	8.33
609 ZZ	VV	2RSR	11.0	12.0	22.8	20.5	0.3	0.3	14.5	14.7
629 ZZ	VV	2RSR	11.0	12.8	24.0	22.8	0.3	0.3	19.5	19.3
639 ZZ	VV	–	13.0	16.1	26.0	25.6	0.6	0.6	36.5	36

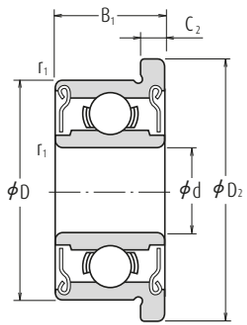
Note (1) The values in parentheses are not based on ISO 15.

Remarks 1. When using bearings with a rotating outer ring, please contact OID if they are sealed or shielded. 2. Bearings with snap rings are also available, please contact OID.

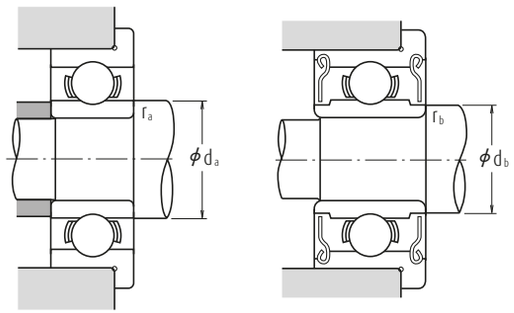
Metric Design With Flange
Bore Diameter 1 – 4 mm



Open Type



Shielded Type
ZZ · ZZ1



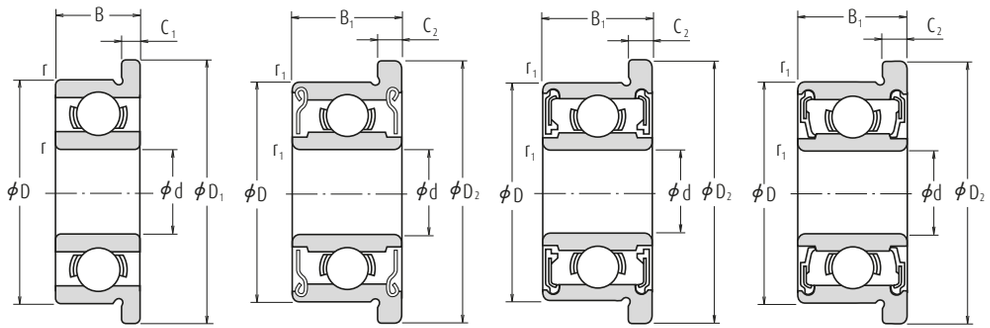
Boundary Dimensions (mm)										Basic Load Ratings (N)		Limiting Speeds (min⁻¹) Grease	Limiting Speeds (min⁻¹) Oil
d	D	D_1	D_2	B	B_1	C_1	C_2	r(1) min.	r_1(1) min.	C_r	C_{0r}	Open Z · ZZ	Open Z
1	3	3.8	–	1	–	0.3	–	0.05	–	80	23	130 000	150 000
	4	5	–	1.6	–	0.5	–	0.1	–	140	36	100 000	120 000
1.2	4	4.8	–	1.8	–	0.4	–	0.1	–	138	35	110 000	130 000
1.5	4	5	5	1.2	2	0.4	0.6	0.05	0.05	112	33	100 000	120 000
	5	6.5	6.5	2	2.6	0.6	0.8	0.15	0.15	237	69	85 000	100 000
	6	7.5	7.5	2.5	3	0.6	0.8	0.15	0.15	330	98	75 000	90 000
2	5	6.1	6.1	1.5	2.3	0.5	0.6	0.08	0.08	169	50	85 000	100 000
	5	6.2	6.2	2	2.5	0.6	0.6	0.1	0.1	187	58	85 000	100 000
	6	7.5	7.5	2.3	3	0.6	0.8	0.15	0.15	330	98	75 000	90 000
	6	7.2	–	2.5	–	0.6	–	0.15	–	330	98	75 000	90 000
	7	8.2	8.2	2.5	3	0.6	0.6	0.15	0.15	385	127	63 000	75 000
	7	8.5	8.5	2.8	3.5	0.7	0.9	0.15	0.15	385	127	63 000	75 000
2.5	6	7.1	7.1	1.8	2.6	0.5	0.8	0.08	0.08	208	74	71 000	80 000
	7	8.5	8.5	2.5	3.5	0.7	0.9	0.15	0.15	385	127	63 000	75 000
	8	9.2	–	2.5	–	0.6	–	0.2	–	560	179	60 000	67 000
	8	9.5	9.5	2.8	4	0.7	0.9	0.15	0.15	550	175	60 000	71 000
3	6	7.2	7.2	2	2.5	0.6	0.6	0.1	0.1	208	74	71 000	80 000
	7	8.1	8.1	2	3	0.5	0.8	0.1	0.1	390	130	63 000	75 000
	8	9.2	–	2.5	–	0.6	–	0.15	–	560	179	60 000	67 000
	8	9.5	9.5	3	4	0.7	0.9	0.15	0.15	560	179	60 000	67 000
	9	10.2	10.6	2.5	4	0.6	0.8	0.2	0.15	570	187	56 000	67 000
	9	10.5	10.5	3	5	0.7	1	0.15	0.15	570	187	56 000	67 000
	10	11.5	11.5	4	4	1	1	0.15	0.15	630	218	50 000	60 000
	13	15	15	5	5	1	1	0.2	0.2	1 300	485	36 000	43 000
4	7	8.2	–	2	–	0.6	–	0.1	–	310	115	60 000	67 000
	7	–	8.2	–	2.5	–	0.6	–	0.1	255	107	60 000	71 000
	8	9.2	9.2	2	3	0.6	0.6	0.15	0.1	395	139	56 000	67 000
	9	10.3	10.3	2.5	4	0.6	1	(0.15)	(0.15)	640	225	53 000	63 000
	10	11.2	11.6	3	4	0.6	0.8	0.2	0.15	710	270	50 000	60 000
	11	12.5	12.5	4	4	1	1	0.15	0.15	960	345	48 000	56 000
	12	13.5	13.5	4	4	1	1	0.2	0.2	960	345	48 000	56 000
	13	15	15	5	5	1	1	0.2	0.2	1 300	485	40 000	48 000
	16	18	18	5	5	1	1	0.3	0.3	1 730	670	36 000	43 000

Bearing Numbers				Abutment and Fillet Dimensions (mm)				Mass (g) approx.	
Open	Shielded	Sealed		d_a min.	d_b max.	r_a max.	r_b max.	Open	Shielded
F 681	–	–	–	1.4	–	0.05	–	0.04	–
F 691	–	–	–	1.8	–	0.1	–	0.14	–
MF 41 X	–	–	–	2.0	–	0.1	–	0.12	–
F 681 X	**F 681 XZZ**	–	–	1.9	2.1	0.05	0.05	0.09	0.14
F 691 X	**F 691 XZZ**	–	–	2.7	2.5	0.15	0.15	0.23	0.28
F 601 X	**F 601 XZZ**	–	–	2.7	3.0	0.15	0.15	0.42	0.52
F 682	**F 682 ZZ**	–	–	2.6	2.7	0.08	0.08	0.16	0.22
MF 52 B	**MF 52 BZZ**	–	–	2.8	2.7	0.1	0.1	0.21	0.27
F 692	**F 692 ZZ**	–	–	3.2	3.0	0.15	0.15	0.35	0.48
MF 62	–	–	–	3.2	–	0.15	–	0.36	–
MF 72	**MF 72 ZZ**	–	–	3.2	3.8	0.15	0.15	0.52	0.56
F 602	**F 602 ZZ**	–	–	3.2	3.1	0.15	0.15	0.60	0.71
F 682 X	**F 682 XZZ**	–	–	3.1	3.7	0.08	0.08	0.25	0.36
F 692 X	**F 692 XZZ**	–	–	3.7	3.8	0.15	0.15	0.51	0.68
MF 82 X	–	–	–	4.1	–	0.2	–	0.62	–
F 602 X	**F 602 XZZ**	–	–	3.7	3.5	0.15	0.15	0.74	0.98
MF 63	**MF 63 ZZ**	–	–	3.8	3.7	0.1	0.1	0.27	0.33
F 683 A	**F 683 AZZ**	–	–	3.8	4.0	0.1	0.1	0.37	0.53
MF 83	–	–	–	4.2	–	0.15	–	0.56	–
F 693	**F 693 ZZ**	–	–	4.2	4.3	0.15	0.15	0.70	0.97
MF 93	**MF 93 ZZ**	–	–	4.6	4.3	0.2	0.15	0.81	1.34
F 603	**F 603 ZZ**	–	–	4.2	4.3	0.15	0.15	1.0	1.63
F 623	**F 623 ZZ**	–	–	4.2	4.3	0.15	0.15	1.85	1.86
F 633	**F 633 ZZ**	–	–	4.6	6.0	0.2	0.2	3.73	3.59
MF 74	–	–	–	4.8	–	0.1	–	0.29	–
–	**MF 74 ZZ**	–	–	–	4.8	–	0.1	–	0.35
MF 84	**MF 84 ZZ**	–	–	5.2	5.0	0.15	0.1	0.44	0.63
F 684	**F 684 ZZ**	–	–	4.8	5.2	0.1	0.1	0.70	1.14
MF 104 B	**MF 104 BZZ**	–	–	5.6	5.9	0.2	0.15	1.13	1.59
F 694	**F 694 ZZ**	–	–	5.2	5.6	0.15	0.15	1.91	1.96
F 604	**F 604 ZZ**	–	–	5.6	5.6	0.2	0.2	2.53	2.53
F 624	**F 624 ZZ**	–	–	5.6	6.0	0.2	0.2	3.38	3.53
F 634	**F 634 ZZ1**	–	–	6.0	7.5	0.3	0.3	5.73	5.62

Note (1) The values in parentheses are not based on ISO 15.

Remark When using bearings with a rotating outer ring, please contact OID if they are sealed or shielded.

Metric Design With Flange
Bore Diameter 5 – 9 mm

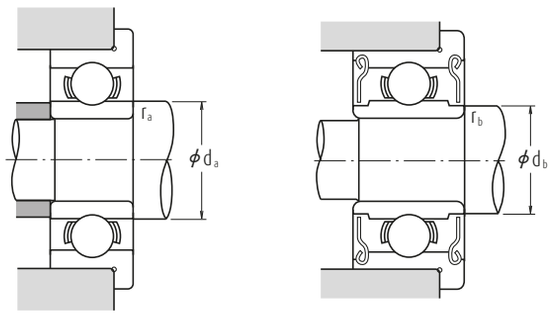


Open Type

Shielded Type
ZZ · ZZ1

Non-Contact
Sealed Type
VV

Contact
Sealed Type
2RSR

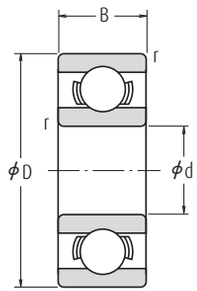


Boundary Dimensions (mm)										Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		
												Grease		Oil
d	D	D_1	D_2	B	B_1	C_1	C_2	r min.	r_1 min.	C_r	C_{0r}	Open Z · ZZ V · VV	D · 2RSR	Open Z
5	8	9.2	—	2	—	0.6	—	0.1	—	310	120	53 000	—	63 000
	8	—	9.2	—	2.5	—	0.6	—	0.1	278	131	53 000	—	63 000
	9	10.2	10.2	2.5	3	0.6	0.6	0.15	0.15	430	168	50 000	—	60 000
	10	11.2	11.6	3	4	0.6	0.8	0.15	0.15	430	168	50 000	—	60 000
	11	12.5	12.5	3	5	0.8	1	0.15	0.15	715	281	45 000	—	53 000
	13	15	15	4	4	1	1	0.2	0.2	1 080	430	43 000	40 000	50 000
	14	16	16	5	5	1	1	0.2	0.2	1 330	505	40 000	38 000	50 000
	16	18	18	5	5	1	1	0.3	0.3	1 730	670	36 000	32 000	43 000
	19	22	22	6	6	1.5	1.5	0.3	0.3	2 340	885	32 000	30 000	40 000
6	10	11.2	11.2	2.5	3	0.6	0.6	0.15	0.1	495	218	45 000	—	53 000
	12	13.2	13.6	3	4	0.6	0.8	0.2	0.15	715	292	43 000	40 000	50 000
	13	15	15	3.5	5	1	1.1	0.15	0.15	1 080	440	40 000	38 000	50 000
	15	17	17	5	5	1.2	1.2	0.2	0.2	1 730	670	40 000	36 000	45 000
	17	19	19	6	6	1.2	1.2	0.3	0.3	2 260	835	38 000	34 000	45 000
	19	22	22	6	6	1.5	1.5	0.3	0.3	2 340	885	32 000	30 000	40 000
	22	25	25	7	7	1.5	1.5	0.3	0.3	3 300	1 370	30 000	28 000	36 000
7	11	12.2	12.2	2.5	3	0.6	0.6	0.15	0.1	455	201	43 000	—	50 000
	13	14.2	14.6	3	4	0.6	0.8	0.2	0.15	540	276	40 000	—	48 000
	14	16	16	3.5	5	1	1.1	0.15	0.15	1 170	510	40 000	34 000	45 000
	17	19	19	5	5	1.2	1.2	0.3	0.3	1 610	715	36 000	28 000	43 000
	19	22	22	6	6	1.5	1.5	0.3	0.3	2 340	885	36 000	32 000	43 000
	22	25	25	7	7	1.5	1.5	0.3	0.3	3 300	1 370	30 000	28 000	36 000
8	12	13.2	13.6	2.5	3.5	0.6	0.8	0.15	0.1	545	274	40 000	—	48 000
	14	15.6	15.6	3.5	4	0.8	0.8	0.2	0.15	820	385	38 000	32 000	45 000
	16	18	18	4	5	1	1.1	0.2	0.2	1 610	710	36 000	30 000	43 000
	19	22	22	6	6	1.5	1.5	0.3	0.3	2 240	910	36 000	28 000	43 000
	22	25	25	7	7	1.5	1.5	0.3	0.3	3 300	1 370	34 000	28 000	40 000
9	17	19	19	4	5	1	1.1	0.2	0.2	1 330	665	36 000	24 000	43 000
	20	23	23	6	6	1.5	1.5	0.3	0.3	1 720	840	34 000	24 000	40 000

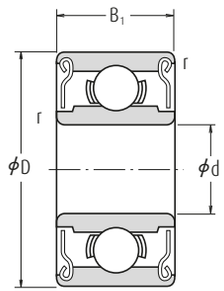
Bearing Numbers				Abutment and Fillet Dimensions (mm)				Mass (g) approx.	
Open	Shielded	Sealed		d_a min.	d_b max.	r_a max.	r_b max.	Open	Shielded
MF 85	—	—	—	5.8	—	0.1	—	0.33	—
—	MF 85 ZZ	—	—	—	5.8	—	0.1	—	0.41
MF 95	MF 95 ZZ1	—	—	6.2	6.0	0.15	0.15	0.59	0.66
MF 105	MF 105 ZZ	—	—	6.2	6.0	0.15	0.15	1.05	1.46
F 685	F 685 ZZ	—	—	6.2	6.2	0.15	0.15	1.37	2.18
F 695	F 695 ZZ	VV	2RSR	6.6	6.6	0.2	0.2	2.79	2.84
F 605	F 605 ZZ	—	2RSR	6.6	6.9	0.2	0.2	3.9	3.85
F 625	F 625 ZZ1	VV	2RSR	7.0	7.5	0.3	0.3	5.37	5.27
F 635	F 635 ZZ1	VV	2RSR	7.0	8.5	0.3	0.3	9.49	9.49
MF 106	MF 106 ZZ1	—	—	7.2	7.0	0.15	0.1	0.65	0.77
MF 126	MF 126 ZZ	—	2RSR	7.6	7.2	0.2	0.15	1.38	1.94
F 686 A	F 686 AZZ	VV	2RSR	7.2	7.4	0.15	0.15	2.25	3.04
F 696	F 696 ZZ1	VV	2RSR	7.6	7.9	0.2	0.2	4.34	4.26
F 606	F 606 ZZ	VV	2RSR	8.0	8.2	0.3	0.3	6.58	6.61
F 626	F 626 ZZ1	VV	2RSR	8.0	8.5	0.3	0.3	9.09	9.09
F 636	F 636 ZZ	VV	2RSR	8.0	10.5	0.3	0.3	14.6	14.7
MF 117	MF 117 ZZ	—	—	8.2	8.0	0.15	0.1	0.72	0.82
MF 137	MF 137 ZZ	—	—	8.6	9.0	0.2	0.15	1.7	2.23
F 687	F 687 ZZ1	VV	2RSR	8.2	8.5	0.15	0.15	2.48	3.37
F 697	F 697 ZZ1	VV	2RSR	9.0	10.2	0.3	0.3	5.65	5.65
F 607	F 607 ZZ1	VV	2RSR	9.0	9.1	0.3	0.3	8.66	8.66
F 627	F 627 ZZ	VV	2RSR	9.0	10.5	0.3	0.3	14.2	14.2
MF 128	MF 128 ZZ1	—	—	9.2	9.0	0.15	0.1	0.82	1.15
MF 148	MF 148 ZZ	VV	2RSR	9.6	9.2	0.2	0.15	2.09	2.39
F 688 A	F 688 AZZ	VV	2RSR	9.6	10.2	0.2	0.2	3.54	4.47
F 698	F 698 ZZ	VV	2RSR	10.0	10.0	0.3	0.3	8.35	8.3
F 608	F 608 ZZ	VV	2RSR	10.0	10.5	0.3	0.3	13.4	13.5
F 689	F 689 ZZ1	VV	2RSR	10.6	11.5	0.2	0.2	3.97	4.91
F 699	F 699 ZZ1	VV	2RSR	11.0	12.0	0.3	0.3	9.51	9.51

Remark When using bearings with a rotating outer ring, please contact OID if they are sealed or shielded.

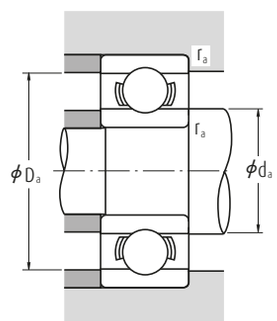
Inch Design
Bore Diameter 1.016 – 9.525 mm

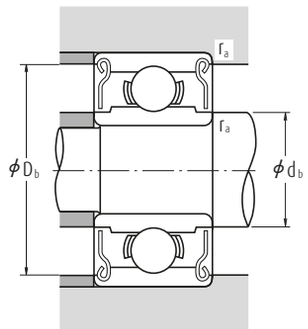


Open Type



Shielded Type
ZZ · ZZS



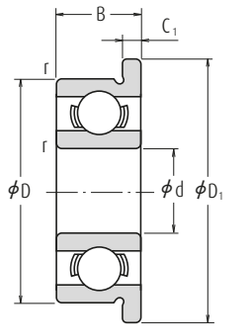


Boundary Dimensions (mm)					Basic Load Ratings (N)		Limiting Speeds (min⁻¹) Grease	Limiting Speeds (min⁻¹) Oil	Bearing
d	D	B	B_1	r min.	C_r	C_{0r}	Open Z · ZZ	Open Z	Open
1.016	3.175	1.191	–	0.1	80	23	130 000	150 000	**R 09**
1.191	3.967	1.588	2.380	0.1	138	35	110 000	130 000	**R 0**
1.397	4.762	1.984	2.779	0.1	231	66	90 000	110 000	**R 1**
1.984	6.350	2.380	3.571	0.1	310	108	67 000	80 000	**R 1-4**
2.380	4.762	1.588	–	0.1	188	60	80 000	95 000	**R 133**
	4.762	–	2.380	0.1	143	52	80 000	95 000	**–**
	7.938	2.779	3.571	0.15	550	175	60 000	71 000	**R 1-5**
3.175	6.350	2.380	2.779	0.1	283	95	67 000	80 000	**R 144**
	7.938	2.779	3.571	0.1	560	179	60 000	67 000	**R 2-5**
	9.525	2.779	3.571	0.15	640	225	53 000	63 000	**R 2-6**
	9.525	3.967	3.967	0.3	630	218	56 000	67 000	**R 2**
	12.700	4.366	4.366	0.3	640	225	53 000	63 000	**R 2A**
3.967	7.938	2.779	3.175	0.1	360	149	53 000	63 000	**R 155**
4.762	7.938	2.779	3.175	0.1	360	149	53 000	63 000	**R 156**
	9.525	3.175	3.175	0.1	710	270	50 000	60 000	**R 166**
	12.700	3.967	4.978	0.3	1 300	485	43 000	53 000	**R 3**
6.350	9.525	3.175	3.175	0.1	420	204	48 000	56 000	**R 168B**
	12.700	3.175	4.762	0.15	1 080	440	40 000	50 000	**R 188**
	15.875	4.978	4.978	0.3	1 610	660	38 000	45 000	**R 4B**
	19.050	5.558	7.142	0.4	2 620	1 060	36 000	43 000	**R 4AA**
7.938	12.700	3.967	3.967	0.15	540	276	40 000	48 000	**R 1810**
9.525	22.225	5.558	7.142	0.4	3 350	1 410	32 000	38 000	**R 6**

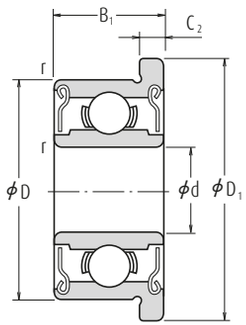
Numbers	Abutment and Fillet Dimensions (mm)					Mass (g)	
Shielded	d_a min.	d_b max.	D_a max.	D_b min.	r_a max.	approx. Open	Shielded
–	1.9	–	2.3	–	0.1	0.04	–
R 0 ZZ	2.0	1.9	3.1	3.5	0.1	0.09	0.11
R 1 ZZ	2.2	2.3	3.9	4.1	0.1	0.15	0.19
R 1-4 ZZ	2.8	3.9	5.5	5.9	0.1	0.35	0.50
–	3.2	–	3.9	–	0.1	0.10	–
R 133 ZZS	–	3.0	–	4.2	0.1	–	0.13
R 1-5 ZZ	3.6	4.1	6.7	7.0	0.15	0.60	0.72
R 144 ZZ	4.0	3.9	5.5	5.9	0.1	0.25	0.27
R 2-5 ZZ	4.0	4.3	7.1	7.3	0.1	0.55	0.72
R 2-6 ZZS	4.4	4.6	8.3	8.2	0.15	0.96	1.13
R 2 ZZ	5.2	4.8	7.5	8.0	0.3	1.36	1.39
R 2A ZZ	5.2	4.6	10.7	8.2	0.3	3.3	3.23
R 155 ZZS	4.8	5.5	7.1	7.3	0.1	0.51	0.56
R 156 ZZS	5.6	5.5	7.1	7.3	0.1	0.39	0.42
R 166 ZZ	5.6	5.9	8.7	8.8	0.1	0.81	0.85
R 3 ZZ	6.8	6.5	10.7	11.2	0.3	2.21	2.79
R 168 BZZ	7.2	7.0	8.7	8.9	0.1	0.58	0.62
R 188 ZZ	7.6	7.4	11.5	11.6	0.15	1.53	2.21
R 4B ZZ	8.4	8.4	13.8	13.8	0.3	4.5	4.43
R 4AA ZZ	9.4	9.0	16.0	16.6	0.4	7.48	9.17
R 1810 ZZ	9.2	9.0	11.5	11.6	0.15	1.56	1.48
R 6 ZZ	12.6	11.9	19.2	20.0	0.4	9.02	11

Remarks 1. When using bearings with a rotating outer ring, please contact OID if they are shielded.
2. Bearings with double shields (ZZ, ZZS) are also available with single shields (Z, ZS).

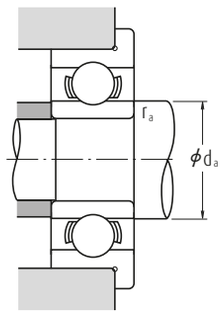
Inch Design With Flange
Bore Diameter 1.191 – 9.525 mm

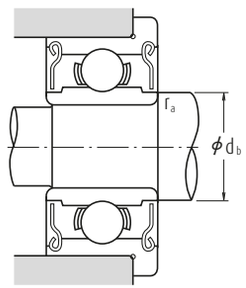


Open Type



Shielded Type
ZZ · ZZS





Boundary Dimensions (mm)								Basic Load Ratings (N)	
d	D	D_1	B	B_1	C_1	C_2	r min.	C_r	C_{0r}
1.191	3.967	5.156	1.588	2.380	0.330	0.790	0.1	138	35
1.397	4.762	5.944	1.984	2.779	0.580	0.790	0.1	231	66
1.984	6.350	7.518	2.380	3.571	0.580	0.790	0.1	310	108
2.380	4.762	5.944	1.588	–	0.460	–	0.1	188	60
	4.762	5.944	–	2.380	–	0.790	0.1	143	52
	7.938	9.119	2.779	3.571	0.580	0.790	0.15	550	175
3.175	6.350	7.518	2.380	2.779	0.580	0.790	0.1	283	95
	7.938	9.119	2.779	3.571	0.580	0.790	0.1	560	179
	9.525	10.719	2.779	3.571	0.580	0.790	0.15	640	225
	9.525	11.176	3.967	3.967	0.760	0.760	0.3	630	218
3.967	7.938	9.119	2.779	3.175	0.580	0.910	0.1	360	149
4.762	7.938	9.119	2.779	3.175	0.580	0.910	0.1	360	149
	9.525	10.719	3.175	3.175	0.580	0.790	0.1	710	270
	12.700	14.351	4.978	4.978	1.070	1.070	0.3	1 300	485
6.350	9.525	10.719	3.175	3.175	0.580	0.910	0.1	420	204
	12.700	13.894	3.175	4.762	0.580	1.140	0.15	1 080	440
	15.875	17.526	4.978	4.978	1.070	1.070	0.3	1 610	660
7.938	12.700	13.894	3.967	3.967	0.790	0.790	0.15	540	276
9.525	22.225	24.613	7.142	7.142	1.570	1.570	0.4	3 350	1 410

Limiting Speeds (min^{-1})		Bearing Numbers		Abutment and Fillet Dimensions (mm)			Mass (g)	
Grease	Oil						approx.	
Open Z · ZZ	Open Z	Open	Shielded	d_a min.	d_b max.	r_a max.	Open	Shielded
110 000	130 000	**FR 0**	**FR 0 ZZ**	2.0	1.9	0.1	0.11	0.16
90 000	110 000	**FR 1**	**FR 1 ZZ**	2.2	2.3	0.1	0.20	0.25
67 000	80 000	**FR 1-4**	**FR 1-4 ZZ**	2.8	3.9	0.1	0.41	0.58
80 000	95 000	**FR 133**	–	3.2	–	0.1	0.13	–
80 000	95 000	–	**FR 133 ZZS**	–	3.0	0.1	–	0.19
60 000	71 000	**FR 1-5**	**FR 1-5 ZZ**	3.6	4.1	0.15	0.68	0.82
67 000	80 000	**FR 144**	**FR 144 ZZ**	4.0	3.9	0.1	0.31	0.35
60 000	67 000	**FR 2-5**	**FR 2-5 ZZ**	4.0	4.3	0.1	0.62	0.81
53 000	63 000	**FR 2-6**	**FR 2-6 ZZS**	4.4	4.6	0.15	1.04	1.25
56 000	67 000	**FR 2**	**FR 2 ZZ**	5.2	4.8	0.3	1.51	1.55
53 000	63 000	**FR 155**	**FR 155 ZZS**	4.8	5.5	0.1	0.59	0.67
53 000	63 000	**FR 156**	**FR 156 ZZS**	5.6	5.5	0.1	0.47	0.53
50 000	60 000	**FR 166**	**FR 166 ZZ**	5.6	5.9	0.1	0.90	0.98
43 000	53 000	**FR 3**	**FR 3 ZZ**	6.8	6.5	0.3	2.97	3.09
48 000	56 000	**FR 168B**	**FR 168 BZZ**	7.2	7.0	0.1	0.66	0.75
40 000	50 000	**FR 188**	**FR 188 ZZ**	7.6	7.4	0.15	1.64	2.49
38 000	45 000	**FR 4B**	**FR 4B ZZ**	8.4	8.4	0.3	4.78	4.78
40 000	48 000	**FR 1810**	**FR 1810 ZZ**	9.2	9.0	0.15	1.71	1.63
32 000	38 000	**FR 6**	**FR 6 ZZ**	12.6	11.9	0.4	10.1	12.1

Remarks
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2. Bearings with double shields (ZZ, ZZS) are also available with single shields (Z, ZS).

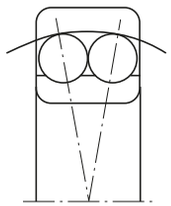
OID MECHANICAL PARTS BEARINGS



Self-Aligning Ball Bearings

Self-Aligning Ball Bearings

DESIGN, TYPES, AND FEATURES

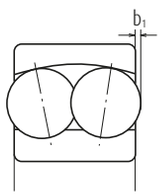


The outer ring has a spherical raceway and its center of curvature coincides with that of the bearing; therefore, the axis of the inner ring, balls and cage can deflect to some extent around the bearing center. This type is recommended when the alignment of the shaft and housing is difficult and when the shaft may bend. Since the contact angle is small, the axial load capacity is low.

Pressed steel cages are usually used.

PROTRUSION AMOUNT OF BALLS

Among self-aligning ball bearings, there are some in which the balls protrude from the side face as shown below. This protrusion amount b_1 is listed



Bearing No.	b_1 (mm)
2222(K), 2316(K)	0.5
2319(K), 2320(K) 2321, 2322(K)	0.5
1318(K)	1.5
1319(K)	2
1320(K), 1321 1322(K)	3

PERMISSIBLE MISALIGNMENT

The permissible misalignment of self-aligning ball bearings is approximately 0.07 to 0.12 radian (4° to 7°) under normal loads. However, depending on the surrounding structure, such an angle may not be possible. Use care in the structural design.

CAGES

The cages of these bearings are made of pressed steel of glass-fibre reinforced Polyamid 66.
Suffix

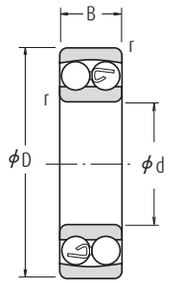
· (blank) - pressed steel

· J - pressed steel

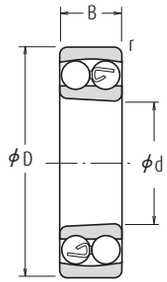
· TN/TNG - Polyamide 66

Self-Aligning Ball Bearings

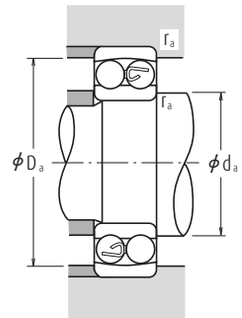
Bore Diameter 5 – 17 mm



Cylindrical Bore



Tapered Bore



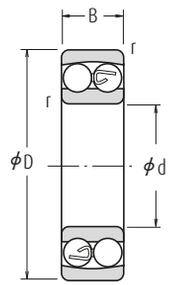
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	Cylindrical Bore
5	19	6	0.3	2 530	475	30 000	36 000	**135**
6	19	6	0.3	2 530	475	30 000	36 000	**126**
7	22	7	0.3	2 750	600	26 000	32 000	**127**
8	22	7	0.3	2 750	600	26 000	32 000	**108**
9	26	8	0.6	4 150	895	26 000	30 000	**129**
10	30	9	0.6	5 550	1 190	22 000	28 000	**1200**
	30	9	0.6	5 500	1 530	24 000	30 000	**1200TN**
	30	14	0.6	7 450	1 590	24 000	28 000	**2200**
	30	14	0.6	7 200	2 040	24 000	30 000	**2200TN**
	35	11	0.6	7 350	1 620	20 000	24 000	**1300**
	35	17	0.6	9 200	2 010	18 000	22 000	**2300**
12	32	10	0.6	5 700	1 270	22 000	26 000	**1201**
	32	10	0.6	5 600	1 270	24 000	30 000	**1201TNG**
	32	14	0.6	7 750	1 730	22 000	26 000	**2201**
	32	14	0.6	9 000	1 960	20 000	26 000	**2201ETNG**
	37	12	1.0	9 650	2 160	18 000	22 000	**1301**
	37	12	1.0	9 500	2 160	18 000	22 000	**1301TN**
	37	17	1.0	12 100	2 730	17 000	22 000	**2301**
15	35	11	0.6	7 600	1 750	18 000	22 000	**1202**
	35	11	0.6	7 500	1 760	20 000	26 000	**1202TNG**
	35	14	0.6	7 800	1 850	18 000	22 000	**2202**
	35	14	0.6	9 150	2 080	19 000	24 000	**2202ETNG**
	42	13	1.0	9 700	2 290	16 000	20 000	**1302**
	42	13	1.0	9 500	2 280	17 000	20 000	**1302TN**
	42	17	1.0	12 300	2 910	14 000	18 000	**2302**
	42	17	1.0	12 000	2 900	16 000	19 000	**2302ETNG**
17	40	12	0.6	8 000	2 010	16 000	20 000	**1203**
	40	12	0.6	8 000	2 040	18 000	22 000	**1203TNG**
	40	16	0.6	9 950	2 420	16 000	20 000	**2203**
	40	16	0.6	11 400	2 750	16 000	19 000	**2203ETNG**
	47	14	1.0	12 700	3 200	14 000	17 000	**1303**
	47	14	1.0	12 500	3 200	15 000	18 000	**1303TN**
	47	19	1.0	14 700	3 550	13 000	16 000	**2303**
	47	19	1.0	14 300	3 550	14 000	17 000	**2303TN**

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
Tapered Bore(1)	d_a min.	D_a max.	r_a max.	e	Y_2	Y_3	Y_0	approx.
–	7.0	17.0	0.3	0.34	2.9	1.9	1.9	0.009
–	8.0	17.0	0.3	0.34	2.9	1.9	1.9	0.008
–	9.0	20.0	0.3	0.31	3.1	2.0	2.1	0.013
–	10.0	20.0	0.3	0.31	3.1	2.0	2.1	0.016
–	13.0	22.0	0.6	0.32	3.1	2.0	2.1	0.021
–	14.0	26.0	0.6	0.32	3.1	2.0	2.1	0.041
–	14.0	26.0	0.6	0.32	3.00	2.0	2.1	0.034
–	14.0	26.0	0.6	0.64	1.5	0.98	1.0	0.046
–	14.0	26.0	0.6	0.66	1.50	1.0	1.0	0.047
–	14.0	31.0	0.6	0.35	2.8	1.8	1.9	0.059
–	14.0	31.0	0.6	0.71	1.4	0.89	0.93	0.078
–	16.0	28.0	0.6	0.36	2.7	1.8	1.8	0.039
–	16.0	28.0	0.6	0.37	2.60	1.7	0.040	0.040
–	16.0	28.0	0.6	0.58	1.7	1.1	1.1	0.051
–	16.0	28.0	0.6	0.53	1.85	1.2	1.3	0.053
–	17.0	32.0	1.0	0.33	2.9	1.9	2.0	0.068
–	17.0	32.0	1.0	0.35	2.80	1.8	1.9	0.067
–	17.0	32.0	1.0	0.60	1.6	1.1	1.1	0.087
–	19.0	31.0	0.6	0.32	3.1	2.0	2.1	0.051
–	19.0	31.0	0.6	0.34	2.90	1.9	2.0	0.049
–	19.0	31.0	0.6	0.50	1.9	1.3	1.3	0.058
–	19.0	31.0	0.6	0.46	2.10	1.4	1.4	0.060
–	20.0	37.0	1.0	0.33	2.9	1.9	2.0	0.101
–	20.0	37.0	1.0	0.35	2.80	1.8	1.9	0.094
–	20.0	37.0	1.0	0.51	1.9	1.2	1.3	0.113
–	20.0	37.0	1.0	0.51	1.90	1.2	1.3	0.110
–	21.0	36.0	0.6	0.31	3.1	2.0	2.1	0.072
–	21.0	36.0	0.6	0.33	3.00	1.9	2.0	0.073
–	21.0	36.0	0.6	0.50	1.9	1.3	1.3	0.089
–	21.0	36.0	0.6	0.46	2.10	1.4	1.4	0.088
–	22.0	42.0	1.0	0.32	3.1	2.0	2.1	0.13
–	22.0	42.0	1.0	0.32	3.00	1.9	2.0	0.130
–	22.0	42.0	1.0	0.51	1.9	1.2	1.3	0.16
–	22.0	42.0	1.0	0.53	1.90	1.2	1.3	0.160

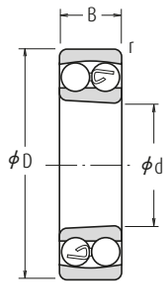
Note (1) The suffix K represents bearings with tapered bores (1 : 12)

Self-Aligning Ball Bearings

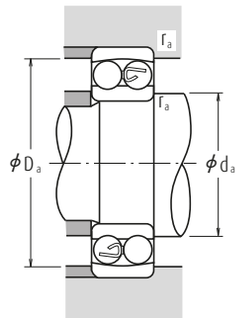
Bore Diameter 20 – 35 mm



Cylindrical Bore



Tapered Bore



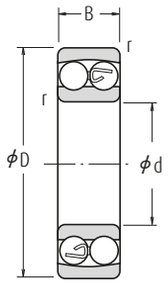
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	Cylindrical Bore
20	47	14	1.0	10 000	2 610	14 000	17 000	**1204**
	47	14	1.0	10 000	2 650	15 000	18 000	**1204TNG**
	47	18	1.0	12 800	3 300	14 000	17 000	**2204**
	47	18	1.0	14 300	3 550	14 000	17 000	**2204ETNG**
	52	15	1.1	12 600	3 350	12 000	15 000	**1304**
	52	15	1.1	12 500	3 350	13 000	16 000	**1304TNG**
	52	21	1.1	18 500	4 700	11 000	14 000	**2304**
	52	21	1.1	18 000	4 650	13 000	16 000	**2304J**
25	52	15	1.0	12 200	3 300	12 000	14 000	**1205**
	52	15	1.0	12 200	3 350	13 000	16 000	**1205TNG**
	52	18	1.0	12 400	3 450	12 000	14 000	**2205**
	52	18	1.0	17 000	4 400	12 000	15 000	**2205ETNG**
	62	17	1.1	18 200	5 000	10 000	13 000	**1305**
	62	17	1.1	18 000	5 000	11 000	14 000	**1305TNG**
	62	24	1.1	24 900	6 600	9 500	12 000	**2305**
	62	24	1.1	24 500	6 550	10 000	13 000	**2305TNG**
30	62	16	1.0	15 800	4 650	10 000	12 000	**1206**
	62	16	1.0	15 600	4 650	11 000	14 000	**1206TNG**
	62	20	1.0	15 300	4 550	10 000	12 000	**2206**
	62	20	1.0	25 500	6 950	9 500	12 000	**2206ETNG**
	72	19	1.1	21 400	6 300	8 500	11 000	**1306**
	72	19	1.1	21 200	6 300	9 000	11 000	**1306TNG**
	72	27	1.1	32 000	8 750	8 000	10 000	**2306**
	72	27	1.1	31 500	8 650	8 500	10 000	**2306TNG**
35	72	17	1.1	15 900	5 100	8 500	10 000	**1207**
	72	17	1.1	16 000	5 200	9 500	12 000	**1207TNG**
	72	23	1.1	21 700	6 600	8 500	10 000	**2207**
	72	23	1.1	32 000	9 000	8 000	9 500	**2207ETNG**
	80	21	1.5	25 300	7 850	7 500	9 500	**1307**
	80	21	1.5	25 000	8 000	8 000	9 500	**1307TNG**
	80	31	1.5	40 000	11 300	7 100	9 000	**2307**
	80	31	1.5	39 000	11 200	7 500	9 000	**2307TNG**

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
Tapered Bore(1)	d_a min.	D_a max.	r_a max.	e	Y_2	Y_3	Y_0	approx.
1204 K	25.0	42.0	1.0	0.29	3.4	2.2	2.3	0.12
1204KTNG	25.0	42.0	1.0	0.28	3.50	2.2	2.3	0.120
2204 K	25.0	42.0	1.0	0.47	2.1	1.3	1.4	0.142
2204EKTNG	25.0	42.0	1.0	0.44	2.20	1.5	1.5	0.140
1304 K	26.5	45.5	1.0	0.29	3.4	2.2	2.3	0.164
1304KTNG	26.5	45.5	1.0	0.29	3.30	2.2	2.3	0.160
2304 K	26.5	45.5	1.0	0.50	1.9	1.2	1.3	0.207
2304KJ	26.5	45.5	1.0	0.51	1.90	1.2	1.3	0.210
1205 K	30.0	47.0	1.0	0.28	3.5	2.3	2.4	0.14
1205KTNG	30.0	47.0	1.0	0.27	3.70	2.4	2.5	0.140
2205 K	30.0	47.0	1.0	0.41	2.4	1.5	1.6	0.16
2205EKTNG	30.0	47.0	1.0	0.35	2.80	1.8	1.9	0.160
1305 K	31.5	55.5	1.0	0.28	3.5	2.3	2.4	0.261
1305KTNG	31.5	55.5	1.0	0.28	3.50	2.3	2.4	0.260
2305 K	31.5	55.5	1.0	0.47	2.1	1.4	1.4	0.332
2305KTNG	31.5	55.5	1.0	0.48	2.00	1.3	1.4	0.340
1206 K	35.0	57.0	1.0	0.25	3.9	2.5	2.6	0.22
1206KTNG	35.0	57.0	1.0	0.25	3.90	2.5	2.7	0.220
2206 K	35.0	57.0	1.0	0.38	2.5	1.6	1.7	0.262
2206EKTNG	35.0	57.0	1.0	0.30	3.30	2.1	2.2	0.260
1306 K	36.5	65.5	1.0	0.26	3.7	2.4	2.5	0.391
1306KTNG	36.5	65.5	1.0	0.26	3.70	2.4	2.5	0.390
2306 K	36.5	65.5	1.0	0.44	2.2	1.4	1.5	0.5
2306KTNG	36.5	65.5	1.0	0.45	2.20	1.4	1.5	0.500
1207 K	41.5	65.5	1.0	0.23	4.2	2.7	2.8	0.33
1207KTNG	41.5	65.5	1.0	0.22	4.30	2.8	2.9	0.320
2207 K	41.5	65.5	1.0	0.37	2.6	1.7	1.8	0.403
2207EKTNG	41.5	65.5	1.0	0.30	3.30	2.1	2.2	0.400
1307 K	43.0	72.0	1.5	0.26	3.8	2.5	2.6	0.52
1307KTNG	43.0	72.0	1.5	0.26	3.80	2.5	2.6	0.510
2307 K	43.0	72.0	1.5	0.46	2.1	1.4	1.4	0.671
2307KTNG	43.0	72.0	1.5	0.47	2.10	1.4	1.4	0.680

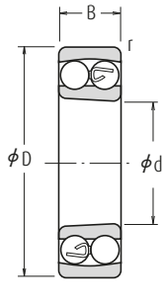
Note (1) The suffix K represents bearings with tapered bores (1 : 12)

Self-Aligning Ball Bearings

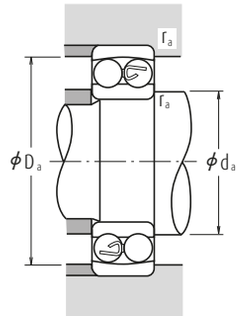
Bore Diameter 40 – 55 mm



Cylindrical Bore



Tapered Bore



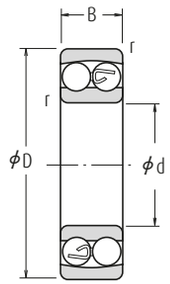
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	Cylindrical Bore
40	80	18	1.1	19 300	6 500	7 500	9 000	**1208**
	80	18	1.1	19 300	6 550	8 500	10 000	**1208TNG**
	80	23	1.1	22 400	7 350	7 500	9 000	**2208**
	80	23	1.1	31 500	9 500	7 500	9 000	**2208ETNG**
	90	23	1.5	29 800	9 700	6 700	8 500	**1308**
	90	23	1.5	29 000	9 650	7 000	8 500	**1308TNG**
	90	33	1.5	45 500	13 500	6 300	8 000	**2308**
	90	33	1.5	45 000	13 400	6 700	8 000	**2308TNG**
45	85	19	1.1	22 000	7 350	7 100	8 500	**1209**
	85	19	1.1	22 000	7 350	7 500	9 000	**1209TNG**
	85	23	1.1	23 300	8 150	7 100	8 500	**2209**
	85	23	1.1	28 000	9 000	7 000	8 500	**2209ETNG**
	100	25	1.5	38 500	12 700	6 000	7 500	**1309**
	100	25	1.5	38 000	12 900	6 300	7 500	**1309TNG**
	100	36	1.5	55 000	16 700	5 600	7 100	**2309**
	100	36	1.5	54 000	16 300	6 000	7 000	**2309TNG**
50	90	20	1.1	22 800	8 100	6 300	8 000	**1210**
	90	20	1.1	22 800	8 150	7 000	8 500	**1210TNG**
	90	23	1.1	23 300	8 450	6 300	8 000	**2210**
	90	23	1.1	28 000	9 500	6 700	8 000	**2210ETNG**
	110	27	2.0	43 500	14 100	5 600	6 700	**1310**
	110	27	2.0	41 500	14 300	5 600	6 700	**1310TNG**
	110	40	2.0	65 000	20 200	5 000	6 300	**2310**
	110	40	2.0	64 000	20 000	5 300	6 300	**2310TNG**
55	100	21	1.5	26 900	10 000	6 000	7 100	**1211**
	100	21	1.5	27 000	10 000	6 300	7 500	**1211TNG**
	100	25	1.5	26 700	9 900	6 000	7 100	**2211**
	100	25	1.5	39 000	12 700	5 600	6 700	**2211ETNG**
	120	29	2.0	51 500	17 900	5 000	6 300	**1311**
	120	29	2.0	51 000	18 000	5 000	6 000	**1311TNG**
	120	43	2.0	76 500	24 000	4 800	6 000	**2311**
	120	43	2.0	75 000	23 600	4 800	5 600	**2311TNG**

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
Tapered Bore(1)	d_a min.	D_a max.	r_a max.	e	Y_2	Y_3	Y_0	approx.
1208 K	46.5	73.5	1.0	0.22	4.3	2.8	2.9	0.42
1208KTNG	46.5	73.5	1.0	0.22	4.5	2.9	3.0	0.420
2208 K	46.5	73.5	1.0	0.33	3.0	1.9	2.0	0.506
2208EKTNG	46.5	73.5	1.0	0.26	3.8	2.4	2.5	0.510
1308 K	48.0	82.0	1.5	0.24	4.0	2.6	2.7	0.727
1308KTNG	48.0	82.0	1.5	0.25	3.9	2.5	2.6	0.720
2308 K	48.0	82.0	1.5	0.43	2.3	1.5	1.5	0.918
2308KTNG	48.0	82.0	1.5	0.43	2.3	1.5	1.5	0.93
1209 K	51.5	78.5	1.0	0.21	4.7	3.0	3.1	0.47
1209KTNG	51.5	78.5	1.0	0.21	4.7	3.0	3.2	0.47
2209 K	51.5	78.5	1.0	0.30	3.2	2.1	2.2	0.556
2209EKTNG	51.5	78.5	1.0	0.26	3.8	2.4	2.5	0.55
1309 K	53.0	92.0	1.5	0.25	4.0	2.6	2.7	0.971
1309KTNG	53.0	92.0	1.5	0.25	3.9	2.5	2.6	0.96
2309 K	53.0	92.0	1.5	0.41	2.4	1.5	1.6	1.2
2309KTNG	53.0	92.0	1.5	0.43	2.3	1.5	1.6	1.25
1210 K	56.5	83.5	1.0	0.21	4.7	3.1	3.2	0.535
1210KTNG	56.5	83.5	1.0	0.19	4.9	3.2	3.3	0.53
2210 K	56.5	83.5	1.0	0.28	3.4	2.2	2.3	0.598
2210EKTNG	56.5	83.5	1.0	0.22	4.1	2.6	3.7	0.59
1310 K	59.0	101.0	2.0	0.23	4.2	2.7	2.8	1.23
1310KTNG	59.0	101.0	2.0	0.24	4.0	2.6	2.7	1.20
2310 K	59.0	101.0	2.0	0.42	2.3	1.5	1.6	1.63
2310KTNG	59.0	101.0	2.0	0.43	2.3	1.5	1.5	1.65
1211 K	63.0	92.0	1.5	0.20	4.9	3.2	3.3	0.708
1211KTNG	63.0	92.0	1.5	0.19	5.1	3.3	3.5	0.71
2211 K	63.0	92.0	1.5	0.28	3.5	2.3	2.4	0.807
2211EKTNG	63.0	92.0	1.5	0.22	4.5	2.9	2.1	0.81
1311 K	64.0	111.0	2.0	0.23	4.2	2.7	2.8	1.6
1311KTNG	64.0	111.0	2.0	0.24	4.1	2.7	2.8	1.60
2311 K	64.0	111.0	2.0	0.41	2.4	1.5	1.6	2.08
2311KTNG	64.0	111.0	2.0	0.42	2.3	1.5	1.6	2.10

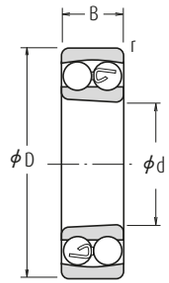
Notes (1) The suffix K represents bearings with tapered bores (1 : 12)
(*) The balls of the bearings marked * protrude slightly from the bearing face.

Self-Aligning Ball Bearings

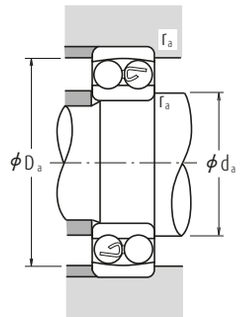
Bore Diameter 60 – 75 mm



Cylindrical Bore



Tapered Bore



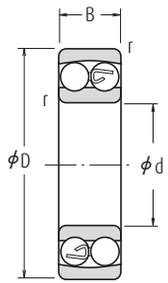
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	Cylindrical Bore
60	110	22	1.5	30 500	11 500	5 300	6 300	**1212**
	110	22	1.5	30 000	11 600	5 600	6 700	**1212TNG**
	110	28	1.5	34 000	12 600	5 300	6 300	**2212**
	110	28	1.5	47 500	16 600	5 300	6 300	**2212ETNG**
	130	31	2.1	57 500	20 800	4 500	5 600	**1312**
	130	31	2.0	57 500	20 800	4 800	5 600	**1312TNG**
	130	46	2.1	88 500	28 300	4 300	5 300	**2312**
	130	46	2.0	88 500	28 300	4 300	5 300	**2312TNG**
65	120	23	1.5	31 000	12 500	4 800	6 000	**1213**
	120	23	1.5	31 000	12 500	5 300	6 300	**1213TNG**
	120	31	1.5	43 500	16 400	4 800	6 000	**2213**
	120	31	1.5	57 000	19 300	4 500	5 300	**2213ETNG**
	140	33	2.1	62 500	22 900	4 300	5 300	**1313**
	140	33	2.1	62 500	22 900	4 300	5 300	**1313J**
	140	48	2.1	97 000	32 500	3 800	4 800	**2313**
	140	48	2.1	96 500	32 500	4 000	4 800	**2313J**
70	125	24	1.5	35 000	13 800	4 800	5 600	**1214**
	125	24	1.5	34 500	13 700	5 000	6 000	**1214TNG**
	125	31	1.5	44 000	17 100	4 500	5 600	**2214**
	125	31	1.5	44 000	17 100	4 500	5 600	**2214J**
	150	35	2.1	75 000	27 700	4 000	5 000	**1314**
	150	35	2.1	67 500	25 100	4 000	5 000	**1314J**
	150	51	2.1	111 000	37 500	3 600	4 500	**2314**
	150	51	2.1	111 000	37 500	3 600	4 300	**2314J**
75	130	25	1.5	39 000	15 700	4 300	5 300	**1215**
	130	25	1.5	39 000	15 600	4 800	5 600	**1215TNG**
	130	31	1.5	44 500	17 800	4 300	5 300	**2215**
	130	31	1.5	44 500	17 800	4 300	5 300	**2215J**
	160	37	2.1	80 000	30 000	3 800	4 500	**1315**
	160	37	2.1	80 000	30 000	3 800	4 500	**1315J**
	160	55	2.1	125 000	43 000	3 400	4 300	**2315**
	160	55	2.1	125 000	43 000	3 400	4 300	**2315J**

Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
Tapered Bore(1)	d_a min.	D_a max.	r_a max.	e	Y_2	Y_3	Y_0	approx.
1212 K	68.0	102.0	1.5	0.18	5.3	3.4	3.6	0.91
1212KTNG	68.5	101.5	1.5	0.18	5.4	3.5	3.6	0.90
2212 K	68.0	102.0	1.5	0.28	3.5	2.3	2.4	1.1
2212EKTNG	68.5	101.5	1.5	0.23	4.2	2.7	2.8	1.10
1312 K	71.0	119.0	2.0	0.23	4.3	2.8	2.9	2.0
1312KJ	72.0	118.0	2.0	0.23	4.3	2.8	2.9	1.95
2312 K	71.0	119.0	2.0	0.40	2.4	1.6	1.6	2.58
2312KJ	72.0	118.0	2.0	0.40	2.4	1.6	1.7	2.60
1213 K	73.0	112.0	1.5	0.17	5.7	3.7	3.8	1.16
1213KTNG	73.0	112.0	1.5	0.18	5.5	3.6	3.7	1.15
2213 K	73.0	112.0	1.5	0.28	3.5	2.3	2.4	1.5
2213EKTNG	73.0	112.0	1.5	0.23	4.3	2.8	2.9	1.45
1313 K	76.0	129.0	2.0	0.23	4.2	2.7	2.9	2.47
1313KTNG	76.0	128.0	2.0	0.23	4.3	2.8	2.9	2.45
2313 K	76.0	129.0	2.0	0.39	2.5	1.6	1.7	3.2
2313KTNG	76.0	128.0	2.0	0.39	2.5	1.6	1.7	3.25
–	78.0	117.0	1.5	0.18	5.3	3.4	3.6	1.3
–	78.0	116.5	1.5	0.19	5.1	3.3	3.5	1.25
–	78.0	117.0	1.5	0.26	3.7	2.4	2.5	1.55
–	78.0	116.5	1.5	0.26	3.7	2.4	2.5	1.50
–	81.0	139.0	2.0	0.22	4.4	2.8	3.0	3.03
–	81.0	138.0	2.0	0.22	4.4	2.8	3.0	3.00
–	81.0	139.0	2.0	0.38	2.6	1.7	1.8	3.9
–	81.0	138.0	2.0	0.38	2.6	1.7	1.8	4.25
1215 K	83.0	122.0	1.5	0.17	5.6	3.6	3.8	1.41
1215KTNG	83.5	121.5	1.5	0.17	5.6	3.6	3.8	1.35
2215 K	83.0	122.0	1.5	0.25	3.9	2.5	2.6	1.6
2215KJ	83.5	121.5	1.5	0.25	3.9	2.5	2.6	1.60
1315 K	86.0	149.0	2.0	0.22	4.4	2.8	2.9	3.63
1315KJ	87.0	148.0	2.0	0.22	4.4	2.8	3.0	3.55
2315 K	86.0	149.0	2.0	0.38	2.5	1.6	1.7	4.78
2315KJ	87.0	148.0	2.0	0.38	2.6	1.6	1.7	5.15

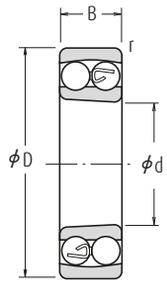
Notes (1) The suffix K represents bearings with tapered bores (1 : 12)
(*) The balls of the bearings marked * protrude slightly from the bearing face.

Self-Aligning Ball Bearings

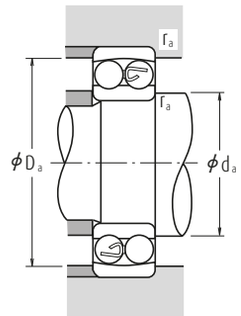
Bore Diameter 80 – 110 mm



Cylindrical Bore



Tapered Bore

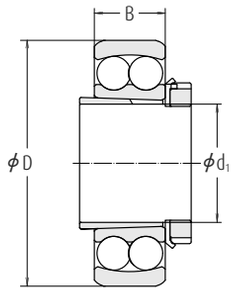


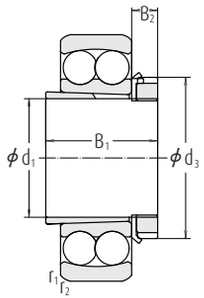
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	Cylindrical Bore
80	140	26	2.0	40 000	17 000	4 000	5 000	**1216**
	140	33	2.0	49 000	19 900	4 000	5 000	**2216**
	170	39	2.1	89 000	33 000	3 600	4 300	**1316**
	170	58	2.1	130 000	45 000	3 200	4 000	* **2316**
85	150	28	2.0	49 500	20 800	3 800	4 500	**1217**
	150	36	2.0	58 500	23 600	3 800	4 800	**2217**
	180	41	3.0	98 500	38 000	3 400	4 000	**1317**
	180	60	3.0	142 000	51 500	3 000	3 800	**2317**
90	160	30	2.0	57 500	23 500	3 600	4 300	**1218**
	160	40	2.0	70 500	28 700	3 600	4 300	**2218**
	190	43	3.0	117 000	44 500	3 200	3 800	* **1318**
	190	64	3.0	154 000	57 500	2 800	3 600	**2318**
95	170	32	2.1	64 000	27 100	3 400	4 000	**1219**
	170	43	2.1	84 000	34 500	3 400	4 000	**2219**
	200	45	3.0	129 000	51 000	3 000	3 600	* **1319**
	200	67	3.0	161 000	64 500	2 800	3 400	* **2319**
100	180	34	2.1	69 500	29 700	3 200	3 800	**1220**
	180	46	2.1	94 500	38 500	3 200	3 800	**2220**
	215	47	3.0	140 000	57 500	2 800	3 400	* **1320**
	215	73	3.0	187 000	79 000	2 400	3 200	* **2320**
105	190	36	2.1	75 000	32 500	3 000	3 600	**1221**
	190	50	2.1	109 000	45 000	3 000	3 600	**2221**
	225	49	3.0	154 000	64 500	2 600	3 200	* **1321**
	225	77	3.0	200 000	87 000	2 400	3 000	* **2321**
110	200	38	2.1	87 000	38 500	2 800	3 400	**1222**
	200	53	2.1	122 000	51 500	2 800	3 400	* **2222**
	240	50	3.0	161 000	72 000	2 400	3 000	* **1322**
	240	80	3.0	211 000	94 500	2 200	2 800	* **2322**

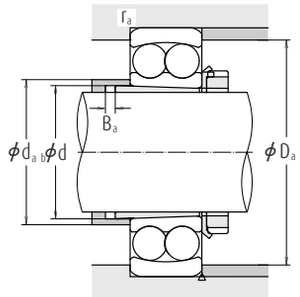
Numbers	Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
Tapered Bore(¹)	d_a min.	D_a max.	r_a max.	e	Y_2	Y_3	Y_0	approx.
1216 K	89	131	2.0	0.16	6.0	3.9	4.1	1.73
2216 K	89	131	2.0	0.25	3.9	2.5	2.7	1.97
1316 K	91	159	2.0	0.22	4.5	2.9	3.1	4.24
* **2316 K**	91	159	2.0	0.39	2.5	1.6	1.7	5.63
1217 K	94	141	2.0	0.17	5.7	3.7	3.8	2.09
2217 K	94	141	2.0	0.25	3.9	2.5	2.6	2.56
1317 K	98	167	2.5	0.21	4.6	2.9	3.1	5.03
2317 K	98	167	2.5	0.37	2.6	1.7	1.8	6.56
1218 K	99	151	2.0	0.17	5.8	3.8	3.9	2.55
2218 K	99	151	2.0	0.27	3.7	2.4	2.5	3.22
* **1318 K**	103	177	2.5	0.22	4.3	2.8	2.9	5.83
2318 K	103	177	2.5	0.38	2.6	1.7	1.7	7.75
1219 K	106	159	2.0	0.17	5.8	3.7	3.9	3.21
2219 K	106	159	2.0	0.27	3.7	2.4	2.5	3.96
* **1319 K**	108	187	2.5	0.23	4.3	2.8	2.9	6.79
* **2319 K**	108	187	2.5	0.38	2.6	1.7	1.8	8.97
1220 K	111	169	2.0	0.17	5.6	3.6	3.8	3.82
2220 K	111	169	2.0	0.27	3.7	2.4	2.5	4.71
* **1320 K**	113	202	2.5	0.24	4.1	2.7	2.8	8.4
* **2320 K**	113	202	2.5	0.38	2.6	1.7	1.8	11.5
–	116	179	2.0	0.18	5.5	3.6	3.7	4.52
–	116	179	2.0	0.28	3.5	2.3	2.4	5.73
–	118	212	2.5	0.23	4.2	2.7	2.9	9.58
–	118	212	2.5	0.38	2.6	1.7	1.7	14.5
1222 K	121	189	2.0	0.17	5.7	3.7	3.9	5.33
* **2222 K**	121	189	2.0	0.28	3.5	2.2	2.3	6.75
* **1322 K**	123	227	2.5	0.22	4.4	2.8	3.0	11.5
* **2322 K**	123	227	2.5	0.37	2.6	1.7	1.8	17.5

Notes (¹) The suffix K represents bearings with tapered bores (1 : 12)
(*) The balls of the bearings marked * protrude slightly from the bearing face.

With adapter sleeve | Shaft 17–65 mm





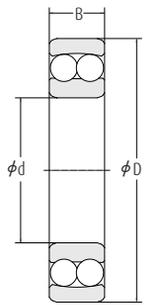


Dimensions				Load ratings		Speed limits		Abbreviation for	
d_1 Shaft	D	B	$r_{1,2}$ min.	dyn. C	stat. C_0	Grease	Oil	Bearing	Sleeve
	mm			kN		(min^{-1})			
17	47	14	1.0	10.00	2.65	15 000	18 000	1204KTNG	H204
	47	18	1.0	14.30	3.55	14 000	17 000	2204EKTNG	H304
	52	15	1.1	12.50	3.35	13 000	16 000	1304KTNG	H304
	52	21	1.1	18.00	4.65	13 000	16 000	2304KJ	H2304
20	52	15	1.0	12.20	3.35	13 000	16 000	1205KTNG	H205
	52	18	1.0	17.00	4.40	12 000	15 000	2205EKTNG	H305
	62	17	1.1	18.00	5.00	11 000	14 000	1305KTNG	H305
	62	24	1.1	24.50	6.55	10 000	13 000	2305KTNG	H2305
25	62	16	1.0	15.60	4.65	11 000	14 000	1206KTNG	H206
	62	20	1.0	25.50	6.95	9 500	12 000	2206EKTNG	H306
	72	19	1.1	21.20	6.30	9 000	11 000	1306KTNG	H306
	72	27	1.1	31.50	8.65	8 500	10 000	2306KTNG	H2306
30	72	17	1.1	16.00	5.20	9 500	12 000	1207KTNG	H207
	72	23	1.1	32.00	9.00	8 000	9 500	2207EKTNG	H307
	80	21	1.5	25.00	8.00	8 000	9 500	1307KTNG	H307
	80	31	1.5	39.00	11.20	7 500	9 000	2307KTNG	H2307
35	80	18	1.1	19.30	6.55	8 500	10 000	1208KTNG	H208
	80	23	1.1	31.50	9.50	7 500	9 000	2208EKTNG	H308
	90	23	1.5	29.00	9.65	7 000	8 500	1308KTNG	H308
	90	33	1.5	45.00	13.40	6 700	8 000	2308KTNG	H2308
40	85	19	1.1	22.00	7.35	7 500	9 000	1209KTNG	H209
	85	23	1.1	28.00	9.00	7 000	8 500	2209EKTNG	H309
	100	25	1.5	38.00	12.90	6 300	7 500	1309KTNG	H309
	100	36	1.5	54.00	16.30	6 000	7 000	2309KTNG	H2309
45	90	20	1.1	22.90	8.15	7 000	8 500	1210KTNG	H210
	90	23	1.1	28.00	9.50	6 700	8 000	2210EKTNG	H310
	110	27	2.0	41.50	14.30	5 600	6 700	1310KTNG	H310
	110	40	2.0	64.00	20.00	5 300	6 300	2310KTNG	H2310
50	100	21	1.5	27.00	10.00	6 300	7 500	1211KTNG	H211
	100	25	1.5	39.00	12.70	5 600	6 700	2211EKTNG	H311
	120	29	2.0	51.00	18.00	5 000	6 000	1311KTNG	H311
	120	43	2.0	75.00	23.60	4 800	5 600	2311KTNG	H2311
55	110	22	1.5	30.00	11.60	5 600	6 700	1212KTNG	H212
	110	28	1.5	47.50	16.60	5 300	6 300	2212EKTNG	H312
	130	31	2.0	57.50	20.80	4 800	5 600	1312KJ	H312
	130	46	2.0	88.50	28.30	4 300	5 300	2312KJ	H2312
60	120	23	1.5	31.00	12.50	5 300	6 300	1213KTNG	H213
	120	31	1.5	57.00	19.30	4 500	5 300	2213EKTNG	H313
	140	33	2.1	62.50	22.90	4 300	5 300	1313KJ	H313
	140	48	2.1	96.50	32.50	4 000	4 800	2313KJ	H2313
65	130	25	1.5	39.00	15.60	4 800	5 600	1215KTNG	H215
	130	31	1.5	44.50	17.80	4 300	5 300	2215KJ	H315
	160	37	2.1	80.00	30.00	3 800	4 500	1315KJ	H315
	160	55	2.1	125.00	43.00	3 400	4 300	2315KJ	H2315

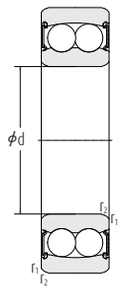
Dimensions (mm)			Abutment dimensions (mm)					Factors				Weight	
d_3	B_1	B_2	d_a max	d_b min	D_a max	B_a min	r_a max	e	Y_1 Fa/fr ≤ e	Y_2 Fa/fr > e	Y_0	Bearing	Sleeve
												kg	
32	24	7	27	23	42.0	5	1.0	0.28	2.2	3.5	2.3	0.12	0.041
32	28	7	27	23	42.0	5	1.0	0.44	1.5	2.2	1.5	0.14	0.045
32	28	7	30	23	45.5	8	1.0	0.29	2.2	3.3	2.3	0.16	0.045
32	31	7	28	24	45.5	5	1.0	0.51	1.2	1.9	1.3	0.21	0.049
38	26	8	32	28	47.0	5	1.0	0.27	2.4	3.7	2.5	0.14	0.070
38	29	8	32	28	47.0	5	1.0	0.35	1.8	2.8	1.9	0.16	0.075
38	29	8	35	28	55.5	6	1.0	0.28	2.3	3.5	2.4	0.26	0.075
38	35	8	34	30	55.5	5	1.0	0.48	1.3	2.0	1.4	0.34	0.087
45	27	8	38	33	57.0	5	1.0	0.25	2.5	3.9	2.7	0.22	0.100
45	31	8	39	33	57.0	5	1.0	0.30	2.1	3.3	2.2	0.24	0.110
45	31	8	42	33	65.5	6	1.0	0.26	2.4	3.7	2.5	0.38	0.110
45	38	8	40	35	65.5	5	1.0	0.45	1.4	2.2	1.5	0.49	0.130
52	29	9	45	38	65.5	5	1.0	0.22	2.8	4.3	2.9	0.32	0.130
52	35	9	44	39	65.5	5	1.0	0.30	2.1	3.3	2.2	0.40	0.140
52	35	9	49	39	72.0	7	1.5	0.26	2.5	3.8	2.6	0.50	0.140
52	43	9	45	40	72.0	5	1.5	0.47	1.4	2.1	1.4	0.66	0.170
58	31	10	52	43	73.5	6	1.0	0.22	2.9	4.5	3.0	0.41	0.170
58	36	10	50	44	73.5	6	1.0	0.26	2.4	3.8	2.5	0.49	0.190
58	36	10	55	44	82.0	6	1.5	0.25	2.5	3.9	2.6	0.70	0.190
58	46	10	51	45	82.0	6	1.5	0.43	1.5	2.3	1.5	0.90	0.220
65	33	11	57	48	78.5	6	1.0	0.21	3.0	4.7	3.2	0.46	0.230
65	39	11	56	50	78.5	8	1.0	0.26	2.4	3.8	2.5	0.53	0.250
65	39	11	61	50	92.0	6	1.5	0.25	2.5	3.9	2.6	0.94	0.250
65	50	11	57	50	92.0	6	1.5	0.43	1.5	2.3	1.6	1.20	0.280
70	35	12	62	53	83.5	6	1.0	0.20	3.2	4.9	3.3	0.52	0.270
70	42	12	61	55	83.5	10	1.0	0.24	2.6	4.1	2.7	0.58	0.300
70	42	12	68	55	101.0	6	2.0	0.24	2.6	4.0	2.7	1.20	0.300
70	55	12	63	56	101.0	6	2.0	0.43	1.5	2.3	1.5	1.60	0.360
75	37	12	69	60	92.0	7	1.5	0.19	3.3	5.1	3.5	0.69	0.310
75	45	12	68	60	92.0	11	1.5	0.22	2.9	4.5	2.1	0.79	0.390
75	45	12	74	60	111.0	7	2.0	0.24	2.7	4.1	2.8	1.55	0.390
75	59	12	69	61	111.0	7	2.0	0.42	1.5	2.3	1.6	2.05	0.420
80	38	13	75	64	102.0	7	1.5	0.18	3.5	5.4	3.6	0.90	0.350
80	47	13	73	65	102.0	9	1.5	0.23	2.7	4.2	2.8	1.10	0.390
80	47	13	83	65	119.0	7	2.0	0.23	2.8	4.3	2.9	1.95	0.390
80	62	13	74	66	119.0	7	2.0	0.40	1.6	2.4	1.7	2.60	0.490
85	40	14	83	70	112.0	7	1.5	0.18	3.6	5.5	3.7	1.15	0.400
85	50	14	79	70	112.0	9	1.5	0.23	2.8	4.3	2.9	1.45	0.460
85	50	14	89	70	129.0	7	2.0	0.23	2.8	4.3	2.9	2.45	0.460
85	65	14	82	72	129.0	7	2.0	0.39	1.6	2.5	1.7	3.25	0.550
98	43	15	92	80	122.0	7	1.5	0.17	3.6	5.6	3.8	1.35	0.710
98	55	15	90	80	122.0	13	1.5	0.25	2.5	3.9	2.6	1.60	0.830
98	55	15	100	80	149.0	7	2.0	0.22	2.8	4.4	3.0	3.55	0.830
98	73	15	94	82	149.0	7	2.0	0.38	1.6	2.6	1.7	5.15	1.050

Self-Aligning Ball Bearings

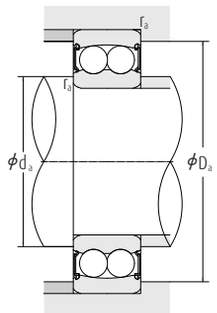
Sealed on both sides | Bore 12–65 mm



open



2RS

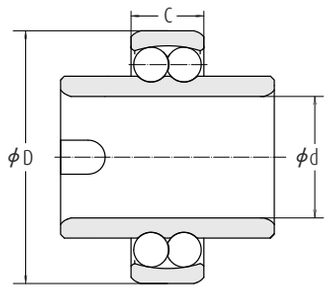


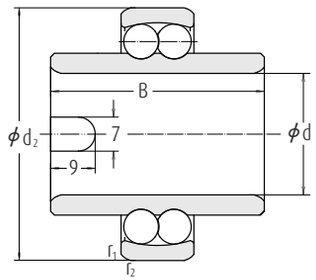
Dimensions				Load ratings		Speed limits Grease	Abbreviation	
d	D	B	$r_{1,2}$ min	dyn. C	stat. C_0		Cylindrical bore	Tapered bore
	mm			kN		min^{-1}		
12	32	14	0.6	5.60	1.27	16 000	2201-2RSTNG	–
15	35	14	0.6	7.50	1.76	15 000	2202-2RSTNG	–
	42	17	1.0	9.50	2.28	15 000	2302-2RSTN	–
17	40	16	0.6	8.00	2.04	14 000	2203-2RSTNG	–
	47	19	1.0	12.50	3.20	11 000	2303-2RSTN	–
20	47	18	1.0	10.00	2.65	11 000	2204-2RSTNG	2204K2RSTNG
	52	21	1.1	12.50	3.35	10 000	2304-2RSTNG	2304K2RSTNG
25	52	18	1.0	12.20	3.35	9 500	2205-2RSTNG	2205K2RSTNG
	62	24	1.1	18.00	5.00	8 000	2305-2RSTNG	2305K2RSTNG
30	62	20	1.0	15.60	4.65	8 000	2206-2RSTNG	2206K2RSTNG
	72	27	1.1	21.20	6.30	6 700	2306-2RSTNG	2306K2RSTNG
35	72	23	1.1	16.00	5.20	7 000	2207-2RSTNG	2207K2RSTNG
	80	31	1.5	25.00	8.00	6 000	2307-2RSTNG	2307K2RSTNG
40	80	23	1.1	19.30	6.55	6 300	2208-2RSTNG	2208K2RSTNG
	90	33	1.5	29.00	9.65	5 300	2308-2RSTNG	2308K2RSTNG
45	85	23	1.1	22.00	7.35	5 600	2209-2RSTNG	2209K2RSTNG
	100	36	1.5	38.00	12.90	4 800	2309-2RSTNG	2309K2RSTNG
50	90	23	1.1	22.80	8.15	5 300	2210-2RSTNG	2210K2RSTNG
	100	40	2.0	41.50	14.30	4 300	2310-2RSTNG	2310K2RSTNG
55	100	25	1.5	27.00	10.00	4 800	2211-2RSTNG	2211K2RSTNG
	120	43	2.0	51.00	18.00	3 800	2311-2RSTNG	2311K2RSTNG
60	110	28	1.5	30.00	11.60	4 300	2212-2RSTNG	2212K2RSTNG
65	120	31	1.5	31.00	12.40	4 000	2213-2RSTNG	2213K2RSTNG

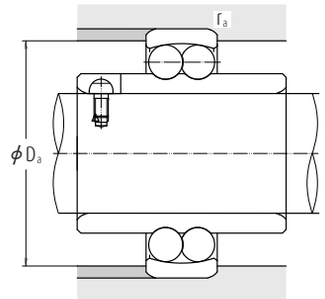
Abutment dimensions (mm)			Factors				Weight
d_a min	D_a max	r_a max	e	Y_1 Fa/fr ≤ e	Y_2 Fa/fr > e	Y_0	
	mm						kg
16.0	28.0	0.6	0.37	1.7	2.6	1.8	0.06
19.0	31.0	0.6	0.34	1.9	2.9	2.0	0.06
20.0	37.0	1.0	0.35	1.8	2.8	1.9	0.13
21.0	36.0	0.6	0.33	1.9	3.0	2.0	0.10
22.0	42.0	1.0	0.32	1.9	3.0	2.0	0.18
25.0	42.0	1.0	0.28	2.2	3.5	2.3	0.16
26.5	45.5	1.0	0.29	2.2	3.3	2.3	0.24
30.0	47.0	1.0	0.27	2.4	3.7	2.5	0.17
31.5	55.5	1.0	0.28	2.3	3.5	2.4	0.38
35.0	57.0	1.0	0.25	2.5	3.9	2.7	0.28
36.5	65.5	1.0	0.26	2.4	3.7	2.5	0.57
41.4	65.5	1.0	0.22	2.8	4.3	2.9	0.45
43.0	72.0	1.5	0.26	2.5	3.8	2.6	0.79
46.5	73.5	1.0	0.22	2.9	4.5	3.0	0.55
48.0	82.0	1.5	0.25	2.5	3.9	2.6	0.05
51.5	78.5	1.0	0.21	3.0	4.7	3.2	0.58
53.0	92.0	1.5	0.25	2.5	3.9	2.6	0.40
56.5	83.5	1.0	0.20	3.2	4.9	3.3	0.63
59.0	101.0	2.0	0.24	2.6	4.0	2.7	1.89
63.0	92.0	1.5	0.19	3.3	5.1	3.5	0.76
66.0	109.0	2.0	0.24	2.7	4.1	2.8	2.37
68.5	101.5	1.5	0.18	3.5	5.4	3.6	1.11
74.0	111.0	1.5	0.18	3.6	5.5	3.7	1.53

Self-Aligning Ball Bearings

With extended inner ring | Bore 20–60 mm







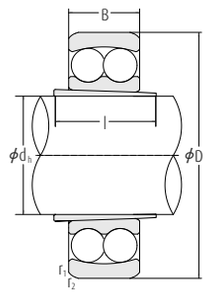
Dimensions				Load ratings		Speed limits Grease	Abbreviation
d	D	B	$r_{1,2}$ min	dyn. C	stat. C_0		
	mm			kN		min^{-1}	
20	47	14	1.0	10.0	2.65	9 000	11204TNG
	52	15	1.0	12.5	3.20	8 500	11304TNG
25	52	15	1.0	12.2	3.35	8 000	11205TNG
	62	17	1.0	18.0	5.00	6 700	11305TNG
30	62	16	1.0	15.6	4.65	6 700	11206TNG
	72	19	1.0	21.2	6.30	5 600	11306TNG
35	72	17	1.1	16.0	5.20	5 600	11207TNG
	80	21	1.1	25.0	8.00	5 000	11307TNG
40	80	18	1.1	19.3	6.55	5 000	11208TNG
	90	23	1.1	29.0	9.65	4 500	11308TNG
45	85	19	1.1	22.0	7.35	4 500	11209TNG
	100	25	1.1	38.0	12.90	3 800	11309TNG
50	90	20	1.1	22.8	8.15	4 300	11210TNG
	110	27	1.1	41.5	14.30	3 600	11310TNG
55	100	21	1.5	27.0	10.00	4 000	11211TNG
60	110	22	1.5	30.0	11.60	3 600	11212TNG

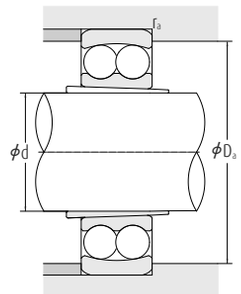
Note The bore tolerances do not comply with DIN 620. The bore tolerance corresponds to the tolerance zone J7.

Dimensions		Abutment dimensions		Factors				Weight
d_2	B	D_a max	r_a max	e	Y_1	Y_2	Y_0	
mm					Fa/Fr ≤ e	Fa/fr > e		kg
29.2	40	42.0	1.0	0.28	2.2	3.5	2.3	0.18
31.5	44	45.5	1.0	0.29	2.2	3.3	2.3	0.28
33.3	44	47.0	1.0	0.27	2.4	3.7	2.5	0.22
38.0	48	55.5	1.0	0.28	2.3	3.5	2.4	0.43
40.1	48	57.0	1.0	0.25	2.5	3.9	2.7	0.35
45.0	52	65.5	1.0	0.26	2.4	3.7	2.5	0.64
47.7	52	65.5	1.0	0.22	2.8	4.3	2.9	0.54
51.7	56	72.0	1.0	0.26	2.5	3.8	2.6	0.85
54.0	56	73.5	1.0	0.22	2.9	4.5	3.0	0.72
57.7	58	82.0	1.0	0.25	2.5	3.9	2.6	1.12
57.7	58	78.5	1.0	0.21	3.0	4.7	3.2	0.77
63.9	60	92.0	1.0	0.25	2.5	3.9	2.6	1.43
62.7	58	83.5	1.0	0.20	3.2	4.9	3.3	0.85
70.3	62	83.5	1.0	0.24	2.6	4.0	2.7	1.82
70.3	60	92.0	1.5	0.19	3.3	5.1	3.5	1.17
78.0	62	102.0	1.5	0.18	3.5	5.4	3.6	1.50

Self-Aligning Ball Bearings

Sleeve | Shaft 20–50 mm





Dimensions						Load ratings		Abbreviation
d Shaft	d_h	D	B	l	$r_{1,2}$ min	dyn. C	stat. C_0	
		mm				kN		
20	20	47	14	23	1.0	10.0	2.65	11504TNG
25	25	52	15	25	1.0	12.2	3.35	11505TNG
30	30	62	16	25	1.0	15.6	4.65	11506TNG
35	35	72	17	26	1.1	16.0	5.20	11507TNG
40	40	80	18	27	1.1	19.3	6.55	11508TNG
45	45	85	19	28	1.1	22.0	7.35	11509TNG
50	50	90	20	30	1.1	22.8	8.15	11510TNG

Speed limits		Abutment dimensions		Factors				Weight
Grease	Oil	D_a max	r_a max	e	Y_1	Y_2	Y_0	
min^{-1}		mm			$Fa/Fr \leq e$	$Fa/fr > e$		kg
15 000	18 000	41.0	1.0	0.28	2.2	3.5	2.3	0.120
13 000	16 000	46.5	1.0	0.27	2.4	3.7	2.5	0.144
11 000	14 000	56.5	1.0	0.25	2.5	3.9	2.7	0.227
9 500	12 000	65.0	1.0	0.22	2.8	4.3	2.9	0.335
8 500	10 000	73.0	1.0	0.22	2.9	4.5	3.0	0.435
7 500	9 000	78.0	1.0	0.21	3.0	4.7	3.2	0.480
7 000	8 500	83.0	1.0	0.20	3.2	4.9	3.3	0.540

Note The bore of the inner ring and its 1:15 taper do not comply with DIN 616.

OID MECHANICAL PARTS BEARINGS

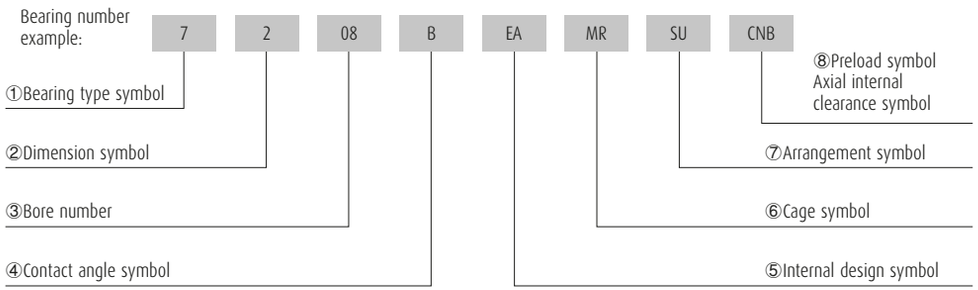


Angular Contact Ball Bearings

Angular Contact Ball Bearings

☐ Formulation of Bearing Numbers

Single-Row Angular Contact Ball Bearings Matched Angular Contact Ball Bearings



①Bearing type symbol	7 : Single-Row Angular Contact Ball Bearings, Matched Angular Contact Ball Bearings
②Dimension symbol	2 : 02 Series, 3 : 03 Series, 9 : 19 Series, 0 : 10 Series
③Bore number	Less than 03, Bearing bore 00 : 10mm, 01 : 12mm, 02 : 15mm, 03 : 17mm Over 04, Bearing bore Bore number ×5 (mm)
④Contact angle symbol	C : 15°, A5 : 25°, A : 30°, B : 40°
⑤Internal design symbol	EA : High Load Capacity
⑥Cage symbol	W : Pressed Steel Cage, MR : Machined Brass Cage (Ball guided), No symbol : Machined Brass Cage (Outer Ring guided), TYN : Polyamide Resin Cage, T85 : Polyamide 46 Resin Cage, T7 : L-PPS Resin Cage
⑦Arrangement symbol	SU: Universal arrangement (Single row), DU : Universal arrangement (Double row), DB : Back-to-back arrangement, DF : Face-to-face arrangement, DT : Tandem arrangement
⑧Preload symbol	EL : Extra light preload, L : Light preload, M : Medium preload, H : Heavy preload
Axial internal clearance symbol	Omitted : CN clearance, C3 : Clearance greater than CN, C4 : Clearance greater than C3, CNB : CN Clearance equivalent (Universal arrangement)

DOUBLE-ROW ANGULAR CONTACT BALL BEARINGS

This is basically a back-to-back mounting of two single-row angular contact ball bearings, but their inner and outer rings are each integrated into one. Axial loads in both directions can be sustained, and the capacity to sustain moments is good. This type is used as fixed-end bearings.

Their cages are pressed steel.

Features of Single-Row Angular Contact Ball Bearings

Cage Spec.		Material	Steel	Nylon 46		L-PPS resin	Brass	
		Method	pressed	Molded		Molded	machined	
		Symbols	W	TYN	T85	T7	Omitted	MR
Features		High Load Capacity	◎	○	◎	◎	○	◎
		High-Speed	△	◎	○	○	△	○
		High-Temperature	◎	△	△	◎	◎	◎
		Vibration	△	△	△	△	◎	◎

In addition, for bearings with the same serial number, if the type of cages are different, the number of balls may also be different. In such a case, the load rating will differ from the one listed in the bearing tables.

Angular Contact Ball Bearings with contact angles of 15° (Symbol **C**) and 25° (Symbol **A5**) are primarily for high precision or high speed applications, and molded polyamide cages (Symbol TYN) or machined brass cages or synthetic resin cages (Symbol T) are used.

The maximum operating temperature of molded polyamide cages is 150°C.

MATCHED ANGULAR CONTACT BALL BEARINGS

The types and features of matched angular contact ball bearings.

Types and Features of Matched Angular Contact Ball Bearings

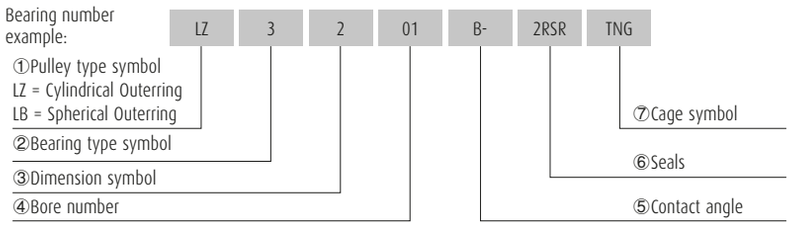
Figure	Arrangement	Features
a_0	Back-to-back (DB) (Example) 7208 A DB	Radial loads and axial loads in both directions can be sustained. Since the distance between the effective load centers a_0 is big, this type is suitable if moments are applied.
a_0	Face-to-face (DF) (Example) 7208 B DF	Radial loads and axial loads in both directions can be sustained. Compared with the DB Type, the distance between the effective load centers is small, so the capacity to sustain moments is inferior to the DB Type.
	Tandem (DT) (Example) 7208 A DT	Radial loads and axial loads in one direction can be sustained. Since two bearings share the axial load, this arrangement is used when the load in one direction is heavy.

OIDHPS ANGULAR CONTACT BALL BEARINGS

In comparison with standard angular contact ball bearings, these bearings have high capacity, high limiting speed, and highly accurate universal matching as the features. The molded polyamide cages are standard specification for the HPS type.

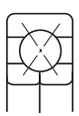
☐ Formulation of Bearing Numbers

Double-Row Angular Contact Ball Bearings



①Pulley type symbol	
②Bearing type symbol	5 : Double-Row Angular Contact Ball Bearings
③Dimension symbol	2 : 02 Series
④Bore number	Less than 03, Bearing bore 00 : 10mm, 01 : 12mm,
	02 : 15mm, 03 : 17mm
	Over 04, Bearing bore Bore number ×5 (mm)
⑤Contact angle	B = 25°
⑥Seals	2RSR = Seals: 2ZR = Shields
⑦Cage symbol	TNG Polyamid Cage Nylon 66

FOUR-POINT CONTACT BALL BEARINGS



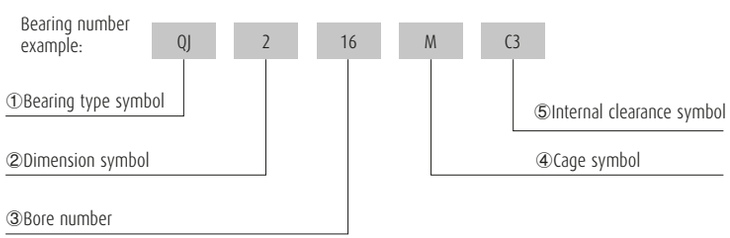
The inner ring is split radially into two pieces. Their design allows one bearing to sustain significant axial loads in either direction.

The contact angle is 35°, so the axial load capacity is high. This type is suitable for carrying pure axial loads or combined loads where the axial loads are high.

The cages are made of machined brass.

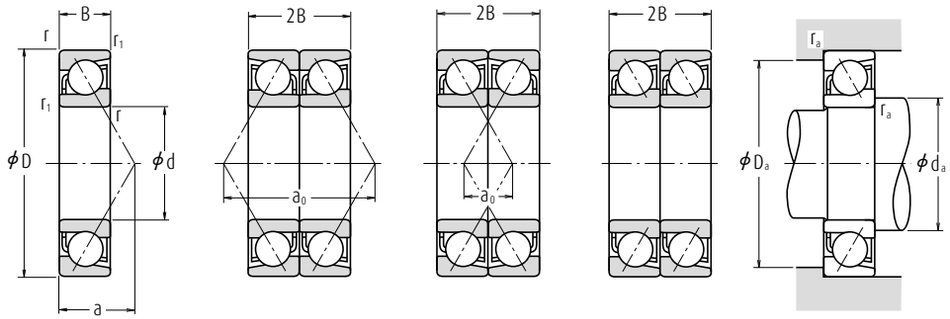
☐ Formulation of Bearing Numbers

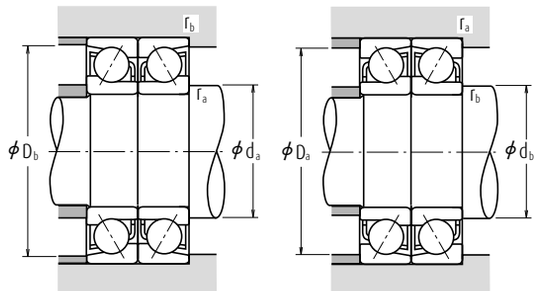
Four-Point Contact Ball Bearings



①Bearing type symbol	QJ : Four-Point Contact Ball Bearings
②Dimension symbol	10 : 10 Series, 2 : 02 Series, 3 : 03 Series
③Bore number	Less than 03, Bearing bore 00 : 10mm, 01 : 12mm, 02 : 15mm, 03 : 17mm
	Over 04, Bearing bore Bore number ×5 (mm)
④Cage symbol	M : Machined Brass Cage
⑤Internal clearance symbol	C2 : Clearance less than CN, Omitted : CN clearance,
	C3 : Clearance greater than CN, C4 : Clearance greater than C3

Single/matched mountings
Bore Diameter 10 – 15 mm





Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
10	22	6	0.3	0.15	3 000	1 450	—	62 500	93 800	6.7	12.5	19.5	0.3	0.009
	22	6	0.3	0.15	3 150	1 520	14.1	71 900	109 000	5.1	12.5	19.5	0.3	0.009
	26	8	0.3	0.15	5 250	2 340	—	41 700	55 600	9.2	12.5	23.5	0.3	0.019
	26	8	0.3	0.15	5 600	2 490	12.6	63 900	97 300	6.4	12.5	23.5	0.3	0.021
	30	9	0.6	0.3	5 300	2 440	—	37 500	50 000	10.3	15	25	0.6	0.032
	30	9	0.6	0.3	5 000	2 500	—	20 000	28 000	12.9	15	25	0.6	0.032
	30	9	0.6	0.3	5 650	2 610	13.2	57 500	87 500	7.2	15	25	0.6	0.036
	35	11	0.6	0.3	9 300	4 300	—	20 000	26 000	12.0	15	30	0.6	0.053
	35	11	0.6	0.3	8 750	4 050	—	18 000	24 000	14.9	15	30	0.6	0.054
12	24	6	0.3	0.15	3 350	1 770	—	55 600	83 400	7.2	14.5	21.5	0.3	0.011
	24	6	0.3	0.15	3 550	1 860	14.7	63 900	97 300	5.4	14.5	21.5	0.3	0.011
	28	8	0.3	0.15	5 700	2 710	—	37 500	50 000	9.8	14.5	25.5	0.3	0.021
	28	8	0.3	0.15	6 100	2 900	13.2	57 500	87 500	6.7	14.5	25.5	0.3	0.024
	32	10	0.6	0.3	7 850	3 650	—	34 100	45 500	11.4	17	27	0.6	0.037
	32	10	0.6	0.3	7 450	3 750	—	18 000	26 000	14.2	17	27	0.6	0.038
	32	10	0.6	0.3	8 150	3 750	—	20 000	30 000	14.2	17	27	0.6	0.036
	32	10	0.6	0.3	8 300	3 850	12.5	52 300	79 600	7.9	17	27	0.6	0.041
	37	12	1	0.6	9 450	4 500	—	18 000	24 000	13.1	18	31	1	0.060
	37	12	1	0.6	8 850	4 200	—	16 000	22 000	16.3	18	31	1	0.062
	37	12	1	0.6	11 100	4 950	—	18 000	26 000	16.3	18	31	1	0.061
15	28	7	0.3	0.15	4 750	2 530	—	46 600	69 800	8.5	17.5	25.5	0.3	0.015
	28	7	0.3	0.15	5 000	2 640	14.5	53 500	81 400	6.4	17.5	25.5	0.3	0.015
	32	9	0.3	0.15	6 050	3 150	—	32 000	42 600	11.3	17.5	29.5	0.3	0.030
	32	9	0.3	0.15	6 550	3 400	14.1	49 000	74 500	7.6	17.5	29.5	0.3	0.034
	35	11	0.6	0.3	8 500	4 250	—	30 000	40 000	12.7	20	30	0.6	0.045
	35	11	0.6	0.3	7 950	4 300	—	16 000	22 000	16.0	20	30	0.6	0.046
	35	11	0.6	0.3	9 800	4 800	—	18 000	26 000	16.0	20	30	0.6	0.044
	35	11	0.6	0.3	9 100	4 550	13.2	46 000	70 000	8.8	20	30	0.6	0.052
	42	13	1	0.6	13 400	7 100	—	16 000	22 000	14.7	21	36	1	0.084
	42	13	1	0.6	12 500	6 600	—	14 000	19 000	18.5	21	36	1	0.086
	42	13	1	0.6	14 300	6 900	—	16 000	22 000	18.5	21	36	1	0.084

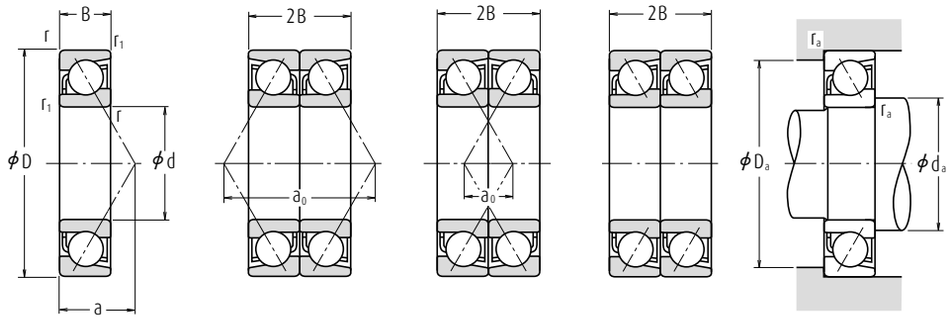
Notes
(1) For applications operating near the limiting speed,
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)							Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex				C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7900 A5*	TYN	(M)	DB	DF	DT		4 700	2 900	32 000	43 000	13.5	1.5	—	20.8	0.15
7900 C*	TYN	(M),T	DB	DF	DT		4 900	3 050	38 000	53 000	10.3	1.7	—	20.8	0.15
7000 A*	W	(M), T,TYN	DB	DF	DT		8 750	5 200	24 000	34 000	18.4	2.4	11.2	24.8	0.15
7000 C*	TYN	W,(M),T	DB	DF	DT		8 650	5 000	36 000	50 000	12.8	3.2	—	24.8	0.15
7200 A*	W	(M), TYN	DB	DF	DT		8 800	5 400	22 000	30 000	20.5	2.5	12.5	27.5	0.3
7200 B	W	(M), T	DB	DF	DT		8 100	5 000	16 000	22 000	25.8	7.8	12.5	27.5	0.3
7200 C*	TYN	W,(M),T	DB	DF	DT		8 800	5 200	32 000	45 000	14.4	3.6	—	27.5	0.3
7300 A	W	(M), T	DB	DF	DT		15 100	8 600	16 000	22 000	24.0	2.0	12.5	32.5	0.3
7300 B	W	(M), T	DB	DF	DT		14 200	8 100	14 000	20 000	29.9	7.9	12.5	32.5	0.3
7901 A5*	TYN	(M),T	DB	DF	DT		5 200	3 550	30 000	43 000	14.4	2.4	—	22.8	0.15
7901 C*	TYN	(M),T	DB	DF	DT		5 450	3 700	36 000	50 000	10.8	1.2	—	22.8	0.15
7001 A*	W	(M), T,TYN	DB	DF	DT		9 400	5 950	22 000	30 000	19.5	3.5	13.2	26.8	0.15
7001 C*	TYN	W,(M),T	DB	DF	DT		9 400	5 800	32 000	45 000	13.4	2.6	—	26.8	0.15
7201 A*	W	(M), T,TYN	DB	DF	DT		13 000	8 050	20 000	28 000	22.7	2.7	14.5	29.5	0.3
7201 B	W	(M),T	DB	DF	DT		12 100	7 500	15 000	20 000	28.5	8.5	14.5	29.5	0.3
7201 BEA*	T85	—	—	—	—		—	—	16 000	24 000	28.5	8.5	14.5	29.5	0.3
7201 C*	TYN	W,(M),T	DB	DF	DT		12 800	7 700	30 000	40 000	15.9	4.1	—	29.5	0.3
7301 A	W	(M), T	DB	DF	DT		15 400	9 000	15 000	20 000	26.1	2.1	17	32	0.6
7301 B	W	(M), T	DB	DF	DT		14 400	8 400	13 000	18 000	32.6	8.6	17	32	0.6
7301 BEA*	T85	—	—	—	—		—	—	15 000	22 000	32.6	8.6	17	32	0.6
7902 A5*	TYN	(M),T	DB	DF	DT		7 400	5 050	26 000	34 000	17.0	3.0	—	26.8	0.15
7902 C*	TYN	(M),T	DB	DF	DT		7 750	5 300	30 000	43 000	12.8	1.2	—	26.8	0.15
7002 A*	W	(M), T,TYN	DB	DF	DT		9 950	6 850	19 000	26 000	22.6	4.6	16.2	30.8	0.15
7002 C*	TYN	W, (M),T	DB	DF	DT		10 100	6 750	28 000	38 000	15.3	2.7	—	30.8	0.15
7202 A*	W	(M), T,TYN	DB	DF	DT		14 000	9 300	18 000	24 000	25.4	3.4	17.5	32.5	0.3
7202 B	W	(M),T	DB	DF	DT		12 900	8 600	13 000	18 000	32.0	10.0	17.5	32.5	0.3
7202 BEA*	T85	—	—	—	—		—	—	14 000	20 000	32.0	10.0	17.5	32.5	0.3
7202 C*	TYN	W,(M),T	DB	DF	DT		14 100	9 050	26 000	36 000	17.7	4.3	—	32.5	0.3
7302 A	W	(M), T	DB	DF	DT		21 800	14 200	13 000	17 000	29.5	3.5	20	37	0.6
7302 B	W	(M), T	DB	DF	DT		20 200	13 200	11 000	15 000	36.9	10.9	20	37	0.6
7302 BEA*	T85	—	—	—	—		—	—	13 000	18 000	36.9	10.9	20	37	0.6

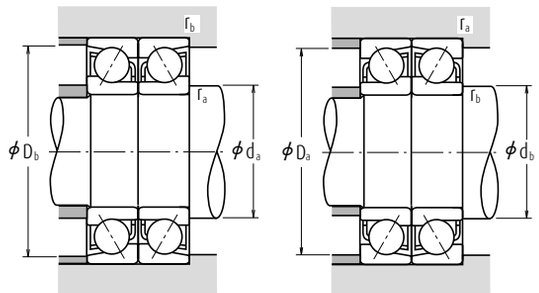
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 17 – 25 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min-1)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	Cr	C0r	f0	Grease	Oil	a	da min.	Da max.	ra max.	approx.
17	30	7	0.3	0.15	5 000	2 800	—	42 600	63 900	9.0	19.5	27.5	0.3	0.017
	30	7	0.3	0.15	5 250	2 940	14.8	49 000	74 500	6.6	19.5	27.5	0.3	0.017
	35	10	0.3	0.15	6 400	3 500	—	22 900	30 500	12.5	19.5	32.5	0.3	0.040
	35	10	0.3	0.15	6 950	3 800	14.5	44 300	67 400	8.5	19.5	32.5	0.3	0.044
	40	12	0.6	0.3	10 700	5 450	—	26 400	35 100	14.2	22	35	0.6	0.067
	40	12	0.6	0.3	9 950	5 500	—	14 000	19 000	18.0	22	35	0.6	0.068
	40	12	0.6	0.3	11 600	6 100	—	16 000	22 000	18.2	22	35	0.6	0.065
	40	12	0.6	0.3	11 400	5 850	13.3	40 400	61 500	9.8	22	35	0.6	0.075
	47	14	1	0.6	15 900	8 650	—	14 000	19 000	16.2	23	41	1	0.116
	47	14	1	0.6	14 800	8 000	—	13 000	17 000	20.4	23	41	1	0.118
	47	14	1	0.6	16 800	8 300	—	14 000	20 000	20.4	23	41	1	0.113
20	37	9	0.3	0.15	6 950	4 050	—	35 100	52 700	11.1	22.5	34.5	0.3	0.036
	37	9	0.3	0.15	7 300	4 250	14.9	40 400	61 500	8.3	22.5	34.5	0.3	0.036
	42	12	0.6	0.3	10 800	6 100	—	24 200	32 300	14.9	25	37	0.6	0.068
	42	12	0.6	0.3	11 700	6 550	14.0	37 100	56 500	10.1	25	37	0.6	0.076
	47	14	1	0.6	14 300	7 550	—	22 400	29 900	16.7	26	41	1	0.106
	47	14	1	0.6	13 300	7 650	—	12 000	16 000	21.1	26	41	1	0.109
	47	14	1	0.6	15 600	8 150	—	13 000	19 000	21.1	26	41	1	0.103
	47	14	1	0.6	15 300	8 050	13.3	34 400	52 300	11.5	26	41	1	0.118
	52	15	1.1	0.6	18 700	10 400	—	13 000	17 000	17.9	27	45	1	0.146
	52	15	1.1	0.6	17 300	9 650	—	11 000	15 000	22.6	27	45	1	0.15
	52	15	1.1	0.6	19 800	10 500	—	13 000	18 000	22.6	27	45	1	0.149
25	42	9	0.3	0.15	7 800	5 150	—	29 900	44 800	12.3	27.5	39.5	0.3	0.043
	42	9	0.3	0.15	8 250	5 400	15.5	34 400	52 300	9.0	27.5	39.5	0.3	0.042
	47	12	0.6	0.3	11 300	6 850	—	22 900	27 800	16.4	30	42	0.6	0.079
	47	12	0.6	0.3	12 300	7 400	14.7	32 000	48 700	10.8	30	42	0.6	0.089
	52	15	1	0.6	16 100	9 450	—	19 500	26 000	18.6	31	46	1	0.13
	52	15	1	0.6	14 800	9 400	—	10 000	14 000	23.7	31	46	1	0.133
	52	15	1	0.6	17 600	10 200	—	12 000	17 000	23.7	31	46	1	0.127
	52	15	1	0.6	17 400	10 200	14.0	29 900	45 500	12.7	31	46	1	0.143
	62	17	1.1	0.6	26 400	15 800	—	10 000	14 000	21.1	32	55	1	0.235

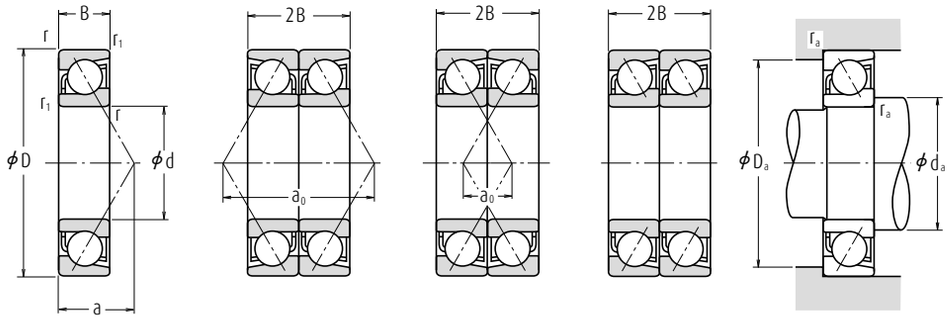
Notes
(1) For applications operating near the limiting speed,
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)						Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min-1)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex			Cr	C0r	Grease	Oil	a0 DB	a0 DF	db (3) min.	Db max.	rb (3) max.
7903 A5*	TYN	(M),T	DB	DF	DT	7 750	5 600	24 000	32 000	18.0	4.0	—	28.8	0.15
7903 C*	TYN	(M),T	DB	DF	DT	8 150	5 850	28 000	38 000	13.3	0.7	—	28.8	0.15
7003 A*	W	(M), T,TYN	DB	DF	DT	10 400	7 650	17 000	24 000	25.0	5.0	18.2	33.8	0.15
7003 C*	TYN	W, (M),T	DB	DF	DT	10 700	7 600	26 000	34 000	17.0	3.0	—	33.8	0.15
7203 A*	W	(M), T,TYN	DB	DF	DT	17 600	12 000	16 000	22 000	28.5	4.5	19.5	37.5	0.3
7203 B	W	(M),T	DB	DF	DT	16 100	11 000	11 000	15 000	35.9	11.9	19.5	37.5	0.3
7203 BEA*	T85	T7	—	—	—	—	—	13 000	18 000	36.3	12.3	19.5	37.5	0.3
7203 C*	TYN	W,(M),T	DB	DF	DT	17 600	11 700	22 000	32 000	19.6	4.4	—	37.5	0.3
7303 A	W	(M), T	DB	DF	DT	25 900	17 300	11 000	15 000	32.5	4.5	22	42	0.6
7303 B	W	(M), T	DB	DF	DT	24 000	16 000	10 000	14 000	40.9	12.9	22	42	0.6
7303 BEA*	T85	—	—	—	—	—	—	11 000	16 000	40.9	12.9	22	42	0.6
7904 A5*	TYN	(M),T	DB	DF	DT	10 700	8 100	19 000	26 000	22.3	4.3	—	35.8	0.15
7904 C*	TYN	(M),T	DB	DF	DT	11 300	8 500	22 000	32 000	16.6	1.4	—	35.8	0.15
7004 A*	W	(M), T,TYN	DB	DF	DT	17 600	13 200	15 000	20 000	29.9	5.9	22.5	39.5	0.3
7004 C*	TYN	W,(M),T	DB	DF	DT	18 000	13 100	20 000	30 000	20.3	3.7	—	39.5	0.3
7204 A*	W	(M), T,TYN	DB	DF	DT	23 500	16 600	13 000	19 000	33.3	5.3	25	42	0.6
7204 B	W	(M),T	DB	DF	DT	21 600	15 300	9 500	13 000	42.1	14.1	25	42	0.6
7204 BEA*	T85	T7	—	—	—	—	—	11 000	16 000	42.1	14.1	25	42	0.6
7204 C*	TYN	W,(M),T	DB	DF	DT	23 600	16 100	19 000	26 000	23.0	5.0	—	42	0.6
7304 A	W	(M), T	DB	DF	DT	30 500	20 800	10 000	13 000	35.8	5.8	25	47	0.6
7304 B	W	(M), T	DB	DF	DT	28 200	19 300	9 000	12 000	45.2	15.2	25	47	0.6
7304 BEA*	T85	MR, T7	—	—	—	—	—	10 000	14 000	45.2	15.2	25	47	0.6
7905 A5*	TYN	(M),T	DB	DF	DT	12 100	10 300	16 000	22 000	24.6	6.6	—	40.8	0.15
7905 C*	TYN	(M),T	DB	DF	DT	12 700	10 800	19 000	26 000	18.0	0.0	—	40.8	0.15
7005 A*	W	(M), T,TYN	DB	DF	DT	18 300	14 800	13 000	17 000	32.8	8.8	27.5	44.5	0.3
7005 C*	TYN	W,(M),T	DB	DF	DT	19 000	14 800	18 000	26 000	21.6	2.4	—	44.5	0.3
7205 A*	W	(M), T,TYN	DB	DF	DT	26 300	20 500	12 000	16 000	37.2	7.2	30	47	0.6
7205 B	W	(M),T	DB	DF	DT	24 000	18 800	8 500	11 000	47.3	17.3	30	47	0.6
7205 BEA*	T85	T7	—	—	—	—	—	9 500	14 000	47.3	17.3	30	47	0.6
7205 C*	TYN	W,(M),T	DB	DF	DT	27 000	20 400	17 000	24 000	25.3	4.7	—	47	0.6
7305 A	W	(M), T	DB	DF	DT	43 000	31 500	8 500	11 000	42.1	8.1	30	57	0.6

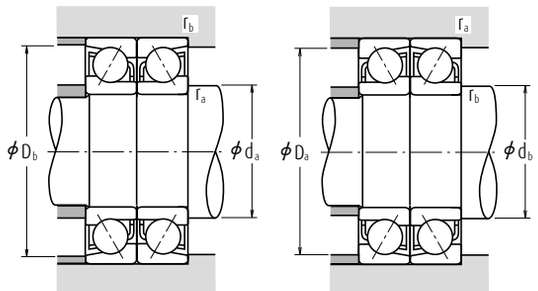
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 25 – 40 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
25	62	17	1.1	0.6	24 400	14 600	—	9 000	13 000	26.7	32	55	1	0.241
	62	17	1.1	0.6	27 200	14 900	—	10 000	15 000	26.8	32	55	1	0.229
30	47	9	0.3	0.15	8 250	5 950	—	26 000	39 000	13.5	32.5	44.5	0.3	0.049
	47	9	0.3	0.15	8 700	6 250	15.9	29 900	45 500	9.7	32.5	44.5	0.3	0.049
	55	13	1	0.6	14 600	9 450	—	17 700	23 600	18.8	36	49	1	0.116
	55	13	1	0.6	15 900	10 300	14.9	27 100	41 200	12.2	36	49	1	0.134
	62	16	1	0.6	22 400	13 600	—	16 400	21 800	21.3	36	56	1	0.197
	62	16	1	0.6	20 500	13 500	—	8 500	12 000	27.3	36	56	1	0.202
	62	16	1	0.6	23 700	14 300	—	10 000	14 000	27.3	36	56	1	0.194
	62	16	1	0.6	24 200	14 700	13.9	25 000	38 100	14.2	36	56	1	0.222
	72	19	1.1	0.6	33 500	20 900	—	9 000	12 000	24.2	37	65	1	0.346
	72	19	1.1	0.6	31 000	19 300	—	8 000	11 000	30.9	37	65	1	0.354
	72	19	1.1	0.6	36 500	20 600	—	9 000	13 000	30.9	37	65	1	0.336
35	55	10	0.6	0.3	12 000	8 700	—	22 300	33 400	15.5	40	50	0.6	0.074
	55	10	0.6	0.3	12 700	9 150	15.7	25 600	38 900	11.0	40	50	0.6	0.074
	62	14	1	0.6	18 400	12 600	—	15 500	20 700	21.0	41	56	1	0.153
	62	14	1	0.6	20 100	13 700	15.0	23 800	36 100	13.5	41	56	1	0.173
	72	17	1.1	0.6	29 600	18 500	—	14 100	18 700	23.9	42	65	1	0.287
	72	17	1.1	0.6	27 100	18 400	—	7 500	10 000	30.9	42	65	1	0.294
	72	17	1.1	0.6	32 500	19 600	—	8 500	12 000	30.9	42	65	1	0.271
	72	17	1.1	0.6	32 000	19 900	13.9	21 500	32 800	15.7	42	65	1	0.32
	80	21	1.5	1	40 000	26 300	—	8 000	10 000	27.1	44	71	1.5	0.464
	80	21	1.5	1	36 500	24 200	—	7 100	9 500	34.6	44	71	1.5	0.474
	80	21	1.5	1	40 500	24 400	—	8 000	11 000	34.6	44	71	1.5	0.451
40	62	12	0.6	0.3	14 300	11 200	—	14 000	18 000	17.9	45	57	0.6	0.11
	62	12	0.6	0.3	15 900	11 700	15.7	22 600	34 400	12.8	45	57	0.6	0.109
	68	15	1	0.6	19 700	14 600	—	13 900	18 600	23.1	46	62	1	0.19
	68	15	1	0.6	21 600	15 900	15.4	21 300	32 500	14.7	46	62	1	0.213
	80	18	1.1	0.6	35 500	23 300	—	12 500	16 700	26.3	47	73	1	0.375
	80	18	1.1	0.6	32 000	23 000	—	6 700	9 000	34.2	47	73	1	0.383

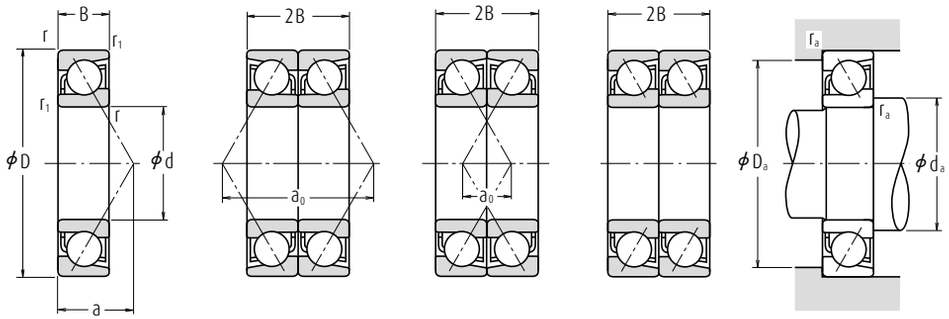
Notes
(1) For applications operating near the limiting speed,
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)						Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex			C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7305 B	W	(M), T	DB	DF	DT	39 500	29 300	7 500	10 000	53.5	19.5	30	57	0.6
7305 BEA*	T85	MR, T7	—	—	—	—	—	8 500	12 000	53.5	19.5	30	57	0.6
7906 A5*	TYN	(M),T	DB	DF	DT	12 800	11 900	14 000	19 000	27.0	9.0	—	45.8	0.15
7906 C*	TYN	(M),T	DB	DF	DT	13 500	12 500	17 000	24 000	19.3	1.3	—	45.8	0.15
7006 A*	W	(M), T,TYN	DB	DF	DT	23 600	20 200	11 000	15 000	37.5	11.5	35	50	0.6
7006 C*	TYN	W,(M),T	DB	DF	DT	24 600	20 500	15 000	22 000	24.4	1.6	—	50	0.6
7206 A*	W	(M), T,TYN	DB	DF	DT	36 500	29 500	10 000	13 000	42.6	10.6	35	57	0.6
7206 B	W	(M),T	DB	DF	DT	33 500	27 000	7 100	9 500	54.6	22.6	35	57	0.6
7206 BEA*	T85	MR, T7	—	—	—	—	—	8 000	11 000	54.6	22.6	35	57	0.6
7206 C*	TYN	W,(M),T	DB	DF	DT	37 500	29 300	14 000	20 000	28.3	3.7	—	57	0.6
7306 A	W	(M), T	DB	DF	DT	54 500	41 500	7 100	9 500	48.4	10.4	35	67	0.6
7306 B	W	(M), T	DB	DF	DT	50 500	38 500	6 300	8 500	61.8	23.8	35	67	0.6
7306 BEA*	T85	MR, T7	—	—	—	—	—	7 100	10 000	61.8	23.8	35	67	0.6
7907 A5*	TYN	(M),T	DB	DF	DT	18 600	17 400	12 000	17 000	31.0	11.0	—	52.5	0.3
7907 C*	TYN	(M),T	DB	DF	DT	19 600	18 300	14 000	20 000	22.1	2.1	—	52.5	0.3
7007 A*	W	(M), T,TYN	DB	DF	DT	29 700	26 800	9 500	13 000	42.0	14.0	40	57	0.6
7007 C*	TYN	W,(M),T	DB	DF	DT	31 000	27 300	13 000	19 000	27.0	1.0	—	57	0.6
7207 A*	W	(M), T,TYN	DB	DF	DT	48 500	40 000	8 500	12 000	47.9	13.9	40	67	0.6
7207 B	W	(M),T	DB	DF	DT	44 000	36 500	6 000	8 000	61.9	27.9	40	67	0.6
7207BEA*	T85	MR, T7	—	—	—	—	—	6 700	9 500	61.9	27.9	40	67	0.6
7207 C*	(M)	W,T,TYN	DB	DF	DT	49 500	40 000	12 000	17 000	31.3	2.7	—	67	0.6
7307 A	W	(M), T	DB	DF	DT	65 000	52 500	6 300	8 500	54.2	12.2	41	74	1
7307 B	W	(M), T	DB	DF	DT	59 500	48 500	5 600	7 500	69.2	27.2	41	74	1
7307 BEA*	T85	MR, T7, W	—	—	—	—	—	6 300	9 000	69.2	27.2	41	74	1
7908 A5	TYN	(M),T	DB	DF	DT	23 300	22 300	11 000	15 000	35.8	11.8	—	59.5	0.3
7908 C*	TYN	(M),T	DB	DF	DT	24 600	23 500	13 000	18 000	25.7	1.7	—	59.5	0.3
7008 A*	W	(M), T,TYN	DB	DF	DT	31 500	31 000	8 500	11 000	46.2	16.2	45	63	0.6
7008 C*	(M)	W,T, TYN	DB	DF	DT	33 500	32 000	12 000	17 000	29.5	0.5	—	63	0.6
7208 A*	W	(M), T,TYN	DB	DF	DT	57 500	50 500	7 500	10 000	52.6	16.6	45	75	0.6
7208 B	W	(M),T	DB	DF	DT	52 000	46 000	5 300	7 500	68.3	32.3	45	75	0.6

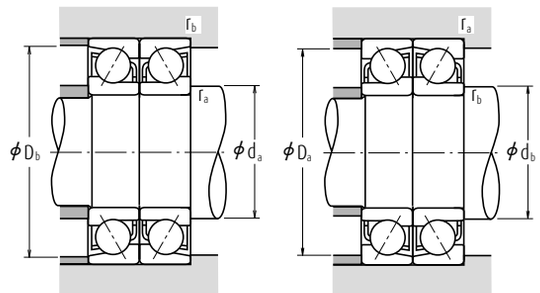
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 40 – 55 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
40	80	18	1.1	0.6	38 500	24 500	—	7 500	11 000	34.2	47	73	1	0.357
	80	18	1.1	0.6	38 000	25 200	14.1	19 200	29 200	17.0	47	73	1	0.418
	90	23	1.5	1	49 000	33 000	—	7 100	9 000	30.3	49	81	1.5	0.633
	90	23	1.5	1	45 000	30 500	—	6 300	8 500	38.8	49	81	1.5	0.648
	90	23	1.5	1	53 000	33 000	—	7 100	10 000	38.8	49	81	1.5	0.619
45	68	12	0.6	0.3	15 900	12 700	—	17 700	26 600	19.2	50	63	0.6	0.13
	68	12	0.6	0.3	16 800	13 400	16.0	20 400	31 000	13.6	50	63	0.6	0.129
	75	16	1	0.6	23 400	17 700	—	12 500	16 700	25.3	51	69	1	0.25
	75	16	1	0.6	25 600	19 300	15.4	19 200	29 200	16.0	51	69	1	0.274
	85	19	1.1	0.6	39 500	26 700	—	11 600	15 400	28.3	52	78	1	0.411
	85	19	1.1	0.6	36 000	26 200	—	6 300	8 500	36.8	52	78	1	0.421
	85	19	1.1	0.6	40 500	27 100	—	7 100	10 000	36.8	52	78	1	0.40
	85	19	1.1	0.6	43 000	28 800	14.2	17 700	27 000	18.2	52	78	1	0.468
	100	25	1.5	1	63 500	43 500	—	6 300	8 500	33.4	54	91	1.5	0.848
	100	25	1.5	1	58 500	40 000	—	5 600	7 500	42.9	54	91	1.5	0.869
	100	25	1.5	1	62 500	39 500	—	6 300	9 000	42.9	54	91	1.5	0.823
50	72	12	0.6	0.3	16 700	14 200	—	16 400	24 600	20.2	55	67	0.6	0.132
	72	12	0.6	0.3	17 700	15 000	16.2	18 900	28 700	14.2	55	67	0.6	0.13
	80	16	1	0.6	24 900	21 100	—	11 600	15 400	26.8	56	74	1	0.263
	80	16	1	0.6	27 300	21 900	15.7	17 700	27 000	16.7	56	74	1	0.293
	90	20	1.1	0.6	41 500	29 300	—	10 800	14 300	30.2	57	83	1	0.466
	90	20	1.1	0.6	37 500	28 600	—	5 600	8 000	39.4	57	83	1	0.477
	90	20	1.1	0.6	42 000	29 700	—	6 300	9 500	39.4	57	83	1	0.453
	90	20	1.1	0.6	45 000	31 500	14.5	16 500	25 000	19.4	57	83	1	0.528
	110	27	2	1	74 000	52 000	—	5 600	7 500	36.6	60	100	2	1.1
	110	27	2	1	68 000	48 000	—	5 000	6 700	47.1	60	100	2	1.12
	110	27	2	1	78 000	50 500	—	5 600	8 000	47.1	60	100	2	1.07
55	80	13	1	0.6	19 000	16 800	—	14 900	22 300	22.2	61	74	1	0.184
	80	13	1	0.6	20 100	17 700	16.3	17 100	26 000	15.5	61	74	1	0.182
	90	18	1.1	0.6	32 500	26 300	—	10 400	13 800	29.9	62	83	1	0.391

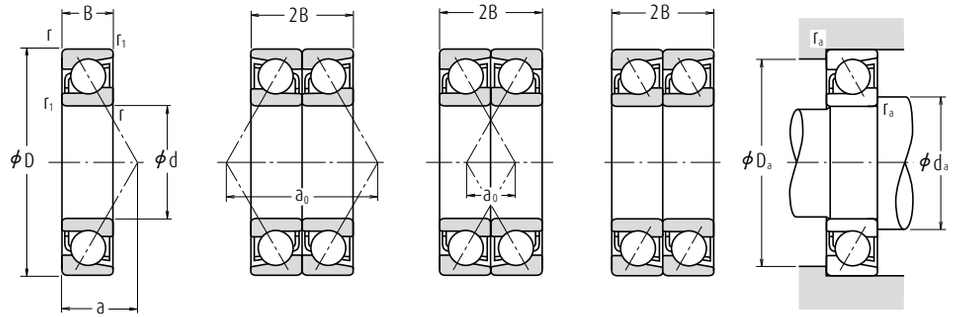
Notes
(1) For applications operating near the limiting speed,
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)				Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex	C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7208 BEA*	T85	MR, T7		—	—	6 000	8 500	68.3	32.3	45	75	0.6
7208 C*	(M)	W,T,TYN	DB DF DT	59 000	50 500	11 000	15 000	34.1	1.9	—	75	0.6
7308 A	W	(M), T	DB DF DT	79 500	66 000	5 600	7 500	60.5	14.5	46	84	1
7308 B	W	(M), T	DB DF DT	73 000	60 500	5 000	6 700	77.5	31.5	46	84	1
7308 BEA*	T85	MR, T7, W	— — —	—	—	5 600	8 000	77.5	31.5	46	84	1
7909 A5*	(M)	T,TYN	DB DF DT	24 600	25 400	9 500	13 000	38.4	14.4	—	65.5	0.3
7909 C*	(M)	T, TYN	DB DF DT	26 000	26 800	12 000	16 000	27.1	3.1	—	65.5	0.3
7009 A*	W	(M), TYN	DB DF DT	37 500	37 500	7 500	10 000	50.6	18.6	50	70	0.6
7009 C*	(M)	W,TYN	DB DF DT	39 500	38 500	11 000	15 000	32.1	0.1	—	70	0.6
7209 A*	W	(M), T,TYN	DB DF DT	64 500	57 500	7 100	9 500	56.5	18.5	50	80	0.6
7209 B	W	(M),T	DB DF DT	58 500	52 500	5 000	6 700	73.5	35.5	50	80	0.6
7209 BEA*	T85	MR, T7	— — —	—	—	5 600	8 000	73.5	35.5	50	80	0.6
7209 C*	(M)	W,T, TYN	DB DF DT	66 500	57 500	10 000	14 000	36.4	1.6	—	80	0.6
7309 A	W	(M), T	DB DF DT	103 000	87 000	5 000	6 700	66.9	16.9	51	94	1
7309 B	W	(M), T	DB DF DT	95 000	80 500	4 500	6 000	85.8	35.8	51	94	1
7309 BEA*	T85	MR, T7, W	— — —	—	—	5 000	7 100	85.8	35.8	51	94	1
7910 A5*	(M)	T,TYN	DB DF DT	25 900	28 400	9 000	12 000	40.5	16.5	—	69.5	0.3
7910 C*	(M)	T, TYN	DB DF DT	27 400	30 000	11 000	15 000	28.3	4.3	—	69.5	0.3
7010 A*	W	(M), T,TYN	DB DF DT	40 000	42 000	7 100	9 500	53.5	21.5	55	75	0.6
7010 C*	(M)	W,T, TYN	DB DF DT	42 000	44 000	10 000	14 000	33.4	1.4	—	75	0.6
7210 A*	W	(M), T,TYN	DB DF DT	67 000	63 000	6 300	9 000	60.4	20.4	55	85	0.6
7210 B	W	(M),T	DB DF DT	60 500	57 000	4 500	6 300	78.7	38.7	55	85	0.6
7210 BEA*	T85	MR, T7	— — —	—	—	5 000	7 500	78.7	38.7	55	85	0.6
7210 C*	(M)	W,T,TYN	DB DF DT	69 500	63 500	9 500	13 000	38.7	1.3	—	85	0.6
7310 A	W	(M), T	DB DF DT	121 000	104 000	4 500	6 000	73.2	19.2	56	104	1
7310 B	W	(M), T	DB DF DT	111 000	96 000	4 000	5 600	94.1	40.1	56	104	1
7310 BEA*	T85	MR, T7, W	— — —	—	—	4 500	6 700	94.1	40.1	56	104	1
7911 A5*	(M)	T,TYN	DB DF DT	29 300	33 500	8 000	11 000	44.5	18.5	—	75	0.6
7911 C*	(M)	T, TYN	DB DF DT	31 000	35 500	9 500	13 000	31.1	5.1	—	75	0.6
7011 A*	W	(M), T,TYN	DB DF DT	52 500	55 500	6 300	8 500	59.9	23.9	60	85	0.6

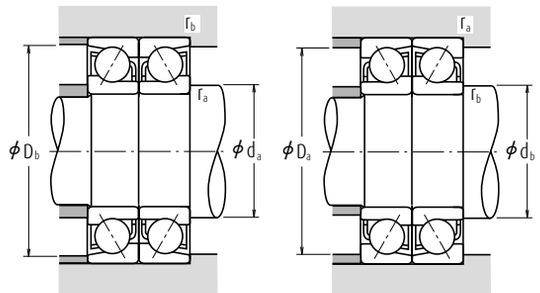
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 55 – 65 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r_1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
55	90	18	1.1	0.6	36 000	28 600	15.5	15 900	24 200	18.7	62	83	1	0.43
	100	21	1.5	1	51 000	37 000	—	9 700	13 000	32.9	64	91	1.5	0.613
	100	21	1.5	1	46 500	36 000	—	5 300	7 100	43.0	64	91	1.5	0.627
	100	21	1.5	1	51 500	37 000	—	6 000	8 500	43.0	64	91	1.5	0.596
	100	21	1.5	1	55 500	40 000	14.5	14 900	22 600	20.9	64	91	1.5	0.688
	120	29	2	1	86 000	61 500	—	5 000	6 700	39.8	65	110	2	1.41
	120	29	2	1	79 000	56 500	—	4 500	6 300	51.2	65	110	2	1.45
	120	29	2	1	89 000	58 500	—	5 000	7 500	51.2	65	110	2	1.36
60	85	13	1	0.6	19 200	17 700	—	13 800	20 700	23.4	66	79	1	0.197
	85	13	1	0.6	20 400	18 700	16.5	15 900	24 200	16.2	66	79	1	0.194
	95	18	1.1	0.6	33 500	28 100	—	9 700	13 000	31.4	67	88	1	0.417
	95	18	1.1	0.6	37 000	30 500	15.7	14 900	22 600	19.4	67	88	1	0.46
	110	22	1.5	1	62 000	45 500	—	8 900	11 800	35.5	69	101	1.5	0.798
	110	22	1.5	1	56 000	44 500	—	4 800	6 300	46.7	69	101	1.5	0.815
	110	22	1.5	1	61 500	45 000	—	5 300	7 500	46.7	69	101	1.5	0.791
	110	22	1.5	1	67 500	49 000	14.4	13 600	20 600	22.4	69	101	1.5	0.889
	130	31	2.1	1.1	98 000	71 500	—	4 800	6 300	42.9	72	118	2	1.74
	130	31	2.1	1.1	90 000	65 500	—	4 300	5 600	55.4	72	118	2	1.78
	130	31	2.1	1.1	102 000	68 500	—	4 800	6 700	55.4	72	118	2	1.7
65	90	13	1	0.6	20 000	19 400	—	13 000	19 400	24.6	71	84	1	0.211
	90	13	1	0.6	21 200	20 500	16.7	14 900	22 600	16.9	71	84	1	0.208
	100	18	1.1	0.6	33 500	31 500	—	9 100	12 200	32.8	72	93	1	0.455
	100	18	1.1	0.6	39 000	34 500	15.9	14 000	21 300	20.0	72	93	1	0.493
	120	23	1.5	1	70 500	54 000	—	8 200	10 900	38.2	74	111	1.5	1.03
	120	23	1.5	1	63 500	52 500	—	4 300	6 000	50.3	74	111	1.5	1.05
	120	23	1.5	1	70 000	53 500	—	4 800	7 100	50.3	74	111	1.5	1.01
	120	23	1.5	1	77 000	58 500	14.6	12 500	19 000	23.9	74	111	1.5	1.14
	140	33	2.1	1.1	111 000	82 000	—	4 300	6 000	46.1	77	128	2	2.12
	140	33	2.1	1.1	102 000	75 500	—	3 800	5 300	59.5	77	128	2	2.17
	140	33	2.1	1.1	114 000	77 000	—	4 300	6 300	59.5	77	128	2	2.09

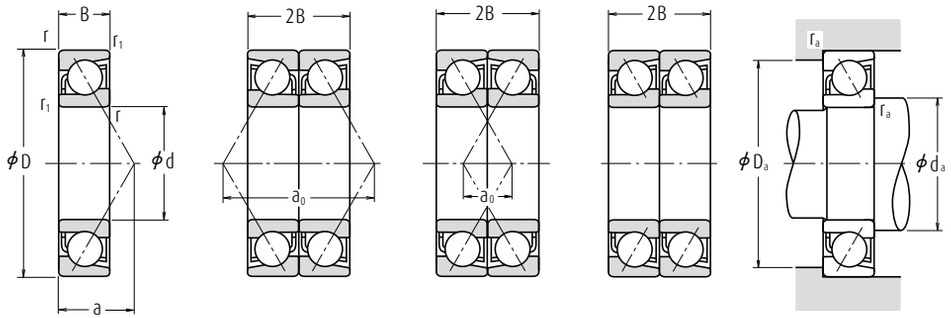
Notes
(1) For applications operating near the limiting speed,
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)				Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex	C_r	C_{0r}	Grease	Oil	DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7011 C*	(M)	W,T, TYN	DB DF DT	55 500	57 500	9 000	12 000	37.4	1.4	—	85	0.6
7211 A*	W	(M), T,TYN	DB DF DT	83 000	79 000	6 000	8 000	65.7	23.7	61	94	1
7211 B	W	(M),T	DB DF DT	75 000	72 000	4 000	5 600	86.0	44.0	61	94	1
7211 BEA*	T85	MR, T7		—	—	4 500	6 700	86.0	44.0	61	94	1
7211 C*	(M)	W,T,TYN	DB DF DT	86 000	80 000	8 500	12 000	41.7	0.3	—	94	1
7311 A	W	(M), T	DB DF DT	139 000	123 000	4 000	5 600	79.5	21.5	61	114	1
7311 B	W	(M), T	DB DF DT	128 000	113 000	3 600	5 000	102.4	44.4	61	114	1
7311 BEA*	T85	MR, T7, W	— — —	—	—	4 000	6 000	102.4	44.4	61	114	1
7912 A5*	(M)	T,TYN	DB DF DT	29 800	35 500	7 500	10 000	46.8	20.8	—	80	0.6
7912 C*	(M)	T, TYN	DB DF DT	31 500	37 500	9 000	12 000	32.4	6.4	—	80	0.6
7012 A*	W	(M), T,TYN	DB DF DT	53 500	59 000	6 000	8 000	62.7	26.7	65	90	0.6
7012 C*	(M)	W,T, TYN	DB DF DT	57 000	61 500	8 500	12 000	38.8	2.8	—	90	0.6
7212 A*	W	(M), T,TYN	DB DF DT	100 000	97 500	5 300	7 100	71.1	27.1	66	104	1
7212 B	W	(M),T	DB DF DT	91 000	89 000	3 800	5 300	93.3	49.3	66	104	1
7212 BEA*	T85	MR, T7	— — —	—	—	4 300	6 000	93.3	49.3	66	104	1
7212 C*	(M)	W,T,TYN	DB DF DT	104 000	98 500	7 500	11 000	44.8	0.8	—	104	1
7312 A	W	(M), T	DB DF DT	159 000	143 000	3 800	5 000	85.9	23.9	67	123	1
7312 B	W	(M), T	DB DF DT	146 000	131 000	3 400	4 500	110.7	48.7	67	123	1
7312 BEA*	T85	MR, T7, W	— — —	—	—	3 800	5 600	110.7	48.7	67	123	1
7913 A5*	(M)	T,TYN	DB DF DT	31 000	39 000	7 100	9 500	49.1	23.1	—	85	0.6
7913 C*	(M)	T, TYN	DB DF DT	33 000	41 000	8 500	12 000	33.8	7.8	—	85	0.6
7013 A*	W	(M), T,TYN	DB DF DT	56 500	65 500	5 600	7 500	65.6	29.6	70	95	0.6
7013 C*	(M)	W,T, TYN	DB DF DT	60 500	68 500	8 000	11 000	40.1	4.1	—	95	0.6
7213 A*	W	(M), T,TYN	DB DF DT	114 000	116 000	4 800	6 700	76.4	30.4	71	114	1
7213 B	W	(M),T	DB DF DT	103 000	105 000	3 400	4 800	100.6	54.6	71	114	1
7213 BEA*	T85	MR, T7	— — —	—	—	3 800	5 600	100.6	54.6	71	114	1
7213 C*	(M)	W,T,TYN	DB DF DT	119 000	117 000	7 100	9 500	47.8	1.8	—	114	1
7313 A	W	(M), T	DB DF DT	180 000	164 000	3 600	4 800	92.2	26.2	72	133	1
7313 B	W	(M), T	DB DF DT	166 000	151 000	3 200	4 300	119.0	53.0	72	133	1
7313 BEA*	T85	MR, T7, W	— — —	—	—	3 600	5 000	119.0	53.0	72	133	1

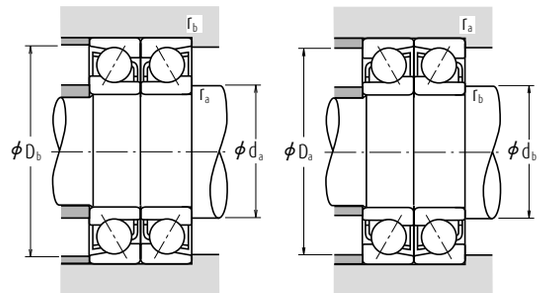
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 70 – 80 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
70	100	16	1	0.6	27 900	26 300	—	11 800	17 700	27.8	76	94	1	0.341
	100	16	1	0.6	29 500	27 800	16.4	13 600	20 600	19.4	76	94	1	0.338
	110	20	1.1	0.6	45 000	39 500	—	8 400	11 200	36.0	77	103	1	0.625
	110	20	1.1	0.6	49 000	43 000	15.7	12 800	19 500	22.1	77	103	1	0.698
	125	24	1.5	1	77 000	59 500	—	7 700	10 300	40.1	79	116	1.5	1.11
	125	24	1.5	1	69 000	58 000	—	4 000	5 600	52.9	79	116	1.5	1.14
	125	24	1.5	1	75 500	58 500	—	4 500	6 700	52.9	79	116	1.5	1.08
	125	24	1.5	1	83 500	64 500	14.6	11 800	18 000	25.1	79	116	1.5	1.24
	150	35	2.1	1.1	125 000	93 500	—	4 000	5 300	49.3	82	138	2	2.6
	150	35	2.1	1.1	114 000	86 000	—	3 600	5 000	63.6	82	138	2	2.65
	150	35	2.1	1.1	124 000	87 500	—	4 000	6 000	63.7	82	138	2	2.53
75	105	16	1	0.6	28 300	27 700	—	11 200	16 700	29.0	81	99	1	0.355
	105	16	1	0.6	30 000	29 300	16.6	12 800	19 500	20.1	81	99	1	0.357
	115	20	1.1	0.6	46 000	41 500	—	7 900	10 600	37.4	82	108	1	0.661
	115	20	1.1	0.6	50 500	45 500	15.9	12 200	18 500	22.7	82	108	1	0.748
	130	25	1.5	1	80 000	64 500	—	7 400	9 800	42.1	84	121	1.5	1.19
	130	25	1.5	1	68 500	58 500	—	3 800	5 300	55.5	84	121	1.5	1.22
	130	25	1.5	1	78 500	63 500	—	4 300	6 300	55.5	84	121	1.5	1.18
	130	25	1.5	1	87 000	70 000	14.8	11 300	17 100	26.2	84	121	1.5	1.36
	160	37	2.1	1.1	136 000	106 000	—	3 800	5 000	52.4	87	148	2	3.13
	160	37	2.1	1.1	125 000	97 500	—	3 400	4 800	67.8	87	148	2	3.19
	160	37	2.1	1.1	134 000	98 500	—	3 800	5 600	—	—	—	—	—
80	110	16	1	0.6	28 700	29 000	—	10 600	15 800	30.2	86	104	1	0.38
	110	16	1	0.6	30 500	30 500	16.7	12 200	18 500	20.7	86	104	1	0.376
	125	22	1.1	0.6	56 000	50 500	—	7 400	9 800	40.6	87	118	1	0.88
	125	22	1.1	0.6	61 500	55 500	15.7	11 300	17 100	24.7	87	118	1	0.966
	140	26	2	1	89 500	71 500	—	6 900	9 100	44.8	90	130	2	1.46
	140	26	2	1	80 500	69 500	—	3 600	5 000	59.1	90	130	2	1.49
	140	26	2	1	87 500	70 000	—	4 000	6 000	59.2	87	148	2	1.42
	140	26	2	1	97 500	77 500	14.7	10 500	16 000	27.7	90	130	2	1.63
	170	39	2.1	1.1	147 000	119 000	—	3 600	4 800	55.6	92	158	2	3.71
	170	39	2.1	1.1	135 000	109 000	—	3 200	4 300	71.9	92	158	2	3.79
	170	39	2.1	1.1	144 000	110 000	—	3 600	5 300	—	—	—	—	—

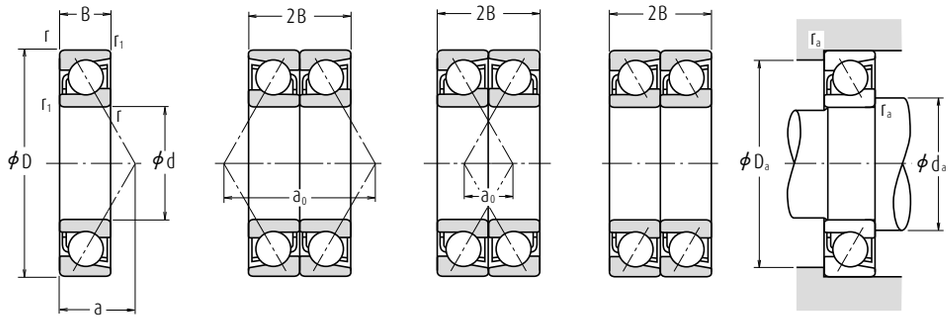
Notes
(1) For applications operating near the limiting speed.
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Bearing Numbers (2) Cage Symbol (4)							Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex				C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7914 A5*	(M)	T,TYN	DB	DF	DT		43 000	52 500	6 300	9 000	55.6	23.6	—	95	0.6
7914 C*	(M)	T, TYN,T85	DB	DF	DT		45 500	55 500	7 500	11 000	38.8	6.8	—	95	0.6
7014 A*	W	(M), T,TYN	DB	DF	DT		71 500	82 500	5 000	6 700	72.0	32.0	75	105	0.6
7014 C*	(M)	W,T, TYN	DB	DF	DT		76 000	86 000	7 100	10 000	44.1	4.1	—	105	0.6
7214 A*	W	(M), T,TYN	DB	DF	DT		124 000	127 000	4 500	6 300	80.3	32.3	76	119	1
7214 B	W	(M),T	DB	DF	DT		112 000	116 000	3 200	4 500	105.8	57.8	76	119	1
7214 BEA*	T85	MR, T7	—	—	—		—	—	3 600	5 300	105.8	57.8	76	119	1
7214 C*	(M)	W,T,TYN,T7	DB	DF	DT		129 000	129 000	6 700	9 000	50.1	2.1	—	119	1
7314 A	W	(M), T	DB	DF	DT		203 000	187 000	3 200	4 300	98.5	28.5	77	143	1
7314 B	W	(M), T	DB	DF	DT		186 000	172 000	2 800	4 000	127.3	57.3	77	143	1
7314 BEA*	T85	MR, T7, W	—	—	—		—	—	3 200	4 800	127.3	57.3	77	143	1
7915 A5*	(M)	TYN	DB	DF	DT		44 000	55 500	6 000	8 500	58.0	26.0	—	100	0.6
7915 C*	(M)	T, TYN	DB	DF	DT		46 500	58 500	7 100	10 000	40.1	8.1	—	100	0.6
7015 A*	W	(M), T,TYN	DB	DF	DT		73 000	87 500	4 800	6 700	74.8	34.8	80	110	0.6
7015 C*	(M)	W,T, TYN	DB	DF	DT		78 000	91 500	6 700	9 500	45.4	5.4	—	110	0.6
7215 A*	W	(M), T,TYN	DB	DF	DT		123 000	129 000	4 300	6 000	84.2	34.2	81	124	1
7215 B	W	(M),T	DB	DF	DT		112 000	117 000	3 200	4 300	111.0	61.0	81	124	1
7215 BEA*	T85	MR	—	—	—		—	—	3 600	5 000	111.0	61.0	81	124	1
7215 C*	(M)	W,T,TYN,T7	DB	DF	DT		134 000	140 000	6 300	9 000	52.4	2.4	—	124	1
7315 A	W	(M), T	DB	DF	DT		221 000	212 000	3 000	4 000	104.8	30.8	82	153	1
7315 B	W	(M),MR,T	DB	DF	DT		202 000	195 000	2 800	3 800	135.6	61.6	82	153	1
7315BEA*	T85	MR, W	—	—	—		—	—	3 800	5 600	—	—	—	—	—
7916 A5*	(M)	T,TYN	DB	DF	DT		44 500	58 000	5 600	8 000	60.3	28.3	—	105	0.6
7916 C*	(M)	T, TYN	DB	DF	DT		47 000	61 500	6 700	9 500	41.5	9.5	—	105	0.6
7016 A*	W	(M), T,TYN	DB	DF	DT		89 500	106 000	4 300	6 000	81.2	37.2	85	120	0.6
7016 C*	(M)	W,T, TYN	DB	DF	DT		95 500	111 000	6 300	9 000	49.4	5.4	—	120	0.6
7216 A*	W	(M), T,TYN	DB	DF	DT		145 000	152 000	4 000	5 600	89.5	37.5	86	134	1
7216 B	W	(M),T	DB	DF	DT		131 000	139 000	2 800	4 000	118.3	66.3	86	134	1
7216 BEA*	T85	MR, T7	—	—	—		—	—	3 200	4 800	118.3	66.3	82	153	1
7216 C*	(M)	W,T,TYN	DB	DF	DT		151 000	155 000	6 000	8 000	55.5	3.5	—	134	1
7316 A	W	(M), T	DB	DF	DT		239 000	238 000	2 800	3 800	111.2	33.2	87	163	1
7316 B	W	(M), T	DB	DF	DT		219 000	218 000	2 600	3 400	143.9	65.9	87	163	1
7316BEA*	T85	MR, T7, W	—	—	—		—	—	3 600	5 300	—	—	—	—	—

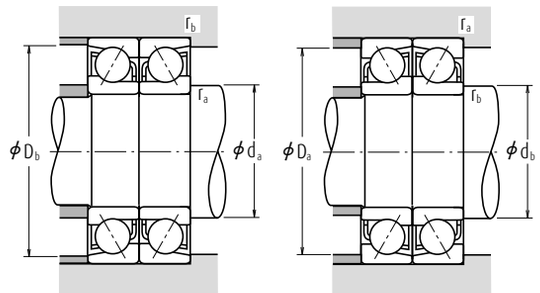
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Remark The bearings denoted by an asterisk (*) are OIDHPS Angular contact ball bearings and the column of Duplex in Bearing Numbers indicates the universal matching.

Single/matched mountings
Bore Diameter 85 – 100 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



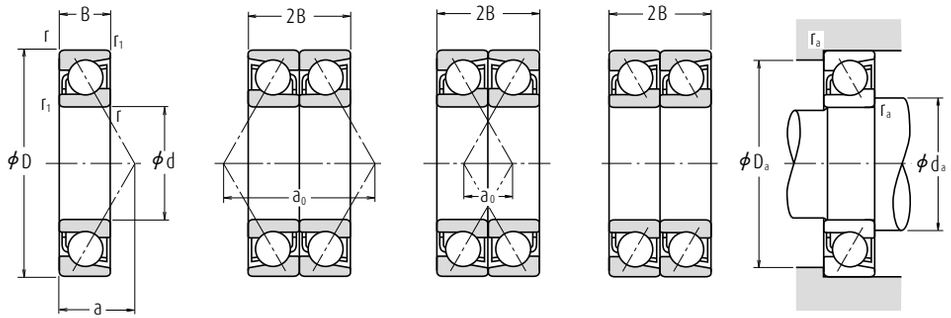
Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
85	120	18	1.1	0.6	38 500	38 500	—	9 800	14 700	32.9	92	113	1	0.541
	120	18	1.1	0.6	41 000	40 500	16.5	11 300	17 100	22.7	92	113	1	0.534
	130	22	1.1	0.6	57 500	53 500	—	7 000	9 400	42.0	92	123	1	0.913
	130	22	1.1	0.6	63 000	58 500	15.9	10 700	16 300	25.4	92	123	1	1.01
	150	28	2	1	104 000	83 500	—	6 400	8 600	47.9	95	140	2	1.83
	150	28	2	1	93 000	81 000	—	3 400	4 800	63.3	95	140	2	1.87
	150	28	2	1	113 000	90 500	14.7	9 800	14 900	29.7	95	140	2	2.04
	180	41	3	1.1	159 000	133 000	—	3 400	4 500	58.8	99	166	2.5	4.33
	180	41	3	1.1	146 000	122 000	—	3 000	4 000	76.1	99	166	2.5	4.42
90	125	18	1.1	0.6	31 000	43 500	—	9 400	14 000	34.1	97	118	1	0.56
	125	18	1.1	0.6	44 000	46 000	16.6	10 700	16 300	23.4	97	118	1	0.563
	140	24	1.5	1	68 500	63 500	—	6 600	8 700	45.2	99	131	1.5	1.19
	140	24	1.5	1	75 500	69 000	15.7	10 000	15 300	27.4	99	131	1.5	1.34
	160	30	2	1	118 000	96 500	—	6 000	8 000	51.1	100	150	2	2.25
	160	30	2	1	107 000	94 000	—	3 200	4 300	67.4	100	150	2	2.29
	160	30	2	1	129 000	105 000	14.6	9 200	14 000	31.7	100	150	2	2.51
	190	43	3	1.1	171 000	147 000	—	3 200	4 300	61.9	104	176	2.5	5.06
	190	43	3	1.1	156 000	135 000	—	2 800	3 800	80.2	104	176	2.5	5.17
95	130	18	1.1	0.6	42 000	45 500	—	8 900	13 400	35.2	102	123	1	0.597
	130	18	1.1	0.6	44 500	48 000	16.7	10 300	15 600	24.1	102	123	1	0.591
	145	24	1.5	1	70 000	67 000	—	6 300	8 400	46.6	104	136	1.5	1.43
	145	24	1.5	1	77 000	73 000	15.9	9 600	14 600	28.1	104	136	1.5	1.42
	170	32	2.1	1.1	128 000	103 000	—	5 700	7 600	54.2	107	158	2	2.68
	170	32	2.1	1.1	116 000	101 000	—	3 000	4 000	71.6	107	158	2	2.74
	170	32	2.1	1.1	139 000	112 000	14.6	8 700	13 300	33.7	107	158	2	3.05
	200	45	3	1.1	183 000	162 000	—	3 000	4 000	65.1	109	186	2.5	5.83
	200	45	3	1.1	167 000	149 000	—	2 600	3 600	84.3	109	186	2.5	5.98
100	140	20	1.1	0.6	49 500	51 500	—	8 400	12 500	38.0	107	133	1	0.804
	140	20	1.1	0.6	52 500	54 000	16.5	9 600	14 600	26.1	107	133	1	0.794
	150	24	1.5	1	72 000	70 500	—	6 000	8 000	48.1	109	141	1.5	1.48

Notes
(1) For applications operating near the limiting speed.
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

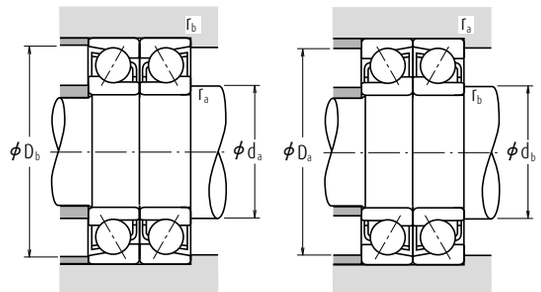
Bearing Numbers (2) Cage Symbol (4)						Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex			C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7917 A5*	(M)	T,TYN	DB	DF	DT	59 500	77 000	5 300	7 500	65.8	29.8	—	115	0.6
7917 C*	(M)	T, TYN	DB	DF	DT	63 000	81 500	6 300	9 000	45.5	9.5	—	115	0.6
7017 A*	W	(M), T,TYN	DB	DF	DT	91 500	112 000	4 300	5 600	84.1	40.1	90	125	0.6
7017 C*	(M)	W,T, TYN	DB	DF	DT	98 000	117 000	6 000	8 500	50.8	6.8	—	125	0.6
7217 A*	W	(M), T,TYN	DB	DF	DT	167 000	178 000	3 800	5 300	95.8	39.8	91	144	1
7217 B	W	(M), T	DB	DF	DT	151 000	162 000	2 800	3 800	126.6	70.6	91	144	1
7217 C*	T85	—	—	—	—	174 000	181 000	5 600	7 500	59.5	3.5	—	144	1
7317 A	(M)	W,T,TYN	DB	DF	DT	258 000	265 000	2 600	3 600	117.5	35.5	92	173	1
7317 B	W	(M), T	DB	DF	DT	236 000	244 000	2 400	3 200	152.2	70.2	92	173	1
7918 A5*	W	(M), T	DB	DF	DT	64 000	87 000	5 000	7 100	68.1	32.1	—	120	0.6
7918 C*	T85	MR, T7	—	—	—	67 500	92 000	6 000	8 500	46.8	10.8	—	120	0.6
7018 A*	(M)	T,TYN	DB	DF	DT	109 000	133 000	3 800	5 300	90.4	42.4	96	134	1
7018 C*	(M)	T, TYN	DB	DF	DT	116 000	138 000	5 600	8 000	54.8	6.8	—	134	1
7218 A*	W	(M), T,TYN	DB	DF	DT	191 000	206 000	3 600	5 000	102.2	42.2	96	154	1
7218 B	(M)	W,T, TYN	DB	DF	DT	173 000	188 000	2 600	3 400	134.9	74.9	96	154	1
7218 C*	W	(M), T,TYN	DB	DF	DT	199 000	209 000	5 300	7 100	63.5	3.5	—	154	1
7318 A	W	(M), T	DB	DF	DT	277 000	294 000	2 600	3 400	123.8	37.8	97	183	1
7318 B	T85	MR	—	—	—	254 000	270 000	2 200	3 000	160.5	74.5	97	183	1
7919 A5*	(M)	W,T,TYN	DB	DF	DT	64 500	91 000	4 800	6 700	70.5	34.5	—	125	0.6
7919 C*	W	(M), T	DB	DF	DT	68 500	96 000	5 600	8 000	48.1	12.1	—	125	0.6
7019 A*	W	(M), T	DB	DF	DT	109 000	134 000	3 800	5 000	93.3	45.3	—	139	1
7019 C*	T85	MR	—	—	—	119 000	146 000	5 300	7 500	56.1	8.1	—	139	1
7219 A*	(M)	T,TYN	DB	DF	DT	208 000	221 000	3 400	4 500	108.5	44.5	102	163	1
7219 B	(M)	T, TYN	DB	DF	DT	188 000	202 000	2 400	3 200	143.2	79.2	102	163	1
7219 C*	(M)	T,TYN	DB	DF	DT	216 000	224 000	4 800	6 700	67.5	3.5	—	163	1
7319 A	(M)	T, TYN	DB	DF	DT	297 000	325 000	2 400	3 200	130.2	40.2	102	193	1
7319 B	W	(M), T,TYN	DB	DF	DT	272 000	298 000	2 200	3 000	168.7	78.7	102	193	1
7920 A5*	W	(M), T	DB	DF	DT	77 000	103 000	4 500	6 300	76.0	36.0	—	135	0.6
7920 C*	T85	MR, T7	—	—	—	81 500	108 000	5 300	7 500	52.2	12.2	—	135	0.6
7020 A*	(M)	W,T,TYN	DB	DF	DT	111 000	141 000	3 600	5 000	96.2	48.2	—	144	1

Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Single/matched mountings
Bore Diameter 100 – 120 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



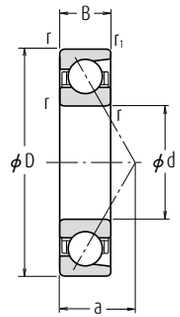
Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min⁻¹)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	Cr	C0r	f0	Grease	Oil	a	da min.	Da max.	ra max.	approx.
100	150	24	1.5	1	79 000	77 000	16.0	9 200	14 000	28.7	109	141	1.5	1.46
	180	34	2.1	1.1	144 000	117 000	—	5 400	7 200	57.4	112	168	2	3.22
	180	34	2.1	1.1	130 000	114 000	—	2 800	3 800	75.7	112	168	2	3.28
	180	34	2.1	1.1	157 000	127 000	14.5	8 300	12 500	35.7	112	168	2	3.65
	215	47	3	1.1	207 000	193 000	—	2 800	3 800	69.0	114	201	2.5	7.29
	215	47	3	1.1	190 000	178 000	—	2 400	3 400	89.6	114	201	2.5	7.43
105	145	20	1.1	0.6	50 500	54 000	—	8 000	12 000	39.2	112	138	1	0.82
	145	20	1.1	0.6	53 500	57 000	16.6	9 200	14 000	26.7	112	138	1	0.826
	160	26	2	1	84 000	81 500	—	5 700	7 600	51.2	115	150	2	1.84
	160	26	2	1	92 500	89 500	15.9	8 700	13 300	30.7	115	150	2	1.82
	190	36	2.1	1.1	157 000	132 000	—	5 100	6 800	60.6	117	178	2	3.84
	190	36	2.1	1.1	142 000	129 000	—	2 600	3 600	79.9	117	178	2	3.92
	190	36	2.1	1.1	171 000	143 000	14.5	7 800	11 900	37.7	117	178	2	4.33
	225	49	3	1.1	208 000	56 000	—	2 600	3 600	72.1	119	211	2.5	9.34
	225	49	3	1.1	191 000	59 500	—	2 400	3 200	93.7	119	211	2.5	9.43
110	150	20	1.1	0.6	51 500	95 500	—	7 700	11 600	40.3	117	143	1	0.877
	150	20	1.1	0.6	54 500	104 000	16.7	8 900	13 500	27.4	117	143	1	0.867
	170	28	2	1	101 000	148 000	—	5 400	7 200	54.4	120	160	2	2.28
	170	28	2	1	111 000	144 000	15.6	8 300	12 500	32.7	120	160	2	2.26
	200	38	2.1	1.1	170 000	160 000	—	4 900	6 500	63.7	122	188	2	4.49
	200	38	2.1	1.1	154 000	144 000	—	2 600	3 400	84.0	122	188	2	4.58
	200	38	2.1	1.1	185 000	160 000	14.5	7 500	11 300	39.8	122	188	2	5.1
	240	50	3	1.1	220 000	215 000	—	2 600	3 400	75.5	124	226	2.5	11.1
	240	50	3	1.1	201 000	197 000	—	2 200	3 000	98.4	124	226	2.5	11.2
120	165	22	1.1	0.6	71 000	77 000	—	7 100	10 600	44.2	127	158	1	1.15
	165	22	1.1	0.6	75 500	81 000	16.5	8 100	12 300	30.1	127	158	1	1.15
	180	28	2	1	107 000	107 000	—	5 000	6 700	57.3	130	170	2	2.45
	215	40	2.1	1.1	192 000	177 000	—	4 500	6 000	68.3	132	203	2	6.22
	215	40	2.1	1.1	165 000	162 000	—	2 400	3 200	90.3	132	203	2	6.26
	260	55	3	1.1	246 000	252 000	—	2 200	3 000	82.3	134	246	2.5	14.5
	260	55	3	1.1	225 000	231 000	—	2 000	2 800	107.2	134	246	2.5	14.4

Bearing Numbers (2) Cage Symbol (4)							Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min⁻¹)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex				Cr	C0r	Grease	Oil	a0 DB	a0 DF	db (3) min.	Db max.	rb (3) max.
7020 C*	(M)	T, TYN	DB	DF	DT		122 000	154 000	5 300	7 100	57.5	9.5	—	144	1
7220 A*	W	(M), T,TYN	DB	DF	DT		233 000	251 000	3 200	4 300	114.8	46.8	107	173	1
7220 B	W	(M), T	DB	DF	DT		212 000	229 000	2 200	3 000	151.5	83.5	107	173	1
7220 C*	T85	MR	—	—	—		242 000	254 000	4 500	6 300	71.5	3.5	—	173	1
7320 A	(M)	W,T,TYN	DB	DF	DT		335 000	385 000	2 200	3 000	137.9	43.9	107	208	1
7320 B	W	(M), T	DB	DF	DT		310 000	355 000	2 000	2 800	179.2	85.2	107	208	1
7921 A5*	W	(M), T	DB	DF	DT		78 500	108 000	4 300	6 000	78.3	38.3	—	140	0.6
7921 C*	T85	MR, T7	—	—	—		83 000	114 000	5 300	7 100	53.5	13.5	—	140	0.6
7021 A*	(M)	T,TYN	DB	DF	DT		130 000	163 000	3 400	4 500	102.5	50.5	—	154	1
7021 C*	(M)	T, TYN	DB	DF	DT		143 000	179 000	4 800	6 700	61.5	9.5	—	154	1
7221 A*	(M)	T,TYN	DB	DF	DT		254 000	283 000	3 000	4 000	121.2	49.2	112	183	1
7221 B	(M)	T, TYN	DB	DF	DT		231 000	258 000	2 200	3 000	159.8	87.8	112	183	1
7221 C*	W	(M), T	DB	DF	DT		264 000	286 000	4 300	6 000	75.5	3.5	—	183	1
7321 A	W	(M), T	DB	DF	DT		335 000	385 000	2 200	2 800	144.3	46.3	—	218	1
7321 B	T85	—	—	—	—		310 000	355 000	1 900	2 600	187.4	89.4	—	218	1
7922 A5*	(M)	W,T,TYN	DB	DF	DT		79 500	112 000	4 300	5 600	80.6	40.6	—	145	0.6
7922 C*	(M)	T	DB	DF	DT		84 500	119 000	5 000	6 700	54.8	14.8	—	145	0.6
7022 A*	(M)	T	DB	DF	DT		157 000	191 000	3 200	4 300	108.8	52.8	—	164	1
7022 C*	T85	T7	—	—	—		172 000	208 000	4 500	6 300	65.5	9.5	—	164	1
7222 A*	(M)	T,TYN	DB	DF	DT		276 000	315 000	2 800	4 000	127.5	51.5	117	193	1
7222 B	(M)	T, TYN	DB	DF	DT		250 000	289 000	2 000	2 800	168.1	92.1	117	193	1
7222 C*	(M)	T,TYN	DB	DF	DT		286 000	320 000	4 000	5 600	79.5	3.5	—	193	1
7322 A	(M)	T, TYN	DB	DF	DT		360 000	430 000	2 000	2 600	151.0	51.0	—	233	1
7322 B	W	(M), T,TYN	DB	DF	DT		325 000	395 000	1 800	2 400	196.8	96.8	—	233	1
7924 A5*	W	(M), T	DB	DF	DT		110 000	154 000	3 800	5 300	88.5	44.5	—	160	0.6
7924 C*	T85	MR	—	—	—		117 000	162 000	4 500	6 300	60.2	16.2	—	160	0.6
7024 A*	(M)	W,T,TYN	DB	DF	DT		166 000	213 000	3 000	4 000	114.6	58.6	—	174	1
7224 A*	(M)	W,T	DB	DF	DT		297 000	355 000	2 600	3 600	136.7	56.7	—	208	1
7224 B	(M)	W,T	DB	DF	DT		269 000	325 000	1 900	2 600	180.5	100.5	—	208	1
7324 A	T85	MR	—	—	—		400 000	505 000	1 800	2 400	164.7	54.7	—	253	1
7324 B	(M)	T,TYN	DB	DF	DT		365 000	460 000	1 600	2 200	214.4	104.4	—	253	1

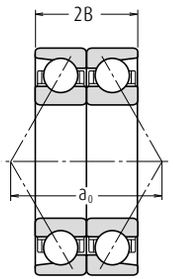
Notes
(1) For applications operating near the limiting speed.
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

Note
(4) (M) in the column of cage symbols are usually omitted from the bearing number.

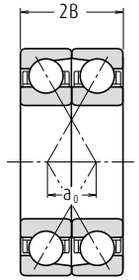
Single/matched mountings
Bore Diameter 130 – 170 mm



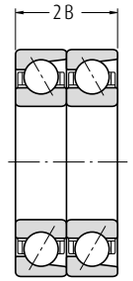
Single



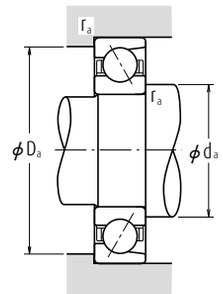
Back-to-Back
DB

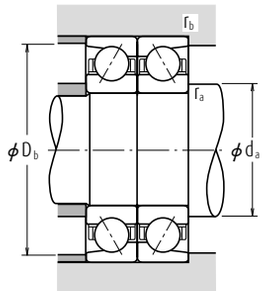


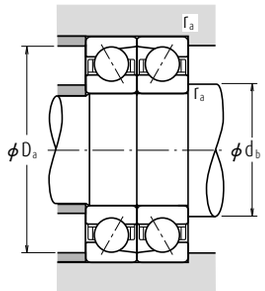
Face-to-Face
DF



Tandem
DT







Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min^{-1})		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r_1 min.	C_r	C_{0r}	f_0	Grease	Oil	a	d_a min.	D_a max.	r_a max.	approx.
130	180	24	1.5	1	78 000	86 000	—	6 500	9 700	48.1	139	171	1.5	1.54
	180	24	1.5	1	82 500	91 000	16.5	7 500	11 300	32.8	139	171	1.5	1.5
	200	33	2	1	123 000	125 000	—	4 600	6 100	64.1	140	190	2	3.68
	230	40	3	1.1	199 000	193 000	—	4 200	5 600	72.0	144	216	2.5	7.06
	230	40	3	1.1	171 000	175 000	—	2 200	3 000	95.5	144	216	2.5	7.1
	280	58	4	1.5	273 000	293 000	—	2 200	2 800	88.2	148	262	3	17.5
	280	58	4	1.5	250 000	268 000	—	1 900	2 600	115.0	148	262	3	17.6
140	190	24	1.5	1	78 500	90 000	—	6 100	9 100	50.5	149	181	1.5	1.63
	190	24	1.5	1	83 500	95 500	16.7	7 000	10 700	34.1	149	181	1.5	1.63
	210	33	2	1	126 000	133 000	—	4 300	5 800	67.0	150	200	2	3.9
	250	42	3	1.1	229 000	234 000	—	3 900	5 200	77.3	154	236	2.5	8.92
	250	42	3	1.1	197 000	213 000	—	2 000	2 800	102.8	154	236	2.5	8.94
	300	62	4	1.5	300 000	335 000	—	2 000	2 600	94.5	158	282	3	21.4
	300	62	4	1.5	275 000	310 000	—	1 700	2 400	123.3	158	282	3	21.6
150	210	28	2	1	101 000	115 000	—	5 600	8 400	56.0	160	200	2	2.97
	210	28	2	1	107 000	122 000	16.6	6 400	9 800	38.1	160	200	2	2.96
	225	35	2.1	1.1	144 000	154 000	—	4 000	5 400	71.6	162	213	2	4.75
	270	45	3	1.1	261 000	280 000	—	3 600	4 800	83.1	164	256	2.5	11.2
	270	45	3	1.1	225 000	254 000	—	1 800	2 600	110.6	164	256	2.5	11.2
	320	65	4	1.5	315 000	370 000	—	1 800	2 400	100.3	168	302	3	26
	320	65	4	1.5	289 000	340 000	—	1 600	2 200	131.1	168	302	3	25.9
160	220	28	2	1	112 000	133 000	16.7	3 600	4 800	39.4	170	210	2	3.1
	240	38	2.1	1.1	163 000	176 000	—	3 300	4 500	76.7	172	228	2	5.77
	290	48	3	1.1	263 000	305 000	—	1 900	2 600	89.0	174	276	2.5	14.1
	290	48	3	1.1	238 000	279 000	—	1 700	2 400	118.4	174	276	2.5	14.2
	340	68	4	1.5	345 000	420 000	—	1 700	2 200	106.2	178	322	3	30.7
	340	68	4	1.5	315 000	385 000	—	1 500	2 000	138.9	178	322	3	30.8
170	230	28	2	1	118 000	148 000	16.8	5 300	8 300	40.8	180	220	2	3.36
	260	42	2.1	1.1	195 000	214 000	—	3 100	4 200	83.1	182	248	2	7.9
	310	52	4	1.5	295 000	360 000	—	1 800	2 400	95.3	188	292	3	17.3
	310	52	4	1.5	266 000	325 000	—	1 600	2 200	126.7	188	292	3	17.6
	360	72	4	1.5	390 000	485 000	—	1 600	2 200	112.5	188	342	3	35.8
	360	72	4	1.5	355 000	445 000	—	1 400	2 000	147.2	188	342	3	35.6

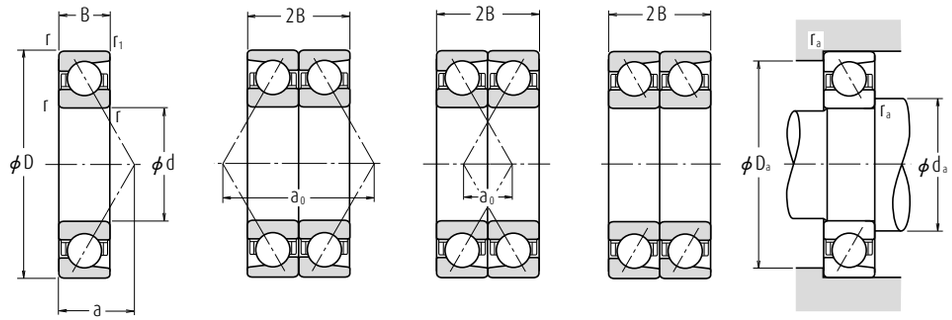
Bearing Numbers (2) Cage Symbol (4)						Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min^{-1})		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex			C_r	C_{0r}	Grease	Oil	a_0 DB	a_0 DF	d_b (3) min.	D_b max.	r_b (3) max.
7926 A5*	(M)	T,TYN	DB	DF	DT	120 000	172 000	3 400	4 800	96.3	48.3	—	174	1
7926 C*	(M)	T, TYN	DB	DF	DT	128 000	182 000	4 000	5 600	65.5	17.5	—	174	1
7026 A*	(M)	T,TYN	DB	DF	DT	191 000	251 000	2 600	3 600	128.3	62.3	—	194	1
7226 A*	(M)	T	DB	DF	DT	310 000	385 000	1 900	2 600	143.9	63.9	—	223	1
7226 B	(M)	T	DB	DF	DT	278 000	350 000	1 700	2 400	191.0	111.0	—	223	1
7326 A	(M)	T	DB	DF	DT	445 000	585 000	1 700	2 200	176.3	60.3	—	271	1.5
7326 B	(M)	T	DB	DF	DT	405 000	535 000	1 500	2 000	230.0	114.0	—	271	1.5
7928 A5*	(M)	T,TYN	DB	DF	DT	122 000	180 000	3 200	4 500	100.9	52.9	—	184	1
7928 C*	(M)	T, TYN	DB	DF	DT	129 000	191 000	3 800	5 300	68.2	20.2	—	184	1
7028 A*	(M)	T	DB	DF	DT	194 000	265 000	2 600	3 400	134.0	68.0	—	204	1
7228 A*	(M)	T	DB	DF	DT	355 000	470 000	1 800	2 400	154.6	70.6	—	243	1
7228 B	(M)	T	DB	DF	DT	320 000	425 000	1 600	2 200	205.6	121.6	—	243	1
7328 A	(M)	T	DB	DF	DT	490 000	670 000	1 600	2 000	189.0	65.0	—	291	1.5
7328 B	(M)	T	DB	DF	DT	445 000	615 000	1 400	1 900	246.6	122.6	—	291	1.5
7930 A5*	(M)	—	DB	DF	DT	157 000	231 000	3 000	4 000	112.0	56.0	—	204	1
7930 C*	(M)	—	DB	DF	DT	166 000	244 000	3 600	4 800	76.2	20.2	—	204	1
7030 A*	(M)	T	DB	DF	DT	222 000	305 000	1 900	2 400	143.3	73.3	—	218	1
7230 A*	(M)	—	DB	DF	DT	405 000	560 000	1 600	2 200	166.3	76.3	—	263	1
7230 B	(M)	T	DB	DF	DT	365 000	510 000	1 500	2 000	221.2	131.2	—	263	1
7330 A	(M)	—	DB	DF	DT	515 000	745 000	1 500	1 900	200.7	70.7	—	311	1.5
7330 B	(M)	T	DB	DF	DT	470 000	680 000	1 300	1 800	262.2	132.2	—	311	1.5
7932 C*	(M)	TYN	DB	DF	DT	173 000	265 000	3 000	4 000	78.9	22.9	—	214	1
7032 A*	(M)	T	DB	DF	DT	252 000	355 000	1 700	2 400	153.5	77.5	—	233	1
7232 A	(M)	T	DB	DF	DT	425 000	615 000	1 500	2 000	177.9	81.9	—	283	1
7232 B	(M)	—	DB	DF	DT	385 000	555 000	1 400	1 900	236.8	140.8	—	283	1
7332 A	(M)	T	DB	DF	DT	565 000	845 000	1 400	1 800	212.3	76.3	—	331	1.5
7332 B	(M)	T	DB	DF	DT	515 000	770 000	1 200	1 700	277.8	141.8	—	331	1.5
7934 C*	(M)	—	DB	DF	DT	183 000	297 000	2 800	3 800	81.6	25.6	—	224	1
7034 A*	(M)	—	DB	DF	DT	300 000	430 000	1 600	2 200	166.1	82.1	—	253	1
7234 A	(M)	—	DB	DF	DT	480 000	715 000	1 400	1 900	190.6	86.6	—	301	1.5
7234 B	(M)	—	DB	DF	DT	435 000	650 000	1 300	1 700	253.4	149.4	—	301	1.5
7334 A	(M)	—	DB	DF	DT	630 000	970 000	1 300	1 700	225.0	81.0	—	351	1.5
7334 B	(M)	T	DB	DF	DT	575 000	890 000	1 100	1 600	294.3	150.3	—	351	1.5

Notes
(1) For applications operating near the limiting speed.
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked — in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

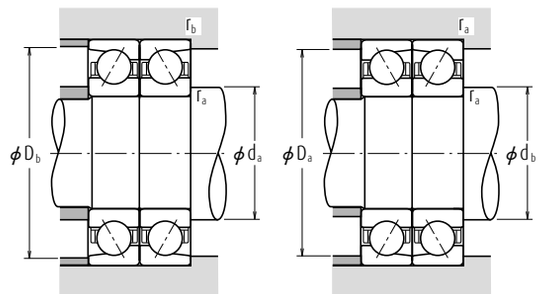
Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Angular Contact Ball Bearings

Single/matched mountings
Bore Diameter 180 – 200 mm



Single | Back-to-Back DB | Face-to-Face DF | Tandem DT



Boundary Dimensions (mm)					Basic Load Ratings (Single) (N)		Factor	Limiting Speeds (1) (min-1)		Eff.Load Centers (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
d	D	B	r min.	r1 min.	Cr	C0r	f0	Grease	Oil	a	da min.	Da max.	ra max.	approx.
180	250	33	2	1	152 000	184 000	16.6	4 900	7 700	45.3	190	240	2	4.9
	280	46	2.1	1.1	218 000	252 000	–	2 900	4 000	89.4	192	268	2	10.5
	320	52	4	1.5	305 000	385 000	–	1 700	2 200	98.2	198	302	3	18.1
	320	52	4	1.5	276 000	350 000	–	1 500	2 000	130.9	198	302	3	18.4
	380	75	4	1.5	410 000	535 000	–	1 500	2 000	118.3	198	362	3	42.1
	380	75	4	1.5	375 000	490 000	–	1 300	1 800	155.0	198	362	3	42.6
190	260	33	2	1	155 000	192 000	16.7	4 700	7 400	46.6	200	250	2	4.98
	290	46	2.1	1.1	235 000	280 000	–	2 800	3 800	92.3	202	278	2	11.3
	340	55	4	1.5	315 000	410 000	–	1 600	2 200	104.0	208	322	3	22.4
	340	55	4	1.5	284 000	375 000	–	1 400	2 000	138.7	208	322	3	22.5
	400	78	5	2	450 000	600 000	–	1 400	1 900	124.2	212	378	4	47.5
	400	78	5	2	410 000	550 000	–	1 300	1 700	162.8	212	378	4	47.2
200	280	38	2.1	1.1	199 000	244 000	16.5	4 400	6 900	51.2	212	268	2	6.85
	310	51	2.1	1.1	252 000	310 000	–	2 600	3 600	99.1	212	298	2	13.7
	360	58	4	1.5	335 000	450 000	–	1 500	2 000	109.8	218	342	3	26.5
	360	58	4	1.5	305 000	410 000	–	1 300	1 800	146.5	218	342	3	26.6
	420	80	5	2	475 000	660 000	–	1 300	1 800	129.5	222	398	4	54.4
	420	80	5	2	430 000	600 000	–	1 200	1 600	170.1	222	398	4	55.3

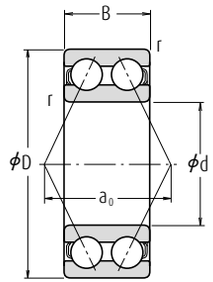
Notes
(1) For applications operating near the limiting speed.
(2) The suffixes A, A5, B, and C represent contact angles of 30°, 25°, 40°, and 15° respectively.
(3) For bearings marked – in the column for d_b, d_b and r_b for shafts are d_a (min.) and r_a (max.) respectively.

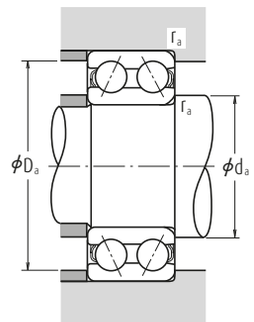
Bearing Numbers (2) Cage Symbol (4)				Basic Load Ratings (Matched) (N)		Limiting Speeds (1) (Matched) (min-1)		Load Center Spacings (mm)		Abutment and Fillet Dimensions (mm)		
Single	Standard	Option	Duplex	Cr	C0r	Grease	Oil	a0 DB	a0 DF	db (3) min.	Db max.	rb (3) max.
7936 C*	(M)	–	DB DF DT	236 000	370 000	2 600	3 600	90.6	24.6	–	244	1
7036 A*	(M)	–	DB DF DT	335 000	505 000	1 500	2 000	178.8	86.8	–	273	1
7236 A	(M)	–	DB DF DT	495 000	770 000	1 400	1 800	196.3	92.3	–	311	1.5
7236 B	(M)	–	DB DF DT	450 000	700 000	1 200	1 700	261.8	157.8	–	311	1.5
7336 A	(M)	–	DB DF DT	665 000	1 070 000	1 200	1 600	236.6	86.6	–	371	1.5
7336 B	(M)	–	DB DF DT	605 000	975 000	1 100	1 500	309.9	159.9	–	371	1.5
7938 C*	(M)	TYN	DB DF DT	239 000	385 000	2 400	3 400	93.3	27.3	–	254	1
7038 A*	(M)	–	DB DF DT	365 000	560 000	1 400	1 900	184.6	92.6	–	283	1
7238 A	(M)	–	DB DF DT	510 000	825 000	1 300	1 700	208.0	98.0	–	331	1.5
7238 B	(M)	–	DB DF DT	460 000	750 000	1 100	1 600	277.3	167.3	–	331	1.5
7338 A	(M)	T	DB DF DT	730 000	1 200 000	1 100	1 500	248.3	92.3	–	390	2
7338 B	(M)	–	DB DF DT	670 000	1 100 000	1 000	1 400	325.5	169.5	–	390	2
7940 C*	(M)	–	DB DF DT	305 000	490 000	2 200	3 200	102.3	26.3	–	273	1
7040 A*	(M)	T	DB DF DT	390 000	620 000	1 300	1 800	198.2	96.2	–	303	1
7240 A	(M)	–	DB DF DT	550 000	900 000	1 200	1 600	219.6	103.6	–	351	1.5
7240 B	(M)	–	DB DF DT	495 000	815 000	1 100	1 500	292.9	176.9	–	351	1.5
7340 A	(M)	T	DB DF DT	770 000	1 320 000	1 100	1 400	259.0	99.0	–	410	2
7340 B	(M)	–	DB DF DT	700 000	1 200 000	950	1 300	340.1	180.1	–	410	2

Note (4) (M) in the column of cage symbols are usually omitted from the bearing number.

Double-Row Angular Contact Ball Bearings

Bore Diameter 10 – 85 mm

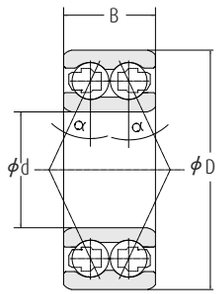




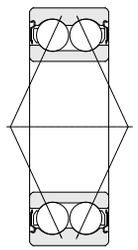
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing Numbers
d	D	B	r min.	C_r	C_{0r}	Grease	Oil	
10	30	14.3	0.6	7 150	3 900	17 000	22 000	**5200**
12	32	15.9	0.6	10 500	5 800	15 000	20 000	**5201**
15	35	15.9	0.6	11 700	7 050	13 000	17 000	**5202**
	42	19	1	17 600	10 200	11 000	15 000	**5302**
17	40	17.5	0.6	14 600	9 050	11 000	15 000	**5203**
	47	22.2	1	21 000	12 600	10 000	13 000	**5303**
20	47	20.6	1	19 600	12 400	10 000	13 000	**5204**
	52	22.2	1.1	24 600	15 000	9 000	12 000	**5304**
25	52	20.6	1	21 300	14 700	8 500	11 000	**5205**
	62	25.4	1.1	32 500	20 700	7 500	10 000	**5305**
30	62	23.8	1	29 600	21 100	7 100	9 500	**5206**
	72	30.2	1.1	40 500	28 100	6 300	8 500	**5306**
35	72	27	1.1	39 000	28 700	6 300	8 000	**5207**
	80	34.9	1.5	51 000	36 000	5 600	7 500	**5307**
40	80	30.2	1.1	44 000	33 500	5 600	7 100	**5208**
	90	36.5	1.5	56 500	41 000	5 300	6 700	**5308**
45	85	30.2	1.1	49 500	38 000	5 000	6 700	**5209**
	100	39.7	1.5	68 500	51 000	4 500	6 000	**5309**
50	90	30.2	1.1	53 000	43 500	4 800	6 000	**5210**
	110	44.4	2	81 500	61 500	4 300	5 600	**5310**
55	100	33.3	1.5	56 000	49 000	4 300	5 600	**5211**
	120	49.2	2	95 000	73 000	3 800	5 000	**5311**
60	110	36.5	1.5	69 000	62 000	3 800	5 000	**5212**
	130	54	2.1	125 000	98 500	3 400	4 500	**5312**
65	120	38.1	1.5	76 500	69 000	3 600	4 500	**5213**
	140	58.7	2.1	142 000	113 000	3 200	4 300	**5313**
70	125	39.7	1.5	94 000	82 000	3 400	4 500	**5214**
	150	63.5	2.1	159 000	128 000	3 000	3 800	**5314**
75	130	41.3	1.5	93 500	83 000	3 200	4 300	**5215**
80	140	44.4	2	99 000	93 000	3 000	3 800	**5216**
85	150	49.2	2	116 000	110 000	2 800	3 600	**5217**

Load Center Spacings (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
a_0	d_a min.	D_a max.	r_a max.	approx.
14.5	15	25	0.6	0.050
16.7	17	27	0.6	0.060
18.3	20	30	0.6	0.070
22.0	21	36	1	0.13
20.8	22	35	0.6	0.10
25.0	23	41	1	0.18
24.3	26	41	1	0.16
26.7	27	45	1	0.22
26.8	31	46	1	0.18
31.8	32	55	1	0.35
31.6	36	56	1	0.30
36.5	37	65	1	0.57
36.6	42	65	1	0.46
41.6	44	71	1.5	0.76
41.5	47	73	1	0.62
45.5	49	81	1.5	1.03
43.4	52	78	1	0.67
50.6	54	91	1.5	1.37
45.9	57	83	1	0.72
55.6	60	100	2	1.84
50.1	64	91	1.5	1.01
60.6	65	110	2	2.40
56.5	69	101	1.5	1.33
69.2	72	118	2	2.92
59.7	74	111	1.5	1.71
72.8	77	128	2	3.67
63.8	79	116	1.5	1.75
78.3	82	138	2	4.55
66.1	84	121	1.5	1.88
69.6	90	130	2	2.51
75.3	95	140	2	3.16

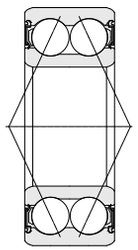
Double Row | Bore 10–90 mm



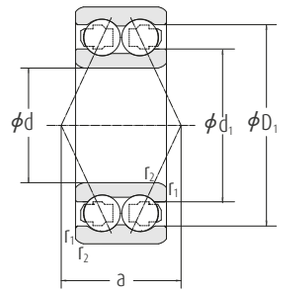
Open



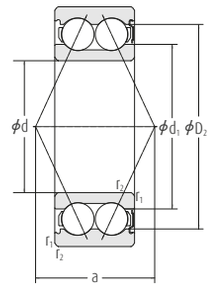
2ZR



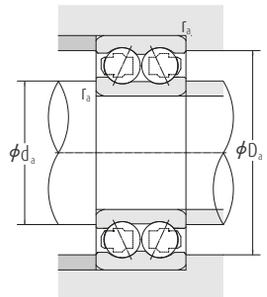
2RSR



Open



ZR, RSR

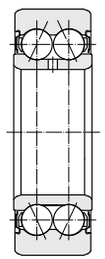


Dimensions				Abbreviation			Load ratings	
d	D	B	$r_{1,2}$ min	Open	with shields	with seals	dyn. C	stat. C_0
	mm				2ZR	2RSR	kN	
10	30	14.0	0.6	3200BTNG	..B2ZRTNG	..B2RSRTNG	7.80	4.55
12	32	15.9	0.6	3201BTNG	..B2ZRTNG	..B2RSRTNG	10.60	5.85
	37	19.0	1.0	3301BTNG	..B2ZRTNG	..B2RSRTNG	14.50	8.20
15	35	15.9	0.6	3202BTNG	..B2ZRTNG	..B2RSRTNG	11.80	7.10
	42	19.0	1.0	3302BTNG	..B2ZRTNG	..B2RSRTNG	16.30	10.00
17	40	17.5	0.6	3203BTNG	..B2ZRTNG	..B2RSRTNG	14.60	9.00
	47	22.2	1.0	3303BTNG	..B2ZRTNG	..B2RSRTNG	20.80	12.50
20	47	20.6	1.0	3204BTNG	..B2ZRTNG	..B2RSRTNG	19.60	12.50
	52	22.2	1.1	3304BTNG	..B2ZRTNG	..B2RSRTNG	23.20	15.00
25	52	20.6	1.0	3205BTNG	..B2ZRTNG	..B2RSRTNG	21.20	14.60
	62	25.4	1.1	3305BTNG	..B2ZRTNG	..B2RSRTNG	30.00	20.00
30	62	23.8	1.0	3206BTNG	..B2ZRTNG	..B2RSRTNG	30.00	21.20
	72	30.2	1.1	3306BTNG	..B2ZRTNG	..B2RSRTNG	41.50	28.50
35	72	27.0	1.1	3207BTNG	..B2ZRTNG	..B2RSRTNG	39.00	28.50
	80	34.9	1.5	3307BTNG	..B2ZRTNG	..B2RSRTNG	51.00	34.50
40	80	30.2	1.1	3208BTNG	..B2ZRTNG	..B2RSRTNG	48.00	36.50
	90	36.5	1.5	3308BTNG	..B2ZRTNG	..B2RSRTNG	62.00	45.00
45	85	30.2	1.1	3209BTNG	..B2ZRTNG	..B2RSRTNG	48.00	37.50
	100	39.7	1.5	3309BTNG	..B2ZRTNG	..B2RSRTNG	68.00	51.00
50	90	30.2	1.1	3210BTNG	..B2ZRTNG	..B2RSRTNG	51.00	42.50
	110	44.4	2.0	3310BTNG	..B2ZRTNG	..B2RSRTNG	81.00	62.00
55	100	33.3	1.5	3211BTNG	..B2ZRTNG	..B2RSRTNG	58.50	49.00
	120	49.2	2.0	3311BTNG	..B2ZRTNG	..B2RSRTNG	102.00	78.00
60	110	36.5	1.5	3212BTNG	..B2ZRTNG	..B2RSRTNG	72.00	61.00
	130	54.0	2.1	3312BTNG	..B2ZRTNG	..B2RSRTNG	125.00	98.00
65	120	38.1	1.5	3213BTNG	..B2ZRTNG	..B2RSRTNG	80.00	73.50
	140	58.7	2.1	3313BTNG	..B2ZRTNG	..B2RSRTNG	150.00	118.00
70	125	39.7	1.5	3214BTNG	..B2ZRTNG	..B2RSRTNG	83.00	76.50
	150	63.5	2.1	3314BTNG	..B2ZRTNG	..B2RSRTNG	171.50	138.20
75	130	41.3	1.5	3215BTNG	..B2ZRTNG	..B2RSRTNG	91.50	85.00
	160	68.3	2.1	3315BTNG	..B2ZRTNG	..B2RSRTNG	173.40	145.30
80	140	44.4	2.0	3216BTNG	..B2ZRTNG	..B2RSRTNG	98.00	93.00
85	150	49.2	2.0	3217BTNG	..B2ZRTNG	..B2RSRTNG	116.00	110.00
90	160	52.4	2.0	3218BTNG	..B2ZRTNG	..B2RSRTNG	124.60	120.30

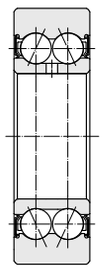
Speed limits		Dimensions (mm)			Abutment dimensions (mm)			Weight
Grease	Oil	d_1	D_1, D_2	a	d_a	D_a	r_a	
min^{-1}				min	max	max	max	kg
16,000	22,000	17.9	23.9	15.1	15	25.0	0.6	0.043
15,000	20,000	18.3	25.7	16.6	17	27.0	0.6	0.051
10,500	11,500	21.1	30.4	19.4	19	32.0	1.0	0.090
14,000	19,000	21.0	29.3	18.0	20	30.0	0.6	0.058
11,000	16,000	25.6	34.2	21.2	21	36.0	1.0	0.112
12,000	17,000	24.0	33.1	20.5	22	35.0	0.6	0.085
10,000	15,000	26.2	37.7	24.0	23	41.0	1.0	0.161
10,000	15,000	28.9	38.7	24.2	26	41.0	1.0	0.139
9,000	13,000	31.2	42.6	26.4	27	45.0	1.0	0.197
8,500	12,000	33.9	43.7	26.5	31	46.0	1.0	0.159
7,500	10,000	37.1	50.0	30.7	32	55.0	1.0	0.316
7,000	9,500	40.0	52.7	31.4	36	56.0	1.0	0.265
6,300	8500	44.0	59.0	36.2	37	65.0	1.0	0.496
6,300	8,500	47.2	60.4	36.6	42	65.0	1.0	0.412
5,600	7,500	49.2	65.4	41.5	44	71.0	1.5	0.664
5,600	7,500	52.9	67.9	40.9	47	73.0	1.0	0.550
5,000	6700	55.4	74.3	46.1	49	81.0	1.5	0.905
5,000	6,700	57.1	72.6	43.2	52	78.0	1.0	0.583
4,500	6,000	62.2	81.6	50.0	54	91.0	1.5	1.210
4,800	6,300	61.9	78.1	45.5	57	83.0	1.0	0.632
4,000	5,300	68.2	89.6	54.9	60	100.0	2.0	1.600
4,300	5,600	68.6	85.3	49.9	64	91.0	1.5	0.876
3,800	5,000	75.2	98.4	61.2	65	110.0	2.0	2.110
3,800	5,000	75.7	94.3	55.1	69	101.0	1.5	1.180
3,400	4,500	81.2	108.7	67.3	72	118.0	2.0	2.700
3,400	4,500	84.5	103.5	59.8	74	111.0	1.5	1.520
3,200	4,300	88.2	118.0	73.3	77	128.0	2.0	3.390
3,400	4,500	86.7	106.2	61.6	79	116.0	1.5	1.640
3,000	4,000	94.7	125.0	80.8	84	135.0	2.1	4.900
3,200	4,300	92.4	112.6	65.0	89	116.6	1.5	1.910
2,800	3,800	101.4	133.0	83.8	90	143.0	2.1	5.700
3,000	4,000	98.5	120.3	69.0	91	129.0	2.0	2.450
2,800	3,800	106.4	128.5	74.6	100	135.0	2.0	3.300
2,600	3,600	113.2	136.6	78.9	109	141.0	2.1	4.170

Pulleys

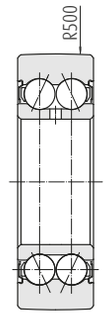
Bore 10–35 mm



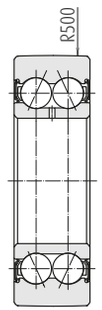
LZ..2ZR



LZ..2RSR



LB..2ZR



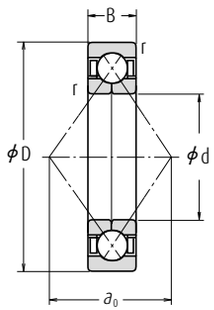
LB..2RSR

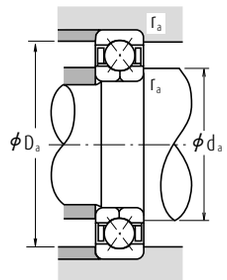
Dimensions				Abbreviation for		Load ratings [kN]				Speed limits	Weight
						Bearing		Pulley			
d	D*	B	r_s min	Shields	Seals	dyn. C	stat. C_0	dyn. C	stat. C_0		
	mm									min^{-1}	kg
10	32	14.0	0.6	LZ3200B2ZRSTNG	LZ3200B2RSRSTNG	7.8	4.55	7.45	4.15	16 000	0.061
	32	14.0	0.6	LB3200B2ZRSTNG	LB3200B2RSRSTNG	7.8	4.55	7.45	4.15	16 000	0.061
12	35	15.9	0.6	LZ3201B2ZRSTNG	LZ3201B2RSRSTNG	10.6	5.85	9.95	5.20	15 000	0.079
	35	15.9	0.6	LB3201B2ZRSTNG	LB3201B2RSRSTNG	10.6	5.85	9.95	5.20	15 000	0.079
15	40	15.9	0.6	LZ3202B2ZRSTNG	LZ3202B2RSRSTNG	11.8	7.10	11.00	6.45	13 000	0.100
	40	15.9	0.6	LB3202B2ZRSTNG	LB3202B2RSRSTNG	11.8	7.10	11.00	6.45	13 000	0.100
17	47	17.5	0.6	LZ3203B2ZRSTNG	LZ3203B2RSRSTNG	14.6	9.00	13.80	8.30	10 000	0.165
	47	17.5	0.6	LB3203B2ZRSTNG	LB3203B2RSRSTNG	14.6	9.00	13.80	8.30	10 000	0.165
20	52	20.6	1.0	LZ3204B2ZRSTNG	LZ3204B2RSRSTNG	19.6	12.50	18.30	11.00	9 000	0.210
	52	20.6	1.0	LB3204B2ZRSTNG	LB3204B2RSRSTNG	19.6	12.50	18.30	11.00	9 000	0.210
25	62	20.6	1.0	LZ3205B2ZRSTNG	LZ3205B2RSRSTNG	21.2	14.60	19.90	13.40	8 000	0.330
	62	20.6	1.0	LB3205B2ZRSTNG	LB3205B2RSRSTNG	21.2	14.60	19.90	13.40	8 000	0.330
30	72	23.8	1.0	LZ3206B2ZRSTNG	LZ3206B2RSRSTNG	30.0	21.20	27.90	18.60	7 100	0.500
	72	23.8	1.0	LB3206B2ZRSTNG	LB3206B2RSRSTNG	30.0	21.20	27.90	18.60	7 100	0.500
35	80	27.0	1.0	LZ3207B2ZRSTNG	LZ3207B2RSRSTNG	39.0	28.50	36.20	25.0	6 300	0.660
	80	27.0	1.0	LB3207B2ZRSTNG	LB3207B2RSRSTNG	39.0	28.50	36.20	25.0	6 300	0.660

* with spherical outer ring D 0.05 mm

Four-Point Contact Ball Bearings

Bore Diameter 30 – 95 mm





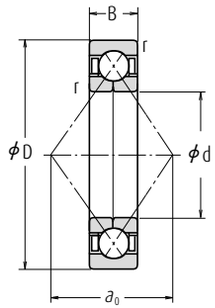
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B	r min.	C_a	C_{0a}	Grease	Oil
30	62	16	1	31 000	45 000	8 500	12 000
	72	19	1.1	46 000	63 000	8 000	11 000
35	72	17	1.1	41 000	61 500	7 500	10 000
	80	21	1.5	55 000	80 000	7 100	9 500
40	80	18	1.1	49 000	77 500	6 700	9 000
	90	23	1.5	67 000	100 000	6 300	8 500
45	85	19	1.1	55 000	88 500	6 300	8 500
	100	25	1.5	87 500	133 000	5 600	7 500
50	90	20	1.1	57 000	97 000	5 600	8 000
	110	27	2	102 000	159 000	5 000	6 700
55	100	21	1.5	71 000	122 000	5 300	7 100
	120	29	2	118 000	187 000	4 500	6 300
60	110	22	1.5	85 500	150 000	4 800	6 300
	130	31	2.1	135 000	217 000	4 300	5 600
65	120	23	1.5	97 500	179 000	4 300	6 000
	140	33	2.1	153 000	250 000	3 800	5 300
70	125	24	1.5	106 000	197 000	4 000	5 600
	150	35	2.1	172 000	285 000	3 600	5 000
75	130	25	1.5	110 000	212 000	3 800	5 300
	160	37	2.1	187 000	320 000	3 400	4 800
80	125	22	1.1	77 000	167 000	3 800	5 300
	140	26	2	124 000	236 000	3 600	5 000
	170	39	2.1	202 000	360 000	3 200	4 300
85	130	22	1.1	79 000	176 000	3 800	5 000
	150	28	2	143 000	276 000	3 400	4 800
	180	41	3	218 000	405 000	3 000	4 000
90	140	24	1.5	94 000	208 000	3 400	4 800
	160	30	2	164 000	320 000	3 200	4 300
	190	43	3	235 000	450 000	2 800	3 800
95	145	24	1.5	96 500	220 000	3 400	4 500
	170	32	2.1	177 000	340 000	3 000	4 000
	200	45	3	251 000	495 000	2 600	3 600

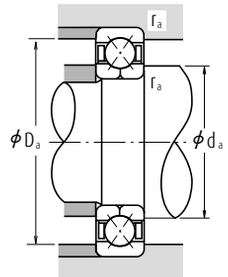
Bearing Numbers	Load Center Spacings (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
	a_0	d_a min.	D_a max.	r_a max.	approx.
QJ 206	32.2	36	56	1	0.24
QJ 306	35.7	37	65	1	0.42
QJ 207	37.5	42	65	1	0.35
QJ 307	40.3	44	71	1.5	0.57
QJ 208	42.0	47	73	1	0.45
QJ 308	45.5	49	81	1.5	0.78
QJ 209	45.5	52	78	1	0.52
QJ 309	50.8	54	91	1.5	1.05
QJ 210	49.0	57	83	1	0.59
QJ 310	56.0	60	100	2	1.35
QJ 211	54.3	64	91	1.5	0.77
QJ 311	61.3	65	110	2	1.75
QJ 212	59.5	69	101	1.5	0.98
QJ 312	66.5	72	118	2	2.15
QJ 213	64.8	74	111	1.5	1.2
QJ 313	71.8	77	128	2	2.7
QJ 214	68.3	79	116	1.5	1.3
QJ 314	77.0	82	138	2	3.18
QJ 215	71.8	84	121	1.5	1.5
QJ 315	82.3	87	148	2	3.9
QJ 1016	71.8	87	118	1	1.05
QJ 216	77.0	90	130	2	1.85
QJ 316	87.5	92	158	2	4.6
QJ 1017	75.3	92	123	1	1.1
QJ 217	82.3	95	140	2	2.2
QJ 317	92.8	99	166	2.5	5.34
QJ 1018	80.5	99	131	1.5	1.45
QJ 218	87.5	100	150	2	2.75
QJ 318	98.0	104	176	2.5	6.4
QJ 1019	84.0	104	136	1.5	1.5
QJ 219	92.8	107	158	2	3.35
QJ 319	103.3	109	186	2.5	7.4

Remark When using four-point contact ball bearings, please contact OID.

Four-Point Contact Ball Bearings

Bore Diameter 100 – 200 mm





Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B	r min.	C_a	C_{0a}	Grease	Oil
100	150	24	1.5	98 500	232 000	3 200	4 300
	180	34	2.1	199 000	390 000	2 800	3 800
	215	47	3	300 000	640 000	2 400	3 400
105	160	26	2	115 000	269 000	3 000	4 000
	190	36	2.1	217 000	435 000	2 600	3 600
	225	49	3	305 000	640 000	2 400	3 200
110	170	28	2	139 000	315 000	2 800	3 800
	200	38	2.1	235 000	490 000	2 600	3 400
	240	50	3	320 000	710 000	2 200	3 000
120	180	28	2	147 000	350 000	2 600	3 600
	215	40	2.1	265 000	585 000	2 400	3 200
	260	55	3	360 000	835 000	2 000	2 800
130	200	33	2	169 000	415 000	2 400	3 200
	230	40	3	274 000	635 000	2 200	3 000
	280	58	4	400 000	970 000	1 900	2 600
140	210	33	2	172 000	435 000	2 200	3 000
	250	42	3	239 000	710 000	2 000	2 800
	300	62	4	440 000	1 110 000	1 700	2 400
150	225	35	2.1	197 000	505 000	2 000	2 800
	270	45	3	315 000	785 000	1 800	2 600
	320	65	4	460 000	1 230 000	1 600	2 200
160	240	38	2.1	224 000	580 000	1 900	2 600
	290	48	3	380 000	1 010 000	1 700	2 400
	340	68	4	505 000	1 400 000	1 500	2 000
170	260	42	2.1	268 000	705 000	1 800	2 400
	310	52	4	425 000	1 180 000	1 600	2 200
	360	72	4	565 000	1 610 000	1 400	2 000
180	280	46	2.1	299 000	830 000	1 700	2 200
	320	52	4	440 000	1 270 000	1 500	2 000
	380	75	4	595 000	1 770 000	1 300	1 800
190	290	46	2.1	325 000	925 000	1 600	2 200
	340	55	4	440 000	1 290 000	1 400	2 000
	400	78	5	655 000	1 980 000	1 300	1 700
200	310	51	2.1	345 000	1 020 000	1 500	2 000
	360	58	4	490 000	1 480 000	1 300	1 800
	420	80	5	690 000	2 180 000	1 200	1 600

Bearing Numbers	Load Center Spacings (mm)	Abutment and Fillet Dimensions (mm)			Mass (kg)
	a_0	d_a min.	D_a max.	r_a max.	approx.
QJ 1020	87.5	109	141	1.5	1.6
QJ 220	98.0	112	168	2	4.0
QJ 320	110.3	114	201	2.5	9.3
QJ 1021	92.8	115	150	2	2.0
QJ 221	103.3	117	178	2	4.7
QJ 321	115.5	119	211	2.5	10.5
QJ 1022	98.0	120	160	2	2.5
QJ 222	108.5	122	188	2	5.6
QJ 322	122.5	124	226	2.5	12.5
QJ 1024	105.0	130	170	2	2.65
QJ 224	117.3	132	203	2	6.9
QJ 324	133.0	134	246	2.5	15.4
QJ 1026	115.5	140	190	2	4.0
QJ 226	126.0	144	216	2.5	7.7
QJ 326	143.5	148	262	3	19
QJ 1028	122.5	150	200	2	4.3
QJ 228	136.5	154	236	2.5	9.8
QJ 328	154.0	158	282	3	24
QJ 1030	131.3	162	213	2	5.2
QJ 230	147.0	164	256	2.5	12
QJ 330	164.5	168	302	3	29
QJ 1032	140.0	172	228	2	6.4
QJ 232	157.5	174	276	2.5	15
QJ 332	175.1	178	322	3	31
QJ 1034	150.5	182	248	2	8.6
QJ 234	168.0	188	292	3	19.5
QJ 334	185.6	188	342	3	41
QJ 1036	161.0	192	268	2	11
QJ 236	175.1	198	302	3	20.5
QJ 336	196.1	198	362	3	48
QJ 1038	168.0	202	278	2	11.5
QJ 238	185.6	208	322	3	23
QJ 338	206.6	212	378	4	54.5
QJ 1040	178.6	212	298	2	15
QJ 240	196.1	218	342	3	27
QJ 340	217.1	222	398	4	61.5

Remark When using four-point contact ball bearings, please contact OID.

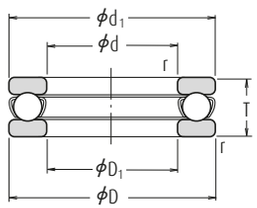
OID MECHANICAL PARTS BEARINGS



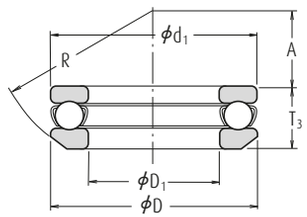
Thrust Ball Bearings

Single-Direction Thrust Ball Bearings

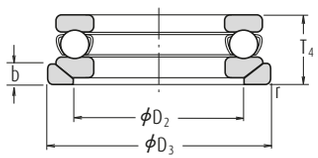
Bore Diameter 10 – 50 mm



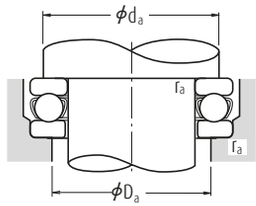
With Flat Seat

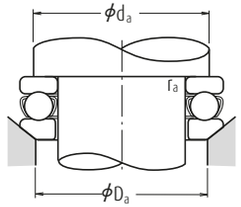


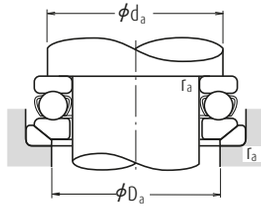
With Aligning Seat



With Aligning Seat Washer



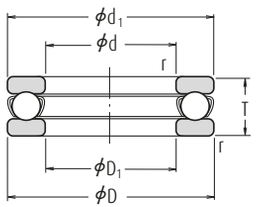




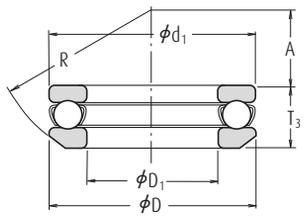
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		With Flat Seat
d	D	T	T_3	T_4	r min.	C_a	C_{0a}	Grease	Oil	
10	24	9	–	–	0.3	10 100	14 000	6 700	10 000	**51100**
	26	11	11.6	13	0.6	12 800	17 100	6 000	9 000	**51200**
12	26	9	–	–	0.3	10 400	15 400	6 700	10 000	**51101**
	28	11	11.4	13	0.6	13 300	19 000	5 600	8 500	**51201**
15	28	9	–	–	0.3	10 600	16 800	6 300	9 500	**51102**
	32	12	13.3	15	0.6	16 700	24 800	5 000	7 500	**51202**
17	30	9	–	–	0.3	11 400	19 500	6 000	9 000	**51103**
	35	12	13.2	15	0.6	17 300	27 300	4 800	7 500	**51203**
20	35	10	–	–	0.3	15 100	26 600	5 300	8 000	**51104**
	40	14	14.7	17	0.6	22 500	37 500	4 300	6 300	**51204**
25	42	11	–	–	0.6	19 700	37 000	4 800	7 100	**51105**
	47	15	16.7	19	0.6	28 000	50 500	3 800	5 600	**51205**
	52	18	19.8	22	1	36 000	61 500	3 200	5 000	**51305**
	60	24	26.4	29	1	56 000	89 500	2 600	4 000	**51405**
30	47	11	–	–	0.6	20 600	42 000	4 300	6 700	**51106**
	52	16	17.8	20	0.6	29 500	58 000	3 400	5 300	**51206**
	60	21	22.6	25	1	43 000	78 500	2 800	4 300	**51306**
	70	28	30.1	33	1	73 000	126 000	2 200	3 400	**51406**
35	52	12	–	–	0.6	22 100	49 500	4 000	6 000	**51107**
	62	18	19.9	22	1	39 500	78 000	3 000	4 500	**51207**
	68	24	25.6	28	1	56 000	105 000	2 400	3 800	**51307**
	80	32	34	37	1.1	87 500	155 000	2 000	3 000	**51407**
40	60	13	–	–	0.6	27 100	63 000	3 600	5 300	**51108**
	68	19	20.3	23	1	47 500	98 500	2 800	4 300	**51208**
	78	26	28.5	31	1	70 000	135 000	2 200	3 400	**51308**
	90	36	38.2	42	1.1	103 000	188 000	1 700	2 600	**51408**
45	65	14	–	–	0.6	28 100	69 000	3 400	5 000	**51109**
	73	20	21.3	24	1	48 000	105 000	2 600	4 000	**51209**
	85	28	30.1	33	1	80 500	163 000	2 000	3 000	**51309**
	100	39	42.4	46	1.1	128 000	246 000	1 600	2 400	**51409**
50	70	14	–	–	0.6	29 000	75 500	3 200	4 800	**51110**
	78	22	23.5	26	1	49 000	111 000	2 400	3 600	**51210**
	95	31	34.3	37	1.1	97 500	202 000	1 800	2 800	**51310**
	110	43	45.6	50	1.5	147 000	288 000	1 400	2 200	**51410**

Bearing Numbers		Dimensions (mm)							Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
With Aligning Seat	With Aligning Seat Washer	d_1	D_1	D_2	D_3	b	A	R	d_a min.	D_a max.	r_a max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
–	–	24	11	–	–	–	–	–	18	16	0.3	0.019	–	–
53200	**53200 U**	26	12	18	28	3.5	8.5	22	20	16	0.6	0.028	0.029	0.036
–	–	26	13	–	–	–	–	–	20	18	0.3	0.021	–	–
53201	**53201 U**	28	14	20	30	3.5	11.5	25	22	18	0.6	0.031	0.031	0.039
–	–	28	16	–	–	–	–	–	23	20	0.3	0.023	–	–
53202	**53202 U**	32	17	24	35	4	12	28	25	22	0.6	0.043	0.048	0.059
–	–	30	18	–	–	–	–	–	25	22	0.3	0.025	–	–
53203	**53203 U**	35	19	26	38	4	16	32	28	24	0.6	0.050	0.055	0.069
–	–	35	21	–	–	–	–	–	29	26	0.3	0.037	–	–
53204	**53204 U**	40	22	30	42	5	18	36	32	28	0.6	0.077	0.080	0.096
–	–	42	26	–	–	–	–	–	35	32	0.6	0.056	–	–
53205	**53205 U**	47	27	36	50	5.5	19	40	38	34	0.6	0.111	0.123	0.151
53305	**53305 U**	52	27	38	55	6	21	45	41	36	1	0.169	0.182	0.224
53405	**53405 U**	60	27	42	62	8	19	50	46	39	1	0.334	0.353	0.426
–	–	47	32	–	–	–	–	–	40	37	0.6	0.064	–	–
53206	**53206 U**	52	32	42	55	5.5	22	45	43	39	0.6	0.137	0.154	0.183
53306	**53306 U**	60	32	45	62	7	22	50	48	42	1	0.267	0.28	0.336
53406	**53406 U**	70	32	50	75	9	20	56	54	46	1	0.519	0.535	0.666
–	–	52	37	–	–	–	–	–	45	42	0.6	0.081	–	–
53207	**53207 U**	62	37	48	65	7	24	50	51	46	1	0.21	0.231	0.292
53307	**53307 U**	68	37	52	72	7.5	24	56	55	48	1	0.386	0.403	0.488
53407	**53407 U**	80	37	58	85	10	23	64	62	53	1	0.769	0.785	0.967
–	–	60	42	–	–	–	–	–	52	48	0.6	0.12	–	–
53208	**53208 U**	68	42	55	72	7	28.5	56	57	51	1	0.27	0.289	0.355
53308	**53308 U**	78	42	60	82	8.5	28	64	63	55	1	0.536	0.581	0.704
53408	**53408 U**	90	42	65	95	12	26	72	70	60	1	1.1	1.12	1.38
–	–	65	47	–	–	–	–	–	57	53	0.6	0.143	–	–
53209	**53209 U**	73	47	60	78	7.5	26	56	62	56	1	0.31	0.333	0.419
53309	**53309 U**	85	47	65	90	10	25	64	69	61	1	0.672	0.702	0.888
53409	**53409 U**	100	47	72	105	12.5	29	80	78	67	1	1.46	1.53	1.87
–	–	70	52	–	–	–	–	–	62	58	0.6	0.153	–	–
53210	**53210 U**	78	52	62	82	7.5	32.5	64	67	61	1	0.378	0.404	0.504
53310	**53310 U**	95	52	72	100	11	28	72	77	68	1	0.931	1.01	1.27
53410	**53410 U**	110	52	80	115	14	35	90	86	74	1.5	1.94	1.98	2.41

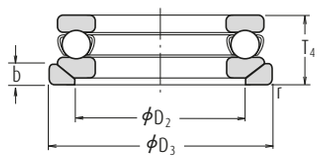
Bore Diameter 55 – 100 mm



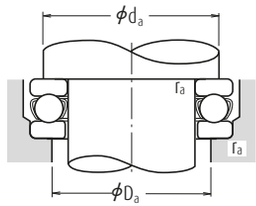
With Flat Seat

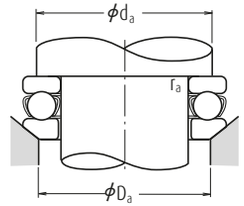


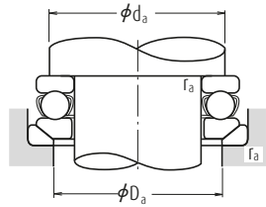
With Aligning Seat



With Aligning Seat Washer





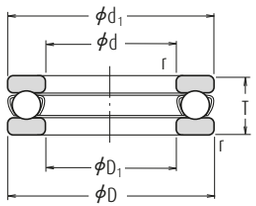


Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})		
d	D	T	T_3	T_4	r min.	C_a	C_{0a}	Grease	Oil	With Flat Seat
55	78	16	–	–	0.6	35 000	93 000	2 800	4 300	**51111**
	90	25	27.3	30	1	70 000	159 000	2 200	3 200	**51211**
	105	35	39.3	42	1.1	115 000	244 000	1 600	2 400	**51311**
	120	48	50.5	55	1.5	181 000	350 000	1 300	1 900	**51411**
60	85	17	–	–	1	41 500	113 000	2 600	4 000	**51112**
	95	26	28	31	1	71 500	169 000	2 000	3 000	**51212**
	110	35	38.3	42	1.1	119 000	263 000	1 600	2 400	**51312**
	130	51	54	58	1.5	202 000	395 000	1 200	1 800	**51412**
65	90	18	–	–	1	42 000	117 000	2 400	3 800	**51113**
	100	27	28.7	32	1	75 500	189 000	1 900	2 800	**51213**
	115	36	39.4	43	1.1	123 000	282 000	1 500	2 400	**51313**
	140	56	60.2	65	2	234 000	495 000	1 100	1 700	**51413**
70	95	18	–	–	1	43 500	127 000	2 400	3 600	**51114**
	105	27	28.8	32	1	74 000	189 000	1 900	2 800	**51214**
	125	40	44.2	48	1.1	137 000	315 000	1 400	2 000	**51314**
	150	60	63.6	69	2	252 000	555 000	1 000	1 500	**51414**
75	100	19	–	–	1	43 500	131 000	2 200	3 400	**51115**
	110	27	28.3	32	1	78 000	209 000	1 800	2 800	**51215**
	135	44	48.1	52	1.5	159 000	365 000	1 300	1 900	**51315**
	160	65	69	75	2	254 000	560 000	950	1 400	**51415**
80	105	19	–	–	1	45 000	141 000	2 200	3 400	**51116**
	115	28	29.5	33	1	79 000	218 000	1 800	2 600	**51216**
	140	44	47.6	52	1.5	164 000	395 000	1 300	1 900	**51316**
	170	68	72.2	78	2.1	272 000	620 000	900	1 300	**51416**
85	110	19	–	–	1	46 500	150 000	2 200	3 200	**51117**
	125	31	33.1	37	1	96 000	264 000	1 600	2 400	**51217**
	150	49	53.1	58	1.5	207 000	490 000	1 100	1 700	**51317**
	180	72	77	83	2.1	310 000	755 000	850	1 300	**51417 X**
90	120	22	–	–	1	60 000	190 000	1 900	3 000	**51118**
	135	35	38.5	42	1.1	114 000	310 000	1 400	2 200	**51218**
	155	50	54.6	59	1.5	214 000	525 000	1 100	1 700	**51318**
	190	77	81.2	88	2.1	330 000	825 000	800	1 200	**51418 X**
100	135	25	–	–	1	86 000	268 000	1 700	2 600	**51120**
	150	38	40.9	45	1.1	135 000	375 000	1 300	2 000	**51220**
	170	55	59.2	64	1.5	239 000	595 000	1 000	1 500	**51320**
	210	85	90	98	3	370 000	985 000	710	1 100	**51420 X**

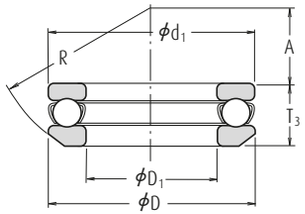
Bearing Numbers (1)		Dimensions (mm)							Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
With Aligning Seat	With Aligning Seat Washer	d_1	D_1	D_2	D_3	b	A	R	d_a min.	D_a max.	r_a max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
–	–	78	57	–	–	–	–	–	69	64	0.6	0.227	–	–
53211	**53211 U**	90	57	72	95	9	35	72	76	69	1	0.599	0.656	0.819
53311	**53311 U**	105	57	80	110	11.5	30	80	85	75	1	1.31	1.45	1.78
53411	**53411 U**	120	57	88	125	15.5	28	90	94	81	1.5	2.58	2.59	3.16
–	–	85	62	–	–	–	–	–	75	70	1	0.281	–	–
53212	**53212 U**	95	62	78	100	9	32.5	72	81	74	1	0.673	0.731	0.897
53312	**53312 U**	110	62	85	115	11.5	41	90	90	80	1	1.4	1.51	1.83
53412	**53412 U**	130	62	95	135	16	34	100	102	88	1.5	3.16	3.2	3.91
–	–	90	67	–	–	–	–	–	80	75	1	0.324	–	–
53213	**53213 U**	100	67	82	105	9	40	80	86	79	1	0.756	0.812	0.989
53313	**53313 U**	115	67	90	120	12.5	38.5	90	95	85	1	1.54	1.67	2.04
53413	**53413 U**	140	68	100	145	17.5	40	112	110	95	2	4.1	4.22	5.13
–	–	95	72	–	–	–	–	–	85	80	1	0.346	–	–
53214	**53214 U**	105	72	88	110	9	38	80	91	84	1	0.793	0.866	1.05
53314	**53314 U**	125	72	98	130	13	43	100	103	92	1	2.0	2.2	2.64
53414	**53414 U**	150	73	110	155	19.5	34	112	118	102	2	5.05	5.12	6.21
–	–	100	77	–	–	–	–	–	90	85	1	0.389	–	–
53215	**53215 U**	110	77	92	115	9.5	49	90	96	89	1	0.845	1.27	1.11
53315	**53315 U**	135	77	105	140	15	37	100	111	99	1.5	2.6	2.8	3.42
53415	**53415 U**	160	78	115	165	21	42	125	125	110	2	6.15	6.23	7.58
–	–	105	82	–	–	–	–	–	95	90	1	0.417	–	–
53216	**53216 U**	115	82	98	120	10	46	90	101	94	1	0.931	1.01	1.23
53316	**53316 U**	140	82	110	145	15	50	112	116	104	1.5	2.74	2.94	3.55
53416	**53416 U**	170	83	125	175	22	36	125	133	117	2	7.21	7.33	8.9
–	–	110	87	–	–	–	–	–	100	95	1	0.44	–	–
53217	**53217 U**	125	88	105	130	11	52	100	109	101	1	1.22	1.35	1.63
53317	**53317 U**	150	88	115	155	17.5	43	112	124	111	1.5	3.57	3.78	4.67
53417 X	**53417 XU**	177	88	130	185	23	47	140	141	124	2	8.51	8.72	10.4
–	–	120	92	–	–	–	–	–	108	102	1	0.646	–	–
53218	**53218 U**	135	93	110	140	13.5	45	100	117	108	1	1.69	1.89	2.38
53318	**53318 U**	155	93	120	160	18	40	112	129	116	1.5	3.83	4.11	5.09
53418 X	**53418 XU**	187	93	140	195	25.5	40	140	149	131	2	10.2	10.3	12.4
–	–	135	102	–	–	–	–	–	121	114	1	0.96	–	–
53220	**53220 U**	150	103	125	155	14	52	112	130	120	1	2.25	2.49	3.03
53320	**53320 U**	170	103	135	175	18	46	125	142	128	1.5	4.98	5.31	6.37
53420 X	**53420 XU**	205	103	155	220	27	50	160	165	145	2.5	14.8	15	18.1

Note (1) The outside diameter d_1 of the shaft washers of all bearing numbers marked X is smaller than the outside diameter D of the housing washers.

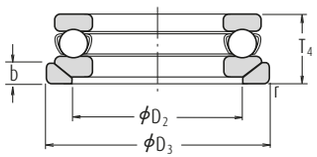
Bore Diameter 110 – 190 mm



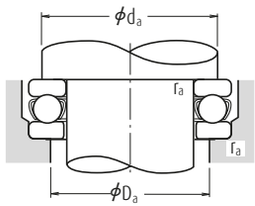
With Flat Seat

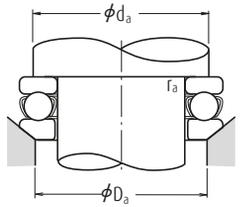


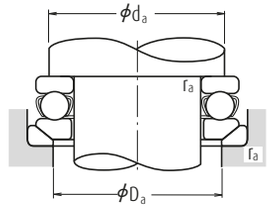
With Aligning Seat



With Aligning Seat Washer







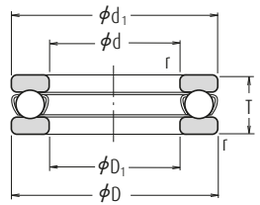
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})		With Flat Seat
d	D	T	T_3	T_4	r min.	C_a	C_{0a}	Grease	Oil	
110	145	25	–	–	1	88 000	288 000	1 700	2 400	**51122**
	160	38	40.2	45	1.1	136 000	395 000	1 300	1 900	**51222**
	190	63	67.2	72	2	282 000	755 000	900	1 300	**51322 X**
	230	95	99.7	109	3	415 000	1 150 000	630	950	**51422 X**
120	155	25	–	–	1	90 000	310 000	1 600	2 400	**51124**
	170	39	40.8	46	1.1	141 000	430 000	1 200	1 800	**51224**
	210	70	74.1	80	2.1	330 000	930 000	800	1 200	**51324 X**
	250	102	107.3	118	4	480 000	1 400 000	600	900	**51424 X**
130	170	30	–	–	1	105 000	350 000	1 400	2 000	**51126**
	190	45	47.9	53	1.5	183 000	550 000	1 100	1 600	**51226 X**
	225	75	80.3	86	2.1	350 000	1 030 000	750	1 100	**51326 X**
	270	110	115.2	128	4	525 000	1 590 000	530	800	**51426 X**
140	180	31	–	–	1	107 000	375 000	1 300	2 000	**51128 X**
	200	46	48.6	55	1.5	186 000	575 000	1 000	1 500	**51228 X**
	240	80	84.9	92	2.1	370 000	1 130 000	670	1 000	**51328 X**
	280	112	117	131	4	550 000	1 750 000	530	800	**51428 X**
150	190	31	–	–	1	110 000	400 000	1 300	1 900	**51130 X**
	215	50	53.3	60	1.5	238 000	735 000	950	1 400	**51230 X**
	250	80	83.7	92	2.1	380 000	1 200 000	670	1 000	**51330 X**
	300	120	125.9	140	4	620 000	2 010 000	480	710	**51430 X**
160	200	31	–	–	1	113 000	425 000	1 200	1 900	**51132 X**
	225	51	54.7	61	1.5	249 000	805 000	900	1 400	**51232 X**
	270	87	91.7	100	3	475 000	1 570 000	600	900	**51332 X**
	320	130	135.3	150	5	650 000	2 210 000	450	670	**51432 X**
170	215	34	–	–	1.1	135 000	510 000	1 100	1 700	**51134 X**
	240	55	58.7	65	1.5	280 000	915 000	850	1 300	**51234 X**
	280	87	91.3	100	3	465 000	1 570 000	600	900	**51334 X**
	340	135	141	156	5	715 000	2 480 000	430	630	**51434 X**
180	225	34	–	–	1.1	136 000	530 000	1 100	1 700	**51136 X**
	250	56	58.2	66	1.5	284 000	955 000	800	1 200	**51236 X**
	300	95	99.3	109	3	480 000	1 680 000	560	850	**51336 X**
	360	140	148.3	164	5	750 000	2 730 000	400	600	**51436 X**
190	240	37	–	–	1.1	172 000	655 000	1 000	1 600	**51138 X**
	270	62	65.7	73	2	320 000	1 110 000	750	1 100	**51238 X**
	320	105	111	121	4	550 000	1 960 000	500	750	**51338 X**

Bearing Numbers (1)		Dimensions (mm)							Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
With Aligning Seat	With Aligning Seat Washer	d_1	D_1	D_2	D_3	b	A	R	d_a min.	D_a max.	r_a max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
–	–	145	112	–	–	–	–	–	131	124	1	1.04	–	–
53222	**53222 U**	160	113	135	165	14	65	125	140	130	1	2.42	2.65	3.2
53322 X	**53322 XU**	187	113	150	195	20.5	51	140	158	142	2	7.19	7.55	9.1
53422 X	**53422 XU**	225	113	170	240	29	59	180	181	159	2.5	20	20.5	24.3
–	–	155	122	–	–	–	–	–	141	134	1	1.12	–	–
53224	**53224 U**	170	123	145	175	15	61	125	150	140	1	2.7	2.94	3.58
53324 X	**53324 XU**	205	123	165	220	22	63	160	173	157	2	9.7	10.1	12.4
53424 X	**53424 XU**	245	123	185	260	32	70	200	196	174	3	26.2	26.5	31.3
–	–	170	132	–	–	–	–	–	154	146	1	1.68	–	–
53226 X	**53226 XU**	187	133	160	195	17	67	140	166	154	1.5	3.95	4.35	5.33
53326 X	**53326 XU**	220	134	177	235	26	53	160	186	169	2	12.1	12.7	15.8
53426 X	**53426 XU**	265	134	200	280	38	58	200	212	188	3	32.3	32.4	38.8
–	–	178	142	–	–	–	–	–	164	156	1	1.83	–	–
53228 X	**53228 XU**	197	143	170	210	17	87	160	176	164	1.5	4.3	4.74	5.89
53328 X	**53328 XU**	235	144	190	250	26	68	180	199	181	2	14.2	16.3	19.5
53428 X	**53428 XU**	275	144	206	290	38	83	225	222	198	3	34.7	34.8	41.4
–	–	188	152	–	–	–	–	–	174	166	1	1.95	–	–
53230 X	**53230 XU**	212	153	180	225	20.5	79	160	189	176	1.5	5.52	6.09	7.82
53330 X	**53330 XU**	245	154	200	260	26	89.5	200	209	191	2	15	17.3	20.5
53430 X	**53430 XU**	295	154	225	310	41	69	225	238	212	3	43.5	43.8	51.9
–	–	198	162	–	–	–	–	–	184	176	1	2.07	–	–
53232 X	**53232 XU**	222	163	190	235	21	74	160	199	186	1.5	6.04	6.78	8.7
53332 X	**53332 XU**	265	164	215	280	29	77	200	225	205	2.5	19.6	22.3	26.7
53432 X	**53432 XU**	315	164	240	330	41.5	84	250	254	226	4	52.7	52.9	62
–	–	213	172	–	–	–	–	–	197	188	1	2.72	–	–
53234 X	**53234 XU**	237	173	200	250	21.5	91	180	212	198	1.5	7.41	8.21	10.5
53334 X	**53334 XU**	275	174	220	290	29	105	225	235	215	2.5	20.3	23.2	28
53434 X	**53434 XU**	335	174	255	350	46	74	250	269	241	4	61.2	61.3	73
–	–	222	183	–	–	–	–	–	207	198	1	2.79	–	–
53236 X	**53236 XU**	247	183	210	260	21.5	112	200	222	208	1.5	7.94	8.57	10.8
53336 X	**53336 XU**	295	184	240	310	32	91	225	251	229	2.5	25.9	29.2	34.9
53436 X	**53436 XU**	355	184	270	370	46.5	97	280	285	255	4	70.5	72.1	84.9
–	–	237	193	–	–	–	–	–	220	210	1	3.6	–	–
53238 X	**53238 XU**	267	194	230	280	23	98	200	238	222	2	11.8	12.9	15.7
53338 X	**53338 XU**	315	195	255	330	33	104	250	266	244	3	36.5	38.1	44.7

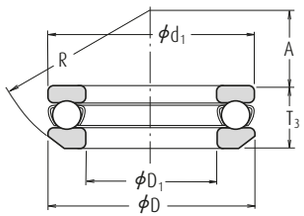
Note (1) The outside diameter d_1 of the shaft washers of all bearing numbers marked X is smaller than the outside diameter D of the housing washers.

Single-Direction Thrust Ball Bearings

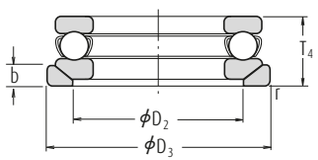
Bore Diameter 200 – 360 mm



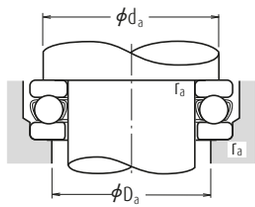
With Flat Seat

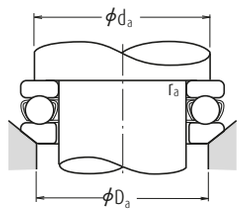


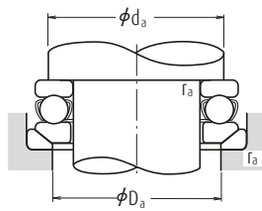
With Aligning Seat



With Aligning Seat Washer







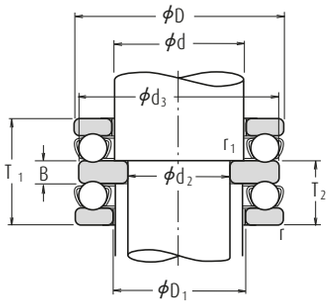
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})		With Flat Seat
d	D	T	T_3	T_4	r min.	C_a	C_{0a}	Grease	Oil	
200	250	37	–	–	1.1	173 000	675 000	1 000	1 500	**51140 X**
	280	62	65.3	74	2	315 000	1 110 000	710	1 100	**51240 X**
	340	110	118.4	130	4	600 000	2 220 000	480	710	**51340 X**
220	270	37	–	–	1.1	179 000	740 000	950	1 500	**51144 X**
	300	63	65.6	75	2	325 000	1 210 000	670	1 000	**51244 X**
240	300	45	–	–	1.5	229 000	935 000	850	1 200	**51148 X**
	340	78	81.6	92	2.1	420 000	1 650 000	560	850	**51248 X**
260	320	45	–	–	1.5	233 000	990 000	800	1 200	**51152 X**
	360	79	82.8	93	2.1	435 000	1 800 000	560	850	**51252 X**
280	350	53	–	–	1.5	315 000	1 310 000	710	1 000	**51156 X**
	380	80	85	94	2.1	450 000	1 950 000	530	800	**51256 X**
300	380	62	–	–	2	360 000	1 560 000	600	900	**51160 X**
	420	95	100.5	112	3	540 000	2 410 000	450	670	**51260 X**
320	400	63	–	–	2	365 000	1 660 000	600	900	**51164 X**
	440	95	100.5	112	3	585 000	2 680 000	450	670	**51264 X**
340	420	64	–	–	2	375 000	1 760 000	560	850	**51168 X**
	460	96	100.3	113	3	595 000	2 800 000	430	630	**51268 X**
360	440	65	–	–	2	385 000	1 860 000	560	800	**51172 X**
	500	110	116.7	130	4	705 000	3 500 000	380	560	**51272 X**

Bearing Numbers (1)		Dimensions (mm)							Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
With Aligning Seat	With Aligning Seat Washer	d_1	D_1	D_2	D_3	b	A	R	d_a min.	D_a max.	r_a max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
–	–	247	203	–	–	–	–	–	230	220	1	3.75	–	–
53240 X	**53240 XU**	277	204	240	290	23	125	225	248	232	2	12.3	13.4	16.1
53340 X	**53340 XU**	335	205	270	350	38	92	250	282	258	3	43.6	46.2	54.8
–	–	267	223	–	–	–	–	–	250	240	1	4.09	–	–
53244 X	**53244 XU**	297	224	260	310	25	118	225	268	252	2	13.6	14.9	18
–	–	297	243	–	–	–	–	–	276	264	1.5	6.55	–	–
53248 X	**53248 XU**	335	244	290	350	30	122	250	299	281	2	23.7	25.6	30.7
–	–	317	263	–	–	–	–	–	296	284	1.5	7.01	–	–
53252 X	**53252 XU**	355	264	305	370	30	152	280	319	301	2	25.1	27.3	33.2
–	–	347	283	–	–	–	–	–	322	308	1.5	12	–	–
53256 X	**53256 XU**	375	284	325	390	31	143	280	339	321	2	27.1	30.3	37
–	–	376	304	–	–	–	–	–	348	332	2	17.2	–	–
53260 X	**53260 XU**	415	304	360	430	34	164	320	371	349	2.5	43.5	47.7	56.1
–	–	396	324	–	–	–	–	–	368	352	2	18.6	–	–
53264 X	**53264 XU**	435	325	380	450	36	157	320	391	369	2.5	45	49.9	59.4
–	–	416	344	–	–	–	–	–	388	372	2	19.9	–	–
53268 X	**53268 XU**	455	345	400	470	36	199	360	411	389	2.5	47.9	52.7	62
–	–	436	364	–	–	–	–	–	408	392	2	21.5	–	–
53272 X	**53272 XU**	495	365	430	510	43	172	360	442	418	3	68.8	76.3	90.9

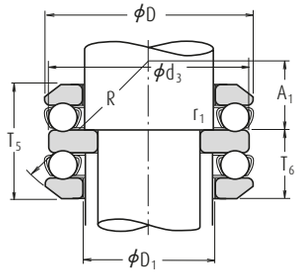
Note (1) The outside diameter d_1 of the shaft washers of all bearing numbers marked X is smaller than the outside diameter D of the housing washers.

Double-Direction Thrust Ball Bearings

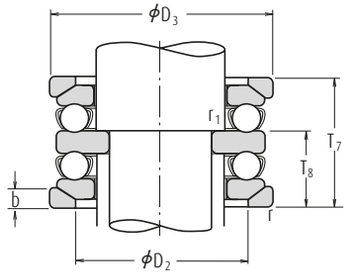
Bore Diameter 10 – 55 mm



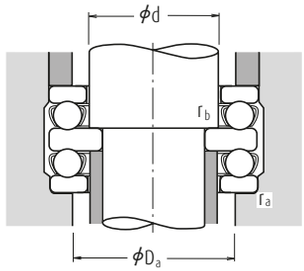
With Flat Seat

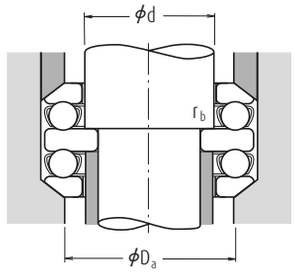


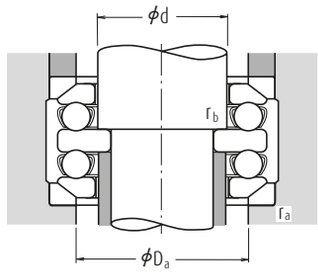
With Aligning Seat



With Aligning Seat Washer





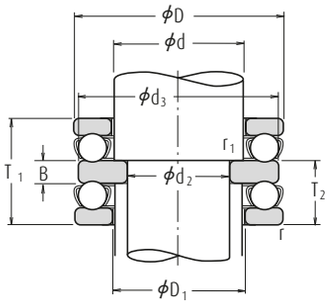


Boundary Dimensions (mm)								Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing Numbers	
d_2	d	D	T_1	T_5	T_7	r min.	r_1 min.	C_a	C_{0a}	Grease	Oil	With Flat Seat	With Aligning Seat
10	15	32	22	24.6	28	0.6	0.3	16 700	24 800	4 800	7 100	**52202**	**54202**
15	20	40	26	27.4	32	0.6	0.3	22 500	37 500	4 000	6 000	**52204**	**54204**
	25	60	45	49.8	55	1	0.6	56 000	89 500	2 400	3 600	**52405**	**54405**
20	25	47	28	31.4	36	0.6	0.3	28 000	50 500	3 400	5 300	**52205**	**54205**
	25	52	34	37.6	42	1	0.3	36 000	61 500	3 000	4 500	**52305**	**54305**
	30	70	52	56.2	62	1	0.6	73 000	126 000	2 200	3 200	**52406**	**54406**
25	30	52	29	32.6	37	0.6	0.3	29 500	58 000	3 200	5 000	**52206**	**54206**
	30	60	38	41.2	46	1	0.3	43 000	78 500	2 600	4 000	**52306**	**54306**
	35	80	59	63	69	1.1	0.6	87 500	155 000	1 800	2 800	**52407**	**54407**
30	35	62	34	37.8	42	1	0.3	39 500	78 000	2 800	4 300	**52207**	**54207**
	35	68	44	47.2	52	1	0.3	56 000	105 000	2 400	3 600	**52307**	**54307**
	40	68	36	38.6	44	1	0.6	47 500	98 500	2 600	3 800	**52208**	**54208**
	40	78	49	54	59	1	0.6	70 000	135 000	2 000	3 000	**52308**	**54308**
	40	90	65	69.4	77	1.1	0.6	103 000	188 000	1 700	2 400	**52408**	**54408**
35	45	73	37	39.6	45	1	0.6	48 000	105 000	2 400	3 600	**52209**	**54209**
	45	85	52	56.2	62	1	0.6	80 500	163 000	1 900	2 800	**52309**	**54309**
	45	100	72	78.8	86	1.1	0.6	128 000	246 000	1 500	2 200	**52409**	**54409**
40	50	78	39	42	47	1	0.6	49 000	111 000	2 400	3 400	**52210**	**54210**
	50	95	58	64.6	70	1.1	0.6	97 500	202 000	1 700	2 600	**52310**	**54310**
	50	110	78	83.2	92	1.5	0.6	147 000	288 000	1 400	2 000	**52410**	**54410**
45	55	90	45	49.6	55	1	0.6	70 000	159 000	2 000	3 000	**52211**	**54211**
	55	105	64	72.6	78	1.1	0.6	115 000	244 000	1 500	2 400	**52311**	**54311**
	55	120	87	92	101	1.5	0.6	181 000	350 000	1 200	1 800	**52411**	**54411**
50	60	95	46	50	56	1	0.6	71 500	169 000	1 900	3 000	**52212**	**54212**
	60	110	64	70.6	78	1.1	0.6	119 000	263 000	1 500	2 200	**52312**	**54312**
	60	130	93	99	107	1.5	0.6	202 000	395 000	1 100	1 700	**52412**	**54412**
	65	140	101	109.4	119	2	1	234 000	495 000	1 000	1 600	**52413**	**54413**
55	65	100	47	50.4	57	1	0.6	75 500	189 000	1 900	2 800	**52213**	**54213**
	65	115	65	71.8	79	1.1	0.6	123 000	282 000	1 500	2 200	**52313**	**54313**
	70	105	47	50.6	57	1	1	74 000	189 000	1 800	2 800	**52214**	**54214**
	70	125	72	80.4	88	1.1	1	137 000	315 000	1 300	2 000	**52314**	**54314**
	70	150	107	114.2	125	2	1	252 000	555 000	1 000	1 500	**52414**	**54414**

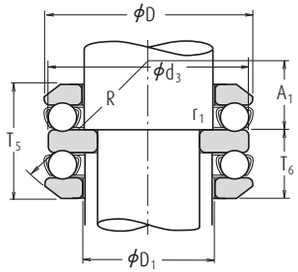
With Aligning Seat Washer	Dimensions (mm)											Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
	d_3	D_1	D_2	D_3	T_2	T_6	T_8	B	b	A_1	R	D_a max.	r_a max.	r_b max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
54202 U	32	17	24	35	13.5	14.8	16.5	5	4	10.5	28	24	0.6	0.3	0.081	0.090	0.113
54204 U	40	22	30	42	16	16.7	19	6	5	16	36	30	0.6	0.3	0.148	0.151	0.185
54405 U	60	27	42	62	28	30.4	33	11	8	15	50	42	1	0.6	0.641	0.68	0.825
54205 U	47	27	36	50	17.5	19.2	21.5	7	5.5	16.5	40	36	0.6	0.3	0.213	0.236	0.293
54305 U	52	27	38	55	21	22.8	25	8	6	18	45	38	1	0.3	0.324	0.35	0.434
54406 U	70	32	50	75	32	34.1	37	12	9	16	56	50	1	0.6	0.978	1.01	1.27
54206 U	52	32	42	55	18	19.8	22	7	5.5	20	45	42	0.6	0.3	0.254	0.288	0.345
54306 U	60	32	45	62	23.5	25.1	27.5	9	7	19.5	50	45	1	0.3	0.483	0.511	0.621
54407 U	80	37	58	85	36.5	38.5	41.5	14	10	18.5	64	58	1	0.6	1.43	1.47	1.83
54207 U	62	37	48	65	21	22.9	25	8	7	21	50	48	1	0.3	0.406	0.447	0.57
54307 U	68	37	52	72	27	28.6	31	10	7.5	21	56	52	1	0.3	0.71	0.744	0.915
54208 U	68	42	55	72	22.5	23.8	26.5	9	7	25	56	55	1	0.6	0.543	0.581	0.713
54308 U	78	42	60	82	30.5	33	35.5	12	8.5	23.5	64	60	1	0.6	1.04	1.13	1.38
54408 U	90	42	65	95	40	42.2	46	15	12	22	72	65	1	0.6	1.98	2.02	2.54
54209 U	73	47	60	78	23	24.3	27	9	7.5	23	56	60	1	0.6	0.606	0.652	0.823
54309 U	85	47	65	90	32	34.1	37	12	10	21	64	65	1	0.6	1.28	1.34	1.71
54409 U	100	47	72	105	44.5	47.9	51.5	17	12.5	23.5	80	72	1	0.6	2.71	2.85	3.53
54210 U	78	52	62	82	24	25.5	28	9	7.5	30.5	64	62	1	0.6	0.697	0.75	0.949
54310 U	95	52	72	100	36	39.3	42	14	11	23	72	72	1	0.6	1.78	1.94	2.46
54410 U	110	52	80	115	48	50.6	55	18	14	30	90	80	1.5	0.6	3.51	3.59	4.45
54211 U	90	57	72	95	27.5	29.8	32.5	10	9	32.5	72	72	1	0.6	1.11	1.22	1.55
54311 U	105	57	80	110	39.5	43.8	46.5	15	11.5	25.5	80	80	1	0.6	2.43	2.7	3.35
54411 U	120	57	88	125	53.5	56	60.5	20	15.5	22.5	90	88	1.5	0.6	4.66	4.68	5.82
54212 U	95	62	78	100	28	30	33	10	9	30.5	72	78	1	0.6	1.22	1.33	1.66
54312 U	110	62	85	115	39.5	42.8	46.5	15	11.5	36.5	90	85	1	0.6	2.59	2.82	3.45
54412 U	130	62	95	135	57	60	64	21	16	28	100	95	1.5	0.6	5.74	5.82	7.24
54413 U	140	68	100	145	62	66.2	71	23	17.5	34	112	100	2	1	7.41	7.66	9.47
54213 U	100	67	82	105	28.5	30.2	33.5	10	9	38.5	80	82	1	0.6	1.34	1.45	1.81
54313 U	115	67	90	120	40	43.4	47	15	12.5	34.5	90	90	1	0.6	2.8	3.06	3.8
54214 U	105	72	88	110	28.5	30.3	33.5	10	9	36.5	80	88	1	1	1.44	1.59	1.95
54314 U	125	72	98	130	44	48.2	52	16	13	39	100	98	1	1	3.67	4.07	4.95
54414 U	150	73	110	155	65.5	69.1	74.5	24	19.5	28.5	112	110	2	1	8.99	9.12	11.3

Double-Direction Thrust Ball Bearings

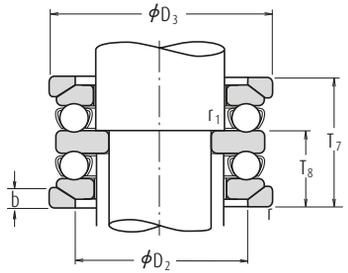
Bore Diameter 60 – 130 mm



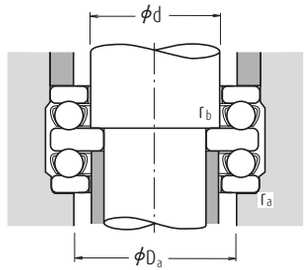
With Flat Seat

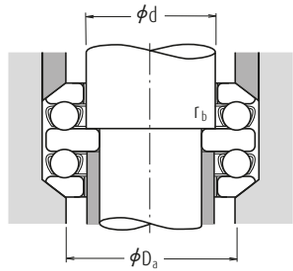


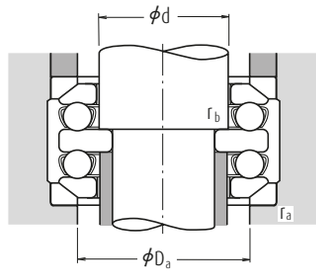
With Aligning Seat



With Aligning Seat Washer







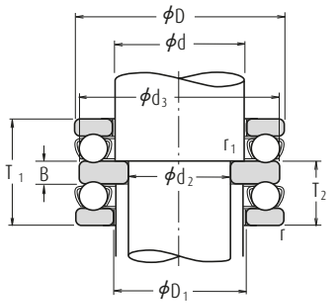
Boundary Dimensions (mm)								Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing Numbers (1)	
d_2	d	D	T_1	T_5	T_7	r min.	r_1 min.	C_a	C_{0a}	Grease	Oil	With Flat Seat	With Aligning Seat
60	75	110	47	49.6	57	1	1	78 000	209 000	1 800	2 600	**52215**	**54215**
	75	135	79	87.2	95	1.5	1	159 000	365 000	1 200	1 800	**52315**	**54315**
	75	160	115	123	135	2	1	254 000	560 000	900	1 400	**52415**	**54415**
65	80	115	48	51	58	1	1	79 000	218 000	1 700	2 600	**52216**	**54216**
	80	140	79	86.2	95	1.5	1	164 000	395 000	1 200	1 800	**52316**	**54316**
	80	170	120	128.4	140	2.1	1	272 000	620 000	850	1 300	**52416**	**54416**
	85	180	128	138	150	2.1	1.1	310 000	755 000	800	1 200	**52417 X**	**54417 X**
70	85	125	55	59.2	67	1	1	96 000	264 000	1 500	2 200	**52217**	**54217**
	85	150	87	95.2	105	1.5	1	207 000	490 000	1 100	1 600	**52317**	**54317**
	90	190	135	143.4	157	2.1	1.1	330 000	825 000	750	1 100	**52418 X**	**54418 X**
75	90	135	62	69	76	1.1	1	114 000	310 000	1 400	2 000	**52218**	**54218**
	90	155	88	97.2	106	1.5	1	214 000	525 000	1 100	1 600	**52318**	**54318**
80	100	210	150	160	176	3	1.1	370 000	985 000	670	1 000	**52420 X**	**54420 X**
85	100	150	67	72.8	81	1.1	1	135 000	375 000	1 300	1 900	**52220**	**54220**
	100	170	97	105.4	115	1.5	1	239 000	595 000	950	1 500	**52320**	**54320**
90	110	230	166	–	–	3	1.1	415 000	1 150 000	600	900	**52422 X**	–
95	110	160	67	71.4	81	1.1	1	136 000	395 000	1 200	1 800	**52222**	**54222**
	110	190	110	118.4	128	2	1	282 000	755 000	850	1 300	**52322 X**	**54322 X**
	120	250	177	–	–	4	1.5	515 000	1 540 000	560	850	**52424 X**	–
100	120	170	68	71.6	82	1.1	1.1	141 000	430 000	1 200	1 800	**52224**	**54224**
	120	210	123	131.2	143	2.1	1.1	330 000	930 000	750	1 100	**52324 X**	**54324 X**
	130	270	192	–	–	4	1.5	525 000	1 590 000	530	800	**52426 X**	–
110	130	190	80	85.8	96	1.5	1.1	183 000	550 000	1 000	1 500	**52226 X**	**54226 X**
	130	225	130	–	–	2.1	1.1	350 000	1 030 000	710	1 100	**52326 X**	–
	140	280	196	–	–	4	1.5	550 000	1 750 000	500	750	**52428 X**	–
120	140	200	81	86.2	99	1.5	1.1	186 000	575 000	1 000	1 500	**52228 X**	**54228 X**
	140	240	140	–	–	2.1	1.1	370 000	1 130 000	670	1 000	**52328 X**	–
	150	300	209	–	–	4	2	620 000	2 010 000	480	710	**52430 X**	–
130	150	215	89	95.6	109	1.5	1.1	238 000	735 000	900	1 300	**52230 X**	**54230 X**
	150	250	140	–	–	2.1	1.1	380 000	1 200 000	630	950	**52330 X**	–
	160	320	226	–	–	5	2	650 000	2 210 000	430	630	**52432 X**	–

Note (1) The outside diameter d_3 of the central washers of all bearing numbers marked X is smaller than the outside diameter D of the housing washers.

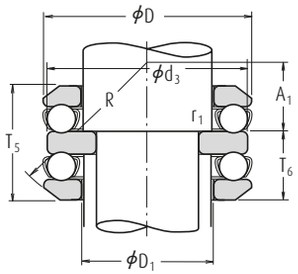
With Aligning Seat Washer	Dimensions (mm)											Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
	d_3	D_1	D_2	D_3	T_2	T_6	T_8	B	b	A_1	R	D_a max.	r_a max.	r_b max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
54215 U	110	77	92	115	28.5	29.8	33.5	10	9.5	47.5	90	92	1	1	1.54	1.66	2.06
54315 U	135	77	105	140	48.5	52.6	56.5	18	15	32.5	100	105	1.5	1	4.74	5.14	6.38
54415 U	160	78	115	165	70.5	74.5	80.5	26	21	36.5	125	115	2	1	10.8	11	13.7
54216 U	115	82	98	120	29	30.5	34	10	10	45	90	98	1	1	1.66	1.78	2.21
54316 U	140	82	110	145	48.5	52.1	56.5	18	15	45.5	112	110	1.5	1	4.99	5.39	6.61
54416 U	170	83	125	175	73.5	77.7	83.5	27	22	30.5	125	125	2	1	12.6	12.8	16
54417 XU	179.5	88	130	185	78.5	83.5	89.5	29	23	40.5	140	130	2	1	15.4	15.8	19.5
54217 U	125	88	105	130	33.5	35.6	39.5	12	11	49.5	100	105	1	1	2.26	2.45	3.02
54317 U	150	88	115	155	53	57.1	62	19	17.5	39	112	115	1.5	1	6.38	6.8	10.5
54418 XU	189.5	93	140	195	82.5	86.7	93.5	30	25.5	34.5	140	140	2	1	17.5	18.1	22.5
54218 U	135	93	110	140	38	41.5	45	14	13.5	42	100	110	1	1	3.09	3.42	4.39
54318 U	155	93	120	160	53.5	58.1	62.5	19	18	36.5	112	120	1.5	1	6.79	7.33	9.29
54420 XU	209.5	103	155	220	91.5	96.5	104.5	33	27	43.5	160	155	2.5	1	26.8	27.2	33.4
54220 U	150	103	125	155	41	43.9	48	15	14	49	112	125	1	1	4.08	4.54	5.64
54320 U	170	103	135	175	59	63.2	68	21	18	42	125	135	1.5	1	8.82	9.47	11.6
–	229	113	–	–	101.5	–	–	37	–	–	–	159	2.5	1	35.6	–	–
54222 U	160	113	135	165	41	43.2	48	15	14	62	125	135	1	1	4.39	4.83	5.94
54322 XU	189.5	113	150	195	67	71.2	76	24	20.5	47	140	150	2	1	12.7	13.5	16.6
–	249	123	–	–	108.5	–	–	40	–	–	–	174	3	1.5	47.6	–	–
54224 U	170	123	145	175	41.5	43.3	48.5	15	15	58.5	125	145	1	1	4.92	5.4	6.68
54324 XU	209.5	123	165	220	75	79.1	85	27	22	58	160	165	2	1	17.6	16.4	22.9
–	269	134	–	–	117	–	–	42	–	–	–	188	3	1.5	57.8	–	–
54226 XU	189.5	133	160	195	49	51.9	57	18	17	63	140	160	1.5	1	7.43	8.24	10.2
–	224	134	–	–	80	–	–	30	–	–	–	169	2	1	21.5	–	–
–	279	144	–	–	120	–	–	44	–	–	–	198	3	1.5	62.4	–	–
54228 XU	199.5	143	170	210	49.5	52.1	58.5	18	17	83.5	160	170	1.5	1	8.01	8.87	11.2
–	239	144	–	–	85.5	–	–	31	–	–	–	181	2	1	24.8	–	–
–	299	153	–	–	127.5	–	–	46	–	–	–	212	3	2	77.8	–	–
54230 XU	214.5	153	180	225	54.5	57.8	64.5	20	20.5	74.5	160	180	1.5	1	10.4	11.5	15
–	249	154	–	–	85.5	–	–	31	–	–	–	191	2	1	30.3	–	–
–	319	164	–	–	138	–	–	50	–	–	–	226	4	2	93.6	–	–

Double-Direction Thrust Ball Bearings

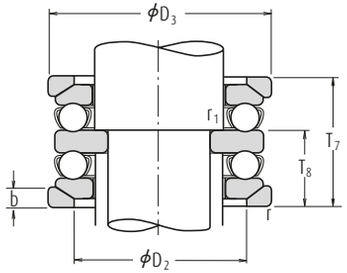
Bore Diameter 135 – 190 mm



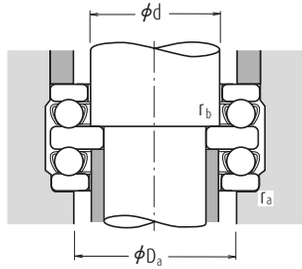
With Flat Seat

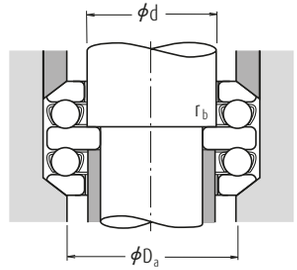


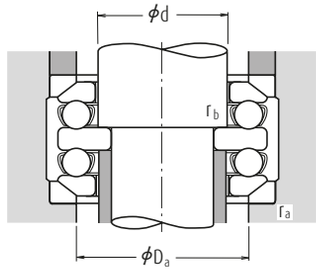
With Aligning Seat



With Aligning Seat Washer







Boundary Dimensions (mm)								Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing Numbers (1)	
d_2	d	D	T_1	T_5	T_7	r min.	r_1 min.	C_a	C_{0a}	Grease	Oil	With Flat Seat	With Aligning Seat
135	170	340	236	–	–	5	2.1	715 000	2 480 000	400	600	**52434 X**	–
140	160	225	90	97.4	110	1.5	1.1	249 000	805 000	850	1 300	**52232 X**	**54232 X**
	160	270	153	–	–	3	1.1	475 000	1 570 000	600	900	**52332 X**	–
	180	360	245	–	–	5	3	750 000	2 730 000	380	560	**52436 X**	–
150	170	240	97	104.4	117	1.5	1.1	280 000	915 000	800	1 200	**52234 X**	**54234 X**
	170	280	153	–	–	3	1.1	465 000	1 570 000	560	850	**52334 X**	–
	180	250	98	102.4	118	1.5	2	284 000	955 000	800	1 200	**52236 X**	**54236 X**
	180	300	165	–	–	3	3	480 000	1 680 000	530	800	**52336 X**	–
160	190	270	109	116.4	131	2	2	320 000	1 110 000	710	1 100	**52238 X**	**54238 X**
	190	320	183	–	–	4	2	550 000	1 960 000	480	710	**52338 X**	–
170	200	280	109	115.6	133	2	2	315 000	1 110 000	710	1 000	**52240 X**	**54240 X**
	200	340	192	–	–	4	2	600 000	2 220 000	450	670	**52340 X**	–
190	220	300	110	115.2	134	2	2	325 000	1 210 000	670	1 000	**52244 X**	**54244 X**

With Aligning Seat Washer	Dimensions (mm)											Abutment and Fillet Dimensions (mm)			Mass (kg) approx.		
	d_3	D_1	D_2	D_3	T_2	T_6	T_8	B	b	A_1	R	D_a max.	r_a max.	r_b max.	With Flat Seat	With Aligning Seat	With Aligning Seat Washer
–	339	174	–	–	143	–	–	50	–	–	–	240	4	2	110	–	–
54232 XU	224.5	163	190	235	55	58.7	65	20	21	70	160	190	1.5	1	11.2	12.7	16.5
–	269	164	–	–	93	–	–	33	–	–	–	205	2.5	1	35.1	–	–
–	359	184	–	–	148.5	–	–	52	–	–	–	254	4	2.5	126	–	–
54234 XU	239.5	173	200	250	59	62.7	69	21	21.5	87	180	200	1.5	1	13.6	15.2	19.8
–	279	174	–	–	93	–	–	33	–	–	–	215	2.5	1	40.8	–	–
54236 XU	249	183	210	260	59.5	61.7	69.5	21	21.5	108.5	200	210	1.5	2	14.8	16.1	20.6
–	299	184	–	–	101	–	–	37	–	–	–	229	2.5	2.5	46.3	–	–
54238 XU	269	194	230	280	66.5	70.2	77.5	24	23	93.5	200	230	2	2	22.1	22.2	29.8
–	319	195	–	–	111.5	–	–	40	–	–	–	244	3	2	113	–	–
54240 XU	279	204	240	290	66.5	69.8	78.5	24	23	120.5	225	240	2	2	23.1	23.2	30.6
–	339	205	–	–	117	–	–	42	–	–	–	258	3	2	78.4	–	–
54244 XU	299	224	260	310	67	69.6	79	24	25	114	225	260	2	2	25.2	27.8	34.1

Note (1) The outside diameter d_3 of the central washers of all bearing numbers marked X is smaller than the outside diameter D of the housing washers.

OID MECHANICAL PARTS BEARINGS

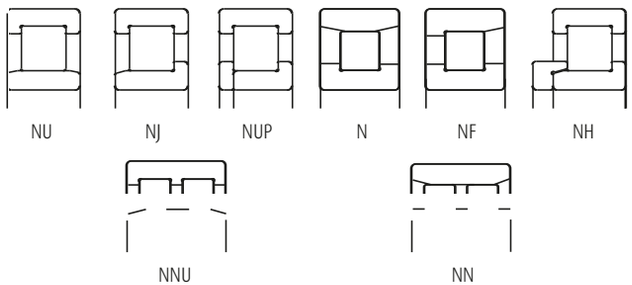


Cylindrical Roller Bearings

Cylindrical Roller Bearings

DESIGN, TYPES, AND FEATURES

Depending on the existence of ribs on their rings, Cylindrical Roller Bearings are classified into the following types.



Types NU, N, NNU, and NN are suitable as free-end bearings. Types NJ and NF can sustain limited axial loads in one direction. Types NH and NUP can be used as fixed-end bearings.

NH-type cylindrical roller bearings consist of the NJ-type cylindrical roller bearings and HJ-type L-shaped thrust collars

The inner ring loose rib of a NUP-type cylindrical roller bearing should be mounted so that the marked side is on the outside.

Features of Single-Row Cylindrical Roller Bearings

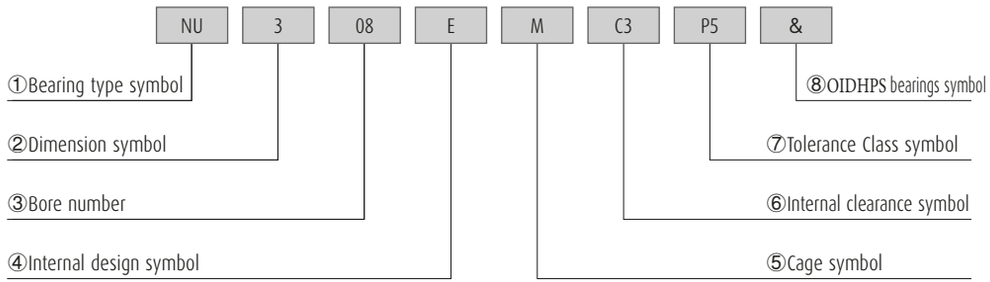
Cage Specification	Material	Steel	Steel	Polyamide 66 resin	L-PPS resin	Brass	
	Method	pressed		Molded		machined	
	Symbols	W	EW	ET	ET7	M	EM
Features	High Load Capacity	○	◎	◎	◎	△	◎
	High-Speed	△	○	○	○	○	◎
	High-Temperature	○	○	△	○	○	○
	Vibration	×	×	×	×	△	○

For a given bearing number, if the type of cage is not the standard one, the number of rollers may vary; in such a case, the load rating will differ from the one listed in the bearing tables.

Among the NN Type of double-row bearings, there are many of high precision that have tapered bores, and they are primarily used in the main spindles of machine tools. Their cages are either molded polyphenylenesulfide (PPS) or machined brass.

☐ Formulation of Bearing Numbers

Single-Row Cylindrical Rollers
Bearing number example:



①Bearing type symbol	NU : Single-Row Cylindrical Roller Bearings (Outer ring with both ribs + Inner ring without ribs
②Dimension symbol	10 : 10 Series, 2: 02 Series, 22 : 22 Series, 3 : 03 Series, 23 : 23 Series, 4 : 04 Series,
③Bore number	Less than 04, Bearing bore 01 : 12mm, 02 : 15mm, 03 : 17mm Over 03, Bearing bore Bore number × 5 (mm)
④Internal design symbol	E : High Load Capacity
⑤Cage symbol	W : Pressed Steel Cage, M : Machined Brass Cage, No symbol : Machined Brass Cage (In case of 10 Series) T : Polyamide 66 Resin Cage, T7 : L-PPS Resin Cage
⑥Radial Internal clearance symbol	For All Radial Brgs. Omitted : CN clearance, C3 : Clearance greater than CN, C4 : Clearance greater than C3, CT : Clearance for Electric Motors (for interchangable bearings), CG : Special Clearance For Non-Interchangeable Cylindrical Roller Bearings CC : Normal Clearance, CC3 : Clearance greater than CC, CC4 : Clearance greater than CC3, CM : Clearance for Electric Motors (for non-interchangable bearings), CCG : Special Clearance
⑦Tolerance Class symbol	Omitted : ISO Normal, P6 : ISO Class 6, P5 : ISO Class 5, P4 : ISO Class 4
⑧OIDHPS symbol	&: OIDHPS bearings symbol

PRECAUTIONS FOR USE OF CYLINDRICAL ROLLER BEARINGS

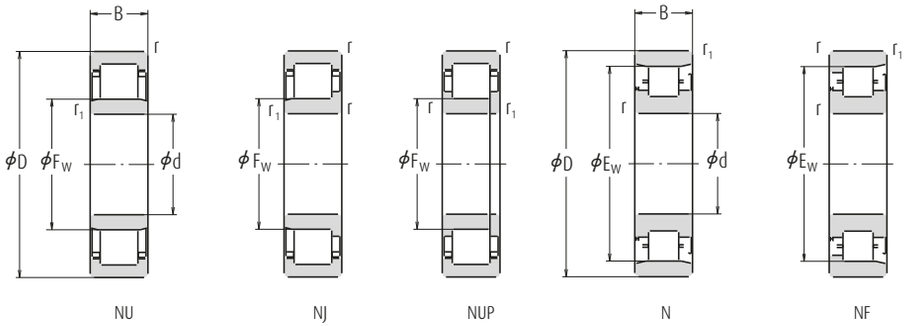
If the load on cylindrical roller bearings becomes too small during operation, slippage between the rollers and raceways occurs, which may result in smearing. Especially with large bearings since the weight of the roller and cage is high.

In case of strong shock loads or vibration, pressed-steel cages are sometimes inadequate.

If very small bearing load or strong shock loads or vibration are expected, please consult with OID for selection of the bearings.

Bearings with molded polyamide cages (ET type) can be used continuously at temperatures between -40 and 120°C.
If the bearings are used in gear oil, nonflammable hydraulic oil, or ester oil at a high temperature over 100°C, please contact OID beforehand.

Bore Diameter 20 – 30 mm



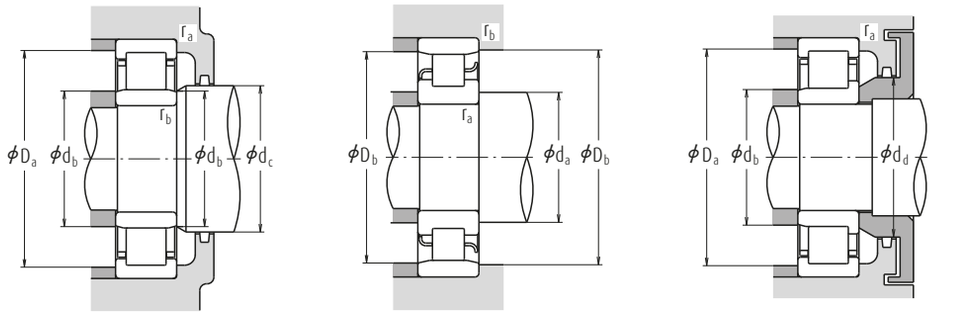
NU NJ NUP N NF

Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
20	47	14	1.0	0.6	—	40	15 400	12 700	15 400	—	12 000
	47	14	1.0	0.6	26.5	—	25 700	22 600	16 000	—	13 000
	47	18	1.0	0.6	27.0	—	20 700	18 400	19 000	—	11 000
	47	18	1.0	0.6	26.5	—	30 500	28 300	19 000	—	11 000
	52	15	1.1	0.6	—	44.5	21 400	17 300	14 000	—	10 000
	52	15	1.1	0.6	27.5	—	31 500	26 900	13 000	—	12 000
	52	21	1.1	0.6	28.5	—	33 000	30 000	14 000	—	11 000
	52	21	1.1	0.6	27.5	—	42 000	39 000	13 000	—	11 000
25	47	12	0.6	0.3	30.5	—	14 300	13 100	15 000	—	15 000
	52	15	1.0	0.6	—	45	17 700	15 700	17 700	—	10 000
	52	15	1.0	0.6	31.5	—	33 500	27 700	14 000	17 000	12 000
	52	15	1.0	0.6	31.5	—	29 300	27 700	14 000	17 000	9 000
	52	18	1.0	0.6	31.5	—	40 000	34 500	14 000	20 000	12 000
	52	18	1.0	0.6	31.5	—	35 000	34 500	14 000	20 000	12 000
	62	17	1.1	1.1	—	53	29 300	25 200	12 000	—	8 000
	62	17	1.1	1.1	34.0	—	48 000	37 500	11 000	15 000	10 000
	62	17	1.1	1.1	34.0	—	41 500	37 500	11 000	15 000	7 100
	62	24	1.1	1.1	34.0	—	65 500	56 000	11 000	18 000	9 000
	62	24	1.1	1.1	34.0	—	57 000	56 000	11 000	18 000	9 000
	80	21	1.5	1.5	38.8	62.8	46 500	40 000	9 500	—	7 100
30	55	13	1.0	0.6	36.5	48.5	19 700	19 600	13 000	—	12 000
	62	16	1.0	0.6	—	53.5	24 900	23 300	13 000	—	8 500
	62	16	1.0	0.6	37.5	—	45 000	37 500	12 000	14 000	9 500
	62	16	1.0	0.6	37.5	—	39 000	37 500	12 000	14 000	7 500
	62	20	1.0	0.6	37.5	—	56 500	50 000	12 000	17 000	9 500
	62	20	1.0	0.6	37.5	—	49 000	50 000	12 000	17 000	9 500
	72	19	1.1	1.1	—	62	38 500	35 000	10 000	—	7 100
	72	19	1.1	1.1	40.5	—	61 000	50 000	9 500	13 000	8 500
	72	19	1.1	1.1	40.5	—	53 000	50 000	9 500	13 000	6 300
	72	27	1.1	1.1	40.5	—	86 000	77 500	9 500	16 000	8 000
	72	27	1.1	1.1	40.5	—	74 500	77 500	9 500	16 000	8 000
	90	23	1.5	1.5	45.0	73	62 500	55 000	8 500	—	6 000

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.



Bearing Numbers								Abutment and Fillet Dimensions (mm)								Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
N 204	W	—	—	—	—	N	NF	25	—	—	—	—	—	43	42	1	0.6	0.107
NU 204 E	T	T7	NU	NJ	NUP	—	—	25	24	25	29	32	42	—	—	1	0.6	0.107
NU 2204	W	M	NU	NJ	—	—	—	25	24	25	29	32	42	—	—	1	0.6	0.144
NU 2204 ET	—	—	NU	NJ	NUP	—	—	25	24	25	29	32	42	—	—	1	0.6	0.138
N 304	W	—	—	—	—	N	NF	26.5	—	—	—	—	—	48	46	1	0.6	0.148
NU 304 E	T	T7	NU	NJ	NUP	—	—	26.5	24	26	30	33	45.5	—	—	1	0.6	0.145
NU 2304	M	—	NU	NJ	NUP	—	—	26.5	24	27	30	33	45.5	—	—	1	0.6	0.217
NU 2304 E	T7	—	NU	NJ	NUP	—	—	26.5	24	26	30	33	45.5	—	—	1	0.6	0.209
NU 1005	(M)	—	NU	—	—	—	—	—	27	30	32	—	43	—	—	0.6	0.3	0.094
N 205	W	M	—	—	—	N	NF	30	—	—	—	—	—	48	46	1	0.6	0.135
NU 205 E*	W	M,T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 205 E	W	M,T,T7	NU	NJ	NUP	—	—	30	29	30	34	37	47	—	—	1	0.6	0.136
NU 2205 E*	M	T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2205 E	M	T,T7	NU	NJ	NUP	—	—	30	29	30	34	37	47	—	—	1	0.6	0.16
N 305	W	M	—	—	—	N	NF	31.5	—	—	—	—	—	55.5	50	1	1	0.233
NU 305 E*	W	M,T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 305 E	W	M,T,T7	NU	NJ	NUP	—	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.269
NU 2305 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2305 E	M	T, T7	NU	NJ	NUP	—	—	31.5	31.5	32	37	40	55.5	—	—	1	1	0.338
NU 405	W	—	NU	NJ	—	N	NF	33	33	37	41	46	72	72	64	1.5	1.5	0.57
NU 1006	(M)	—	NU	—	—	N	—	35	34	36	38	—	50	51	49	1	0.5	0.136
N 206	W	M	—	—	—	N	NF	35	—	—	—	—	—	58	56	1	0.6	0.208
NU 206 E*	W	M,T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 206 E	W	M,T,T7	NU	NJ	NUP	—	—	35	34	36	40	44	57	—	—	1	0.6	0.205
NU 2206 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2206 E	M	T, T7	NU	NJ	NUP	—	—	35	34	36	40	44	57	—	—	1	0.6	0.255
N 306	W	M	—	—	—	N	NF	36.5	—	—	—	—	—	65.5	64	1	1	0.353
NU 306 E*	W	M,T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 306 E	W	M,T,T7	NU	NJ	NUP	—	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.409
NU 2306 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2306 E	M	T, T7	NU	NJ	NUP	—	—	36.5	36.5	39	44	48	65.5	—	—	1	1	0.518
NU 406	W	M	NU	NJ	—	N	NF	38	38	43	47	52	82	82	75	1.5	1.5	0.758

Notes

(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

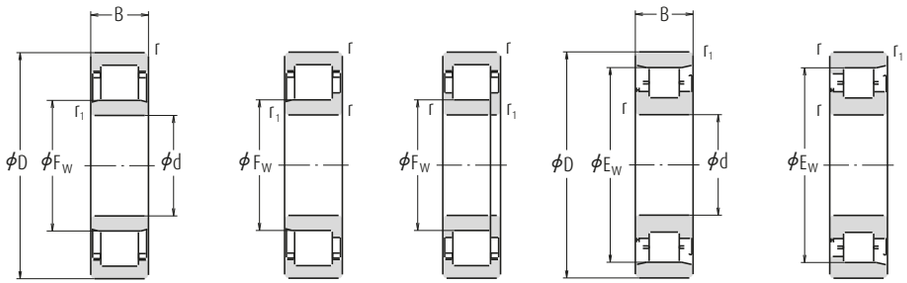
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark

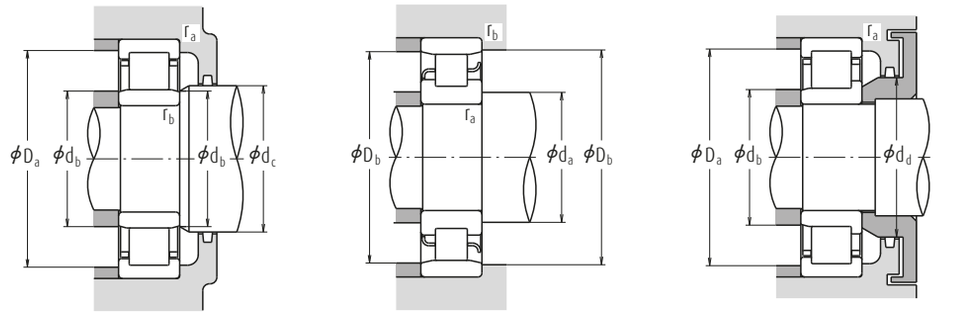
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 35 – 40 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min^{-1})		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
35	62	14	1.0	0.6	42.0	55	22 600	23 200	11 000	—	11 000
	72	17	1.1	0.6	—	61.8	35 500	34 000	11 000	—	7 500
	72	17	1.1	0.6	44.0	—	58 000	50 000	10 000	12 000	8 500
	72	17	1.1	0.6	44.0	—	50 500	50 000	10 000	12 000	6 700
	72	23	1.1	0.6	44.0	—	71 000	65 500	11 000	15 000	8 500
	72	23	1.1	0.6	44.0	—	61 500	65 500	11 000	15 000	8 500
	80	21	1.5	1.1	—	68.2	49 500	47 000	9 500	—	6 300
	80	21	1.5	1.1	46.2	—	76 500	65 500	8 500	11 000	7 500
	80	21	1.5	1.1	46.2	—	66 500	65 500	8 500	11 000	5 600
	80	31	1.5	1.1	46.2	—	107 000	101 000	9 000	14 000	6 700
	80	31	1.5	1.1	46.2	—	93 000	101 000	9 000	14 000	6 700
	100	25	1.5	1.5	53.0	83	75 500	69 000	7 500	—	5 300
40	68	15	1.0	0.6	47.0	61	27 300	29 000	10 000	—	10 000
	80	18	1.1	1.1	—	70	43 500	43 000	9 500	—	6 700
	80	18	1.1	1.1	49.5	—	64 000	55 500	9 000	11 000	7 500
	80	18	1.1	1.1	49.5	—	55 500	55 500	9 000	11 000	6 000
	80	23	1.1	1.1	49.5	—	83 000	77 500	9 000	13 000	7 500
	80	23	1.1	1.1	49.5	—	72 500	77 500	9 000	13 000	7 500
	90	23	1.5	1.5	—	77.5	58 500	57 000	8 500	—	5 600
	90	23	1.5	1.5	52.0	—	95 500	81 500	7 500	10 000	6 700
	90	23	1.5	1.5	52.0	—	83 000	81 500	7 500	10 000	4 800
	90	33	1.5	1.5	52.0	—	131 000	122 000	8 000	12 000	6 000
	90	33	1.5	1.5	52.0	—	114 000	122 000	8 000	12 000	6 000
	110	27	2.0	2.0	58.0	92	95 500	89 000	6 700	—	4 800

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.

Bearing Numbers							Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1007	(M)	—	**NU**	**NJ**	—	**N**	—	40	39	41	44	—	57	58	56	1	0.5	0.18
N 207	**W**	**M**	—	—	—	**N**	**NF**	41.5	—	—	—	—	—	68	64	1	0.6	0.301
NU 207 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 207 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	41.5	39	42	46	50	65.5	—	—	1	0.6	0.304
NU 2207 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2207 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	41.5	39	42	46	50	65.5	—	—	1	0.6	0.40
N 307	**W**	**M**	—	—	—	**N**	**NF**	43	—	—	—	—	—	73.5	70	1.5	1	0.476
NU 307 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 307 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	41.5	41.5	44	48	53	72	—	—	1.5	1	0.545
NU 2307 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2307 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	43	41.5	44	48	53	72	—	—	1.5	1	0.711
NU 407	**W**	—	**NU**	**NJ**	—	**N**	**NF**	43	43	51	55	61	92	92	85	1.5	1.5	1.01
NU 1008	(M)	—	**NU**	**NJ**	**NUP**	**N**	—	45	44	46	49	—	63	64	62	1	0.6	0.223
N 208	**W**	**M**	—	—	—	**N**	**NF**	46.5	—	—	—	—	—	73.5	72	1	1	0.375
NU 208 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 208 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	46.5	46.5	48	52	56	73.5	—	—	1	1	0.379
NU 2208 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2208 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	46.5	46.5	48	52	56	73.5	—	—	1	1	0.480
N 308	**W**	**M**	—	—	—	**N**	**NF**	48	—	—	—	—	—	82	79	1.5	1.5	0.649
NU 308 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 308 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	48	48	50	55	60	82	—	—	1.5	1.5	0.747
NU 2308 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2308 ET	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	48	48	50	55	60	82	—	—	1.5	1.5	0.933
NU 408	**W**	—	**NU**	**NJ**	**NUP**	**N**	**NF**	49	49	56	60	67	101	101	94	2	2	1.28

Notes

(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

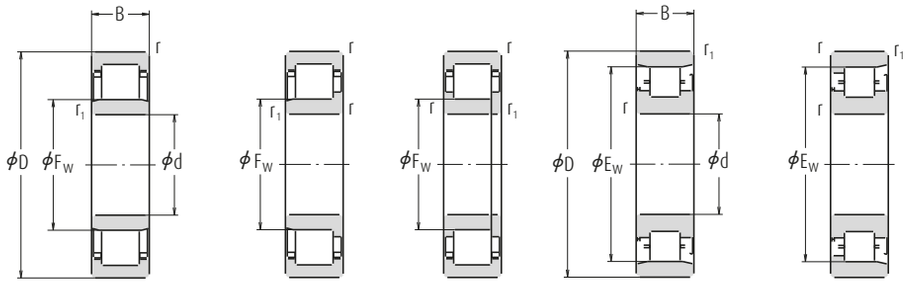
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark

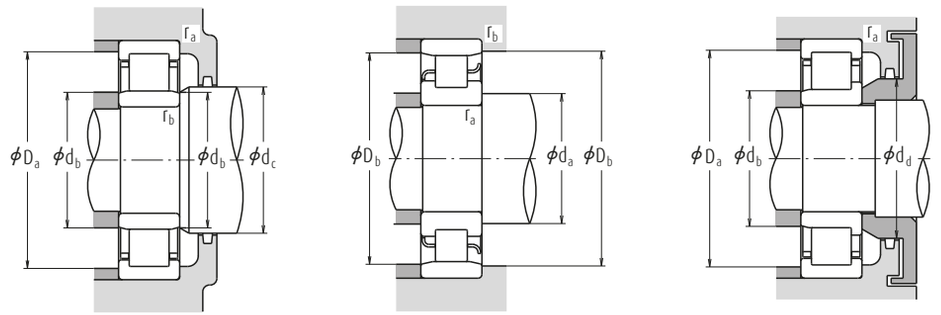
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 45 – 50 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
									Thermal Reference Speed	Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}		Mechanical (5)	Grease
45	75	16	1.0	0.6	52.5	67.5	32 500	35 500	9 500	—	9 300
	85	19	1.1	1.1	—	75	46 000	47 000	9 500	—	6 300
	85	19	1.1	1.1	54.5	—	72 500	66 500	8 500	10 000	6 700
	85	19	1.1	1.1	54.5	—	63 000	66 500	8 500	10 000	5 600
	85	23	1.1	1.1	54.5	—	87 500	84 500	8 500	12 000	6 700
	85	23	1.1	1.1	54.5	—	76 000	84 500	8 500	12 000	6 700
	100	25	1.5	1.5	—	86.5	79 000	77 500	7 500	—	5 000
	100	25	1.5	1.5	58.5	—	112 000	98 500	7 100	9 000	6 000
	100	25	1.5	1.5	58.5	—	97 500	98 500	7 100	9 000	4 300
	100	36	1.5	1.5	58.5	—	158 000	153 000	7 100	11 000	5 300
	100	36	1.5	1.5	58.5	—	137 000	153 000	7 100	11 000	5 300
	120	29	2.0	2.0	64.5	100.5	107 000	102 000	6 300	—	4 300
50	80	16	1.0	0.6	57.5	72.5	32 000	36 000	8 500	—	8 000
	90	20	1.1	1.1	—	80.4	48 000	51 000	8 500	—	5 600
	90	20	1.1	1.1	59.5	—	79 500	76 500	8 000	9 000	6 300
	90	20	1.1	1.1	59.5	—	69 000	76 500	8 000	9 000	5 000
	90	23	1.1	1.1	59.5	—	96 000	97 000	7 500	11 000	6 300
	90	23	1.1	1.1	59.5	—	83 500	97 000	7 500	11 000	6 300
	110	27	2.0	2.0	—	95	87 000	86 000	7 100	—	4 500
	110	27	2.0	2.0	65.0	—	127 000	113 000	6 700	8 000	5 000
	110	27	2.0	2.0	65.0	—	110 000	113 000	6 700	8 000	4 000
	110	40	2.0	2.0	65.0	—	187 000	187 000	6 700	10 000	5 000
	110	40	2.0	2.0	65.0	—	163 000	187 000	6 700	10 000	5 000
	130	31	2.1	2.1	—	110.8	139 000	136 000	5 600	—	4 000
	130	31	2.1	2.1	70.8	110.8	129 000	124 000	5 600	—	4 000

Notes
(1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

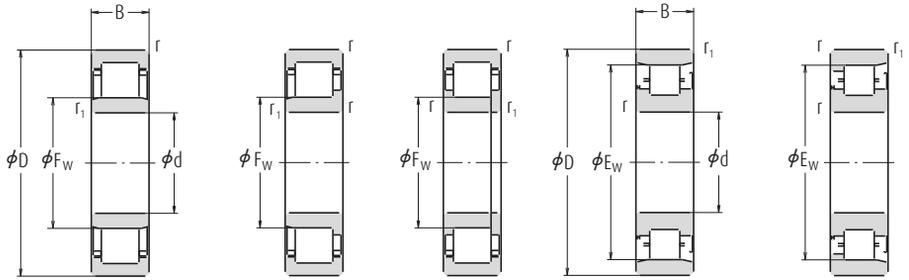
Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1009	(M)	—	**NU**	—	—	**N**	**NF**	50	49	51	54	—	70	71	68	1	0.6	0.279
N 209	**W**	**M**	—	—	—	**N**	**NF**	51.5	—	—	—	—	—	78.5	77	1	1	0.429
NU 209 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 209 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.438
NU 2209 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2209 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	51.5	51.5	52	57	61	78.5	—	—	1	1	0.521
N 309	**W**	**M**	—	—	—	**N**	**NF**	53	—	—	—	—	—	92	77	1.5	1.5	0.869
NU 309 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 309 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	53	53	56	60	66	92	—	—	1.5	1.5	1.01
NU 2309 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2309 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	53	53	56	60	66	92	—	—	1.5	1.5	1.28
NU 409	**W**	—	**NU**	**NJ**	**NUP**	**N**	**NF**	54	54	62	66	74	111	111	103	2	2	1.62
NU 1010	(M)	—	**NU**	**NJ**	**NUP**	**N**	—	55	54	56	59	—	75	76	73	1	0.6	0.301
N 210	**W**	**M**	—	—	—	**N**	**NF**	56.5	—	—	—	—	—	83.5	82	1	1	0.483
NU 210 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 210 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.50
NU 2210 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2210 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	56.5	56.5	57	62	67	83.5	—	—	1	1	0.562
N 310	**W**	**M**	—	—	—	**N**	**NF**	59	—	—	—	—	—	101	97	2	2	1.11
NU 310 E*	**W**	**M,T,T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 310 E	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	—	—	59	59	63	67	73	101	—	—	2	2	1.3
NU 2310 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2310 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	59	59	63	67	73	101	—	—	2	2	1.7
N 410	**W**	**M**	—	—	—	**N**	**NF**	65	—	—	—	—	—	117	113	2	2	2.0
NU 410	**W**	**M**	**NU**	**NJ**	**NUP**	—	—	61	61	68	73	81	119	119	113.3	2	2	1.99

Notes
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds(mechanical) in the bearing tables are the value for the standard cage type.

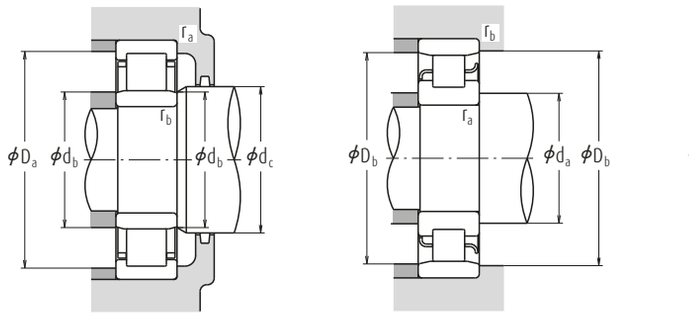
Remark
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 55 – 60 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)			Bearing Numbers						Abutment and Fillet Dimensions (mm)										Mass (kg)
									Thermal Reference Speed	Limiting Speeds		Cage symbol (1) Standard option		(2)				d_a (3)	d_b	d_b (4)	d_c	d_d	D_a (3)	D_b	D_b	r_a	r_b	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}		Mechanical (5)	Grease		NU	NJ	NUP	N	NF	min.	min.	max.	min.	min.	max.	max.	min.	max.	max.	approx.
55	90	18	1.1	1.0	64.5	80.5	37 500	44 000	8 000	–	7 500	**(M)**	**–**	**NU**	**NJ**	**–**	**N**	**–**	61.5	60	63	66	–	83.5	85	82	1	1	0.445
	100	21	1.5	1.1	–	88.5	58 000	62 500	7 500	–	5 300	**W**	**M**	–	–	–	**N**	**NF**	63	–	–	–	–	–	93.5	91	1.5	1	0.634
	100	21	1.5	1.1	66.0	–	99 000	98 500	6 700	8 500	5 600	**W**	**M,T,T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	100	21	1.5	1.1	66.0	–	86 500	98 500	6 700	8 500	4 500	**NU 211 E***		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	100	25	1.5	1.1	66.0	–	117 000	122 000	6 700	10 000	5 600	**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	–	–	63	61.5	64	68	73	92	–	–	1.5	1	0.669
	100	25	1.5	1.1	66.0	–	101 000	122 000	6 700	10 000	5 600	**NU 2211 E***		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	120	29	2.0	2.0	–	104.5	111 000	111 000	6 300	–	4 000	**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	63	61.5	64	68	73	92	–	–	1.5	1	0.783
	120	29	2.0	2.0	70.5	–	158 000	143 000	6 000	7 500	4 500	**N 311**		**W**	**M**	–	–	–	**N**	**NF**	64	–	–	–	–	111	107	2	2	1.42
	120	29	2.0	2.0	70.5	–	137 000	143 000	6 000	7 500	3 600	**NU 311 E***		**W**	**M,T,T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	120	43	2.0	2.0	70.5	–	231 000	233 000	6 000	9 000	4 500	**NU 311 E**		**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	–	–	64	64	68	72	80	111	–	–	2	2	1.64
	120	43	2.0	2.0	70.5	–	201 000	233 000	6 000	9 000	4 500	**NU 2311 E***		**M**	**T, T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	140	33	2.1	2.1	77.2	117.2	139 000	138 000	5 300	–	3 800	**NU 2311 E**		**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	64	64	68	72	80	111	–	–	2	2	2.18
60	95	18	1.1	1.0	69.5	85.5	40 000	48 500	7 500	–	6 700	**NU 411**		**W**	**–**	**NU**	**NJ**	**NUP**	**N**	**NF**	66	66	75	79	87	129	129	119	2	2	2.5
	110	22	1.5	1.5	–	97.5	68 500	75 000	7 100	–	4 800	**NU 1012**		**(M)**	**–**	**NU**	**NJ**	**–**	**N**	**NF**	66.5	65	68	71	–	88.5	90	87	1	1	0.474
	110	22	1.5	1.5	72.0	–	112 000	107 000	6 300	7 500	5 300	**N 212**		**W**	**M**	–	–	–	**N**	**NF**	68	–	–	–	–	–	102	100	1.5	1.5	0.823
	110	22	1.5	1.5	72.0	–	97 500	107 000	6 300	7 500	4 300	**NU 212 E***		**W**	**M,T,T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	110	28	1.5	1.5	72.0	–	151 000	157 000	6 300	9 500	5 300	**NU 212 E**		**W**	**M,T,T7**	**NU**	**NJ**	**NUP**	–	–	68	68	70	75	80	102	–	–	1.5	1.5	0.824
	110	28	1.5	1.5	72.0	–	131 000	157 000	6 300	9 500	5 300	**NU 2212 E***		**M**	**T, T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	130	31	2.1	2.1	–	113	124 000	126 000	6 000	–	3 800	**NU 2212 E**		**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	68	68	70	75	80	102	–	–	1.5	1.5	1.06
	130	31	2.1	2.1	77.0	–	124 000	126 000	6 000	–	3 800	**N 312**		**W**	**M**	–	–	–	**N**	**NF**	71	–	–	–	–	–	119	115	2	2	1.78
	130	31	2.1	2.1	77.0	–	169 000	157 000	5 600	9 500	4 800	**NU 312**		**W**	**M**	**NU**	**NJ**	**NUP**	–	–	71	71	75	79	86	119	–	–	2	2	1.82
	130	31	2.1	2.1	77.0	–	150 000	157 000	5 600	9 500	4 800	**NU 312 E***		**M**	**T, T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	130	46	2.1	2.1	77.0	–	251 000	262 000	5 600	8 500	4 300	**NU 312 E**		**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	71	71	75	79	86	119	–	–	2	2	2.06
	130	46	2.1	2.1	77.0	–	222 000	262 000	5 600	8 500	4 300	**NU 2312 E***		**M**	**T, T7**	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	150	35	2.1	2.1	83.0	127	167 000	168 000	5 000	–	3 400	**NU 2312 ET**		**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	71	71	75	79	86	119	–	–	2	2	2.7
												NU 412		**W**	**M**	**NU**	**NJ**	**NUP**	**N**	**NF**	71	71	80	85	94	139	139	130	2	2	3.04

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.

(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

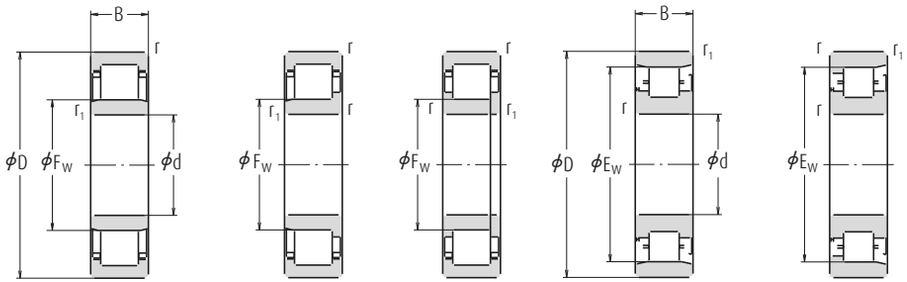
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark

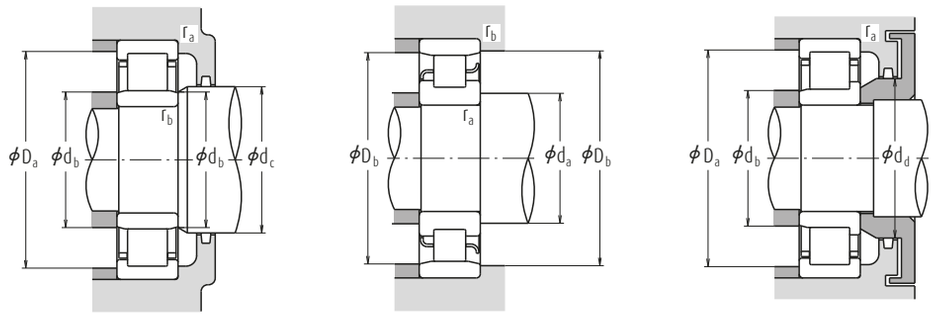
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 65 – 70 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
65	100	18	1.1	1.0	74.5	90.5	41 000	51 000	6 700	—	6 300
	120	23	1.5	1.5	—	105.6	84 000	94 500	6 300	—	4 300
	120	23	1.5	1.5	78.5	—	124 000	119 000	6 000	7 100	4 800
	120	23	1.5	1.5	78.5	—	108 000	119 000	6 000	7 100	3 800
	120	31	1.5	1.5	78.5	—	171 000	181 000	6 000	8 500	4 800
	120	31	1.5	1.5	78.5	—	149 000	181 000	6 000	8 500	4 800
	140	33	2.1	2.1	—	121.5	135 000	139 000	5 600	—	3 600
	140	33	2.1	2.1	83.5	—	135 000	139 000	5 600	—	3 600
	140	33	2.1	2.1	82.5	—	204 000	191 000	5 300	8 500	4 300
	140	33	2.1	2.1	82.5	—	181 000	191 000	5 300	8 500	4 300
	140	48	2.1	2.1	82.5	—	263 000	265 000	5 600	7 500	3 800
	140	48	2.1	2.1	82.5	—	233 000	265 000	5 600	7 500	3 800
	160	37	2.1	2.1	—	135.3	195 000	203 000	4 500	—	4 000
	160	37	2.1	2.1	89.3	—	182 000	186 000	4 800	—	3 200
70	110	20	1.1	1.0	80.0	100	58 500	70 500	6 300	—	6 000
	125	24	1.5	1.5	—	110.5	83 500	95 000	6 300	—	4 000
	125	24	1.5	1.5	83.5	—	136 000	137 000	5 600	9 000	5 000
	125	24	1.5	1.5	83.5	—	119 000	137 000	5 600	9 000	5 000
	125	31	1.5	1.5	83.5	—	179 000	194 000	5 600	8 000	4 500
	125	31	1.5	1.5	83.5	—	156 000	194 000	5 600	8 000	4 500
	150	35	2.1	2.1	—	130	149 000	156 000	5 600	—	3 200
	150	35	2.1	2.1	89.0	—	231 000	222 000	4 800	8 000	3 200
	150	35	2.1	2.1	90.0	—	231 000	222 000	4 800	8 000	4 000
	150	35	2.1	2.1	89.0	—	205 000	222 000	4 800	8 000	4 000
	150	51	2.1	2.1	89.0	—	310 000	325 000	5 000	7 100	3 600
	150	51	2.1	2.1	89.0	—	274 000	325 000	5 000	7 100	3 600
	180	42	3.0	3.0	100.0	152	228 000	236 000	4 500	—	2 800

Notes
(1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

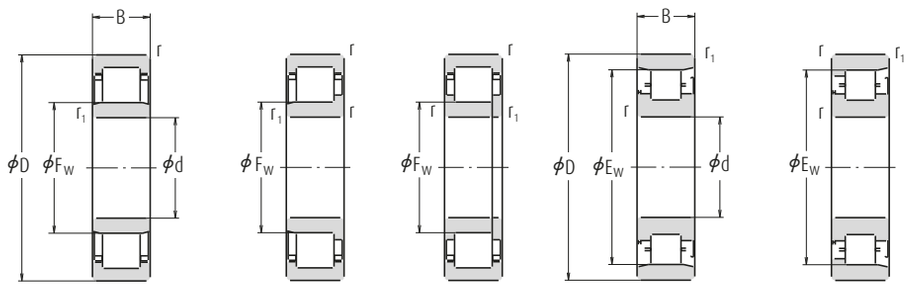
Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1013	(M)	—	**NU**	**NJ**	—	**N**	**NF**	71.5	70	73	76	—	93.5	95	92	1	1	0.504
N 213	W	M	—	—	—	**N**	**NF**	73	—	—	—	—	—	112	108	1.5	1.5	1.05
NU 213 E*	W	M,T,T7	**NU**	**NJ**	**NUP**	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.05
NU 213 E	W	M,T,T7	**NU**	**NJ**	**NUP**	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.05
NU 2213 E*	M	T,T7	**NU**	**NJ**	**NUP**	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.41
NU 2213 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	73	73	76	81	87	112	—	—	1.5	1.5	1.41
N 313	W	M	—	—	—	**N**	**NF**	76	—	—	—	—	—	129	125	2	2	2.17
NU 313	W	M	**NU**	**NJ**	**NUP**	—	—	76	76	81	85	93	129	—	—	2	2	2.23
NU 313 E*	M	T,T7	**NU**	**NJ**	**NUP**	—	—	76	76	80	85	93	129	—	—	2	2	2.56
NU 313 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	76	76	80	85	93	129	—	—	2	2	2.56
NU 2313 E*	M	T,T7	**NU**	**NJ**	**NUP**	—	—	76	76	80	85	93	129	—	—	2	2	3.16
NU 2313 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	76	76	80	85	93	129	—	—	2	2	3.16
N 413	M	—	—	—	—	**N**	**NF**	76	—	—	—	—	—	149	138.8	2	2	3.63
NU 413	W	M	**NU**	**NJ**	—	—	—	76	76	86	91	100	149	—	—	2	2	3.63
NU 1014	(M)	—	**NU**	**NJ**	**NUP**	**N**	**NF**	76.5	75	79	82	—	103.5	105	101	1	1	0.693
N 214	W	M	—	—	—	**N**	**NF**	78	—	—	—	—	—	117	113	1.5	1.5	1.14
NU 214 E*	M	T,T7	**NU**	**NJ**	**NUP**	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.29
NU 214 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.29
NU 2214 E*	M	T,T7	**NU**	**NJ**	**NUP**	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.14
NU 2214 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	78	78	81	86	92	117	—	—	1.5	1.5	1.49
N 314	W	M	—	—	—	**N**	**NF**	81	—	—	—	—	—	139	133.5	2	2	2.67
NU 314	W	M	**NU**	**NJ**	**NUP**	—	—	81	81	87	92	100	139	—	—	2	2	2.75
NU 314 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	81	81	87	92	100	139	—	—	2	2	3.09
NU 314 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	81	81	86	92	100	139	—	—	2	2	3.09
NU 2314 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	81	81	86	92	100	139	—	—	2	2	3.92
NU 2314 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	81	81	86	92	100	139	—	—	2	2	3.92
NU 414	W	M	**NU**	**NJ**	**NUP**	**N**	**NF**	83	83	97	102	112	167	167	155	2.5	2.5	5.28

Notes
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds(mechanical) in the bearing tables are the value for the standard cage type.

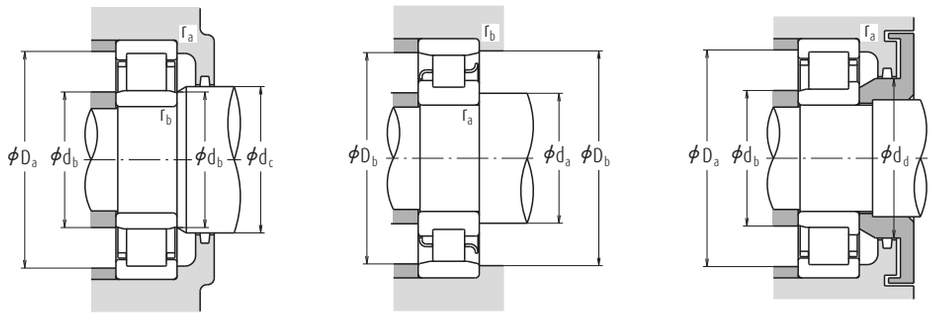
Remark
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 75 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min^{-1})		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
75	115	20	1.1	1.0	85.0	105	60 000	74 500	6 000	—	5 600
	130	25	1.5	1.5	—	116.5	96 500	111 000	6 000	—	3 800
	130	25	1.5	1.5	88.5	—	150 000	156 000	5 300	8 500	4 800
	130	25	1.5	1.5	88.5	—	130 000	156 000	5 300	8 500	4 800
	130	31	1.5	1.5	88.5	—	186 000	207 000	5 300	7 500	4 300
	130	31	1.5	1.5	88.5	—	162 000	207 000	5 300	7 500	4 300
	160	37	2.1	2.1	—	139.5	179 000	189 000	5 000	—	3 000
	160	37	2.1	2.1	95.5	—	179 000	189 000	5 000	—	3 000
	160	37	2.1	2.1	95.0	—	271 000	263 000	4 500	7 500	3 800
	160	37	2.1	2.1	95.0	—	240 000	263 000	4 500	7 500	3 800
	160	55	2.1	2.1	95.0	—	370 000	395 000	4 800	6 700	3 400
	160	55	2.1	2.1	95.0	—	330 000	395 000	4 800	6 700	3 400
	190	45	3.0	3.0	104.5	160.5	262 000	274 000	4 300	—	2 600

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.

Bearing Numbers								Abutment and Fillet Dimensions (mm)										Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1015	**(M)**	—	**NU**	—	—	**N**	**NF**	81.5	80	83	87	—	108.5	110	106	1	1	0.731
N 215	**W**	**M**	—	—	—	**N**	**NF**	83	—	—	—	—	—	122	119	1.5	1.5	1.23
NU 215 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 215 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.44
NU 2215 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2215 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	83	83	86	90	96	122	—	—	1.5	1.5	1.57
N 315	**W**	**M**	—	—	—	**N**	**NF**	86	—	—	—	—	—	149	143	2	2	3.2
NU 315	**W**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	86	86	93	97	106	149	—	—	2	2	3.26
NU 315 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 315 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	86	86	92	97	106	149	—	—	2	2	3.73
NU 2315 E*	**M**	**T, T7**	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2315 E	**M**	**T, T7**	**NU**	**NJ**	**NUP**	—	—	86	86	92	97	106	149	—	—	2	2	4.86
NU 415	**W**	**M**	**NU**	**NJ**	—	**N**	**NF**	88	88	102	107	118	177	177	164	2.5	2.5	6.27

Notes

(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

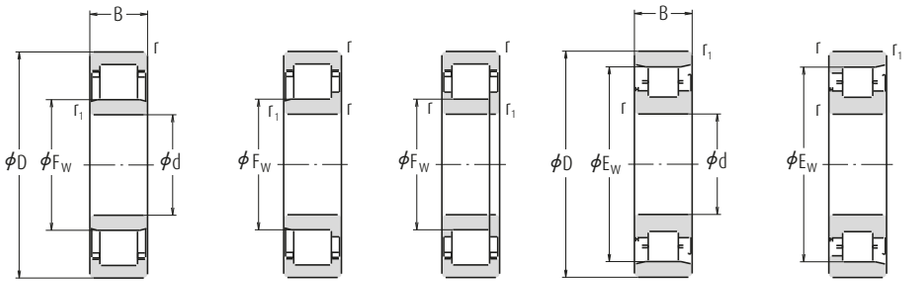
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark

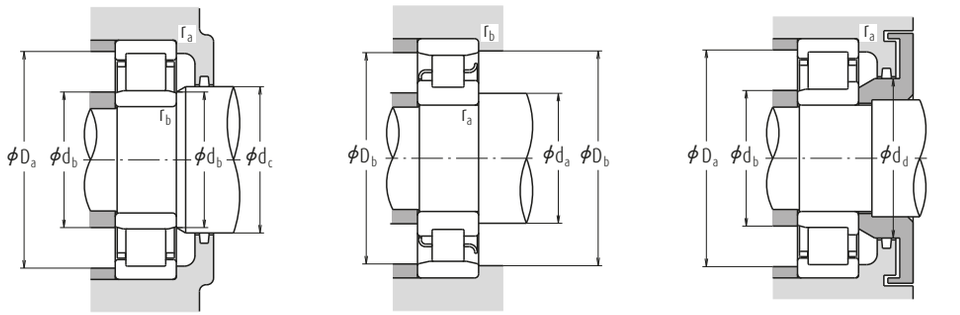
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 80 – 90 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_W	E_W	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
80	125	22	1.1	1.0	91.5	113.5	72 500	90 500	6 000	—	5 300
	140	26	2.0	2.0	—	125.3	106 000	122 000	5 600	—	3 600
	140	26	2.0	2.0	95.3	—	160 000	167 000	5 000	8 000	4 500
	140	26	2.0	2.0	95.3	—	139 000	167 000	5 000	8 000	4 500
	140	33	2.0	2.0	95.3	—	214 000	243 000	5 000	7 100	4 000
	140	33	2.0	2.0	95.3	—	186 000	243 000	5 000	7 100	4 000
	170	39	2.1	2.1	—	147	190 000	207 000	4 800	—	2 800
	170	39	2.1	2.1	101.0	—	289 000	282 000	4 300	7 100	3 600
	170	39	2.1	2.1	101.0	—	256 000	282 000	4 300	7 100	3 600
	170	58	2.1	2.1	101.0	—	400 000	430 000	4 500	6 300	3 200
	170	58	2.1	2.1	101.0	—	355 000	430 000	4 500	6 300	3 200
	200	48	3.0	3.0	110.0	170	299 000	315 000	4 000	—	2 600
85	130	22	1.1	1.0	96.5	118.5	74 500	95 500	5 600	—	5 000
	150	28	2.0	2.0	—	133.8	120 000	140 000	5 300	—	3 400
	150	28	2.0	2.0	100.5	—	192 000	199 000	4 800	7 500	4 300
	150	28	2.0	2.0	100.5	—	167 000	199 000	4 800	7 500	4 300
	150	36	2.0	2.0	100.5	—	250 000	279 000	4 800	6 700	3 800
	150	36	2.0	2.0	100.5	—	217 000	279 000	4 800	6 700	3 800
	180	41	3.0	3.0	—	156	225 000	247 000	4 500	—	2 600
	180	41	3.0	3.0	108.0	—	212 000	228 000	4 800	—	2 600
	180	41	3.0	3.0	108.0	—	360 000	330 000	4 000	6 700	3 400
	180	60	3.0	3.0	108.0	—	485 000	485 000	4 300	6 000	3 000
	210	52	4.0	4.0	113.0	177	335 000	350 000	4 000	—	3 000
90	140	24	1.5	1.1	103.0	127	88 000	114 000	5 300	—	4 500
	160	30	2.0	2.0	—	143	152 000	178 000	5 000	—	3 200
	160	30	2.0	2.0	107.0	—	205 000	217 000	4 800	7 100	4 000
	160	30	2.0	2.0	107.0	—	182 000	217 000	4 800	7 100	4 000
	160	40	2.0	2.0	107.0	—	274 000	315 000	4 800	6 300	3 600
	160	40	2.0	2.0	107.0	—	242 000	315 000	4 800	6 300	3 600
	190	43	3.0	3.0	—	165	240 000	265 000	4 500	—	2 600
	190	43	3.0	3.0	115.0	—	240 000	265 000	4 500	—	2 600
	190	43	3.0	3.0	113.5	—	390 000	355 000	4 000	6 300	3 200
	190	64	3.0	3.0	113.5	—	535 000	535 000	4 000	5 600	2 800
	225	54	4.0	4.0	123.5	191.5	375 000	400 000	3 600	—	2 800

Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1016	(M)	—	**NU**	—	**NUP**	**N**	—	86.5	85	90	94	—	118.5	120	115	1	1	0.969
N 216	W	M	—	—	—	**N**	**NF**	89	—	—	—	—	—	131	128	2	2	1.47
NU 216 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 216 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	89	89	92	97	104	131	—	—	2	2	1.7
NU 2216 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2216 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	89	89	92	97	104	131	—	—	2	2	1.96
N 316	W	M	—	—	—	**N**	**NF**	91	—	—	—	—	—	159	150	2	2	3.85
NU 316 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 316 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	91	91	98	105	114	159	—	—	2	2	4.45
NU 2316 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2316 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	91	91	98	105	114	159	—	—	2	2	5.73
NU 416	W	M	**NU**	**NJ**	—	**N**	**NF**	93	93	107	112	124	187	187	173	2.5	2.5	7.36
NU 1017	(M)	—	**NU**	—	—	**N**	—	91.5	90	95	99	—	123.5	125	120	1	1	1.01
N 217	W	M	—	—	—	**N**	**NF**	94	—	—	—	—	—	141	137	2	2	1.87
NU 217 E*	M	T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 217 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	94	94	98	104	110	141	—	—	2	2	2.11
NU 2217 E*	M	T,T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2217 E	M	T,T7	**NU**	**NJ**	**NUP**	—	—	94	94	98	104	110	141	—	—	2	2	2.44
N 317	W	M	—	—	—	**N**	**NF**	98	—	—	—	—	—	167	159	2.5	2.5	4.53
NU 317	W	N	**NU**	**NJ**	**NUP**	—	—	98	98	105	110	119	167	—	—	2.5	2.5	4.6
NU 317 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	98	98	105	110	119	167	—	—	2.5	2.5	5.26
NU 2317 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	98	98	105	110	119	167	—	—	2.5	2.5	6.77
NU 417	M	—	**NU**	**NJ**	—	**N**	**NF**	101	101	110	115	128	194	194	180	3	3	9.56
NU 1018	(M)	—	**NU**	—	**NUP**	**N**	—	98	96.5	101	106	—	132	133.5	129	1.5	1	1.35
N 218	W	M	—	—	—	**N**	**NF**	99	—	—	—	—	—	151	146	2	2	2.31
NU 218 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 218 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	99	99	104	109	116	151	—	—	2	2	2.6
NU 2218 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2218 E	M	T, T7	**NU**	**NJ**	**NUP**	—	—	99	99	104	109	116	151	—	—	2	2	3.11
N 318	W	M	—	—	—	**N**	**NF**	103	—	—	—	—	—	177	168	2.5	2.5	5.31
NU 318	W	M	**NU**	**NJ**	**NUP**	—	—	103	103	112	117	127	177	—	—	2.5	2.5	5.38
NU 318 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	103	103	111	117	127	177	—	—	2.5	2.5	6.1
NU 2318 E*	M	T, T7	**NU**	**NJ**	**NUP**	—	—	103	103	111	117	127	177	—	—	2.5	2.5	7.9
NU 418	M	—	**NU**	**NJ**	—	**N**	**NF**	106	106	120	125	139	209	209	196	3	3	11.5

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.

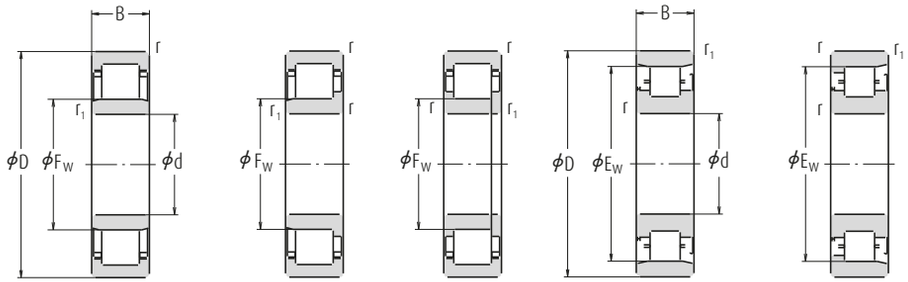
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

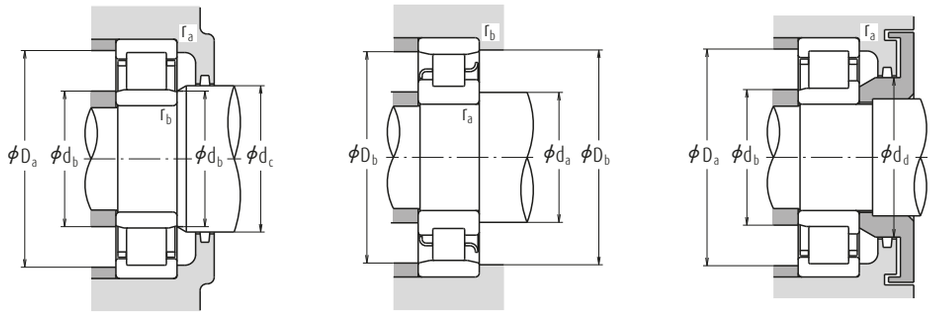
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Bore Diameter 95 – 110 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
95	145	24	1.5	1.1	108.0	132	90 500	120 000	5 000	—	4 300
	170	32	2.1	2.1	—	151.5	166 000	196 000	4 800	—	3 000
	170	32	2.1	2.1	112.5	—	249 000	265 000	4 300	6 700	3 800
	170	32	2.1	2.1	112.5	—	220 000	265 000	4 300	6 700	3 800
	170	43	2.1	2.1	112.5	—	325 000	370 000	4 500	6 000	3 400
	170	43	2.1	2.1	112.5	—	286 000	370 000	4 500	6 000	3 400
	200	45	3.0	3.0	—	173.5	259 000	289 000	4 300	—	2 400
	200	45	3.0	3.0	121.5	—	259 000	289 000	4 300	—	2 400
	200	45	3.0	3.0	121.5	—	410 000	385 000	3 800	6 000	3 000
	200	67	3.0	3.0	121.5	—	565 000	585 000	3 800	5 300	2 600
	240	55	4.0	4.0	133.5	201.5	400 000	445 000	3 200	—	2 600
100	150	24	1.5	1.1	113	137	93 000	126 000	4 800	—	4 300
	180	34	2.1	2.1	—	160	183 000	217 000	4 500	—	2 800
	180	34	2.1	2.1	119	—	305 000	305 000	4 300	6 300	3 600
	180	46	2.1	2.1	119	—	410 000	445 000	4 300	5 600	3 200
	215	47	3.0	3.0	—	185.5	299 000	335 000	4 000	—	2 200
	215	47	3.0	3.0	129.5	—	299 000	335 000	4 000	—	2 200
	215	47	3.0	3.0	127.5	—	465 000	425 000	3 600	5 600	2 800
	215	73	3.0	3.0	127.5	—	700 000	715 000	3 400	5 600	2 400
	250	58	4.0	4.0	139	211	450 000	500 000	3 000	—	2 600
105	160	26	2.0	1.1	119.5	145.5	109 000	149 000	4 500	—	4 000
	190	36	2.1	2.1	—	168.8	201 000	241 000	4 500	—	2 600
	190	36	2.1	2.1	125	—	320 000	310 000	4 300	6 000	3 400
	225	49	3.0	3.0	—	195	340 000	390 000	3 800	—	2 200
	225	49	3.0	3.0	133	—	525 000	480 000	3 400	5 300	2 600
	260	60	4.0	4.0	144.5	220.5	495 000	555 000	2 800	—	2 400
110	170	28	2.0	1.1	125	155	131 000	174 000	4 500	—	3 800
	200	38	2.1	2.1	—	178.5	229 000	272 000	4 300	—	2 600
	200	38	2.1	2.1	132.5	—	360 000	365 000	4 000	5 600	3 200
	200	53	2.1	2.1	132.5	—	470 000	515 000	4 000	5 000	2 800
	240	50	3.0	3.0	—	207	380 000	435 000	3 400	—	2 000
	240	50	3.0	3.0	143	—	555 000	525 000	3 200	5 000	2 600
	240	80	3.0	3.0	143	—	830 000	880 000	3 000	4 500	2 200
	280	65	4.0	4.0	155	—	550 000	620 000	2 600	—	2 200

Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1019	(M)	—	NU	NJ	—	N	—	103	101.5	106	111	—	137	138.5	134	1.5	1	1.41
N 219	W	M	—	—	—	N	NF	106	—	—	—	—	—	159	155	2	2	2.79
NU 219 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 219 E	M	T, T7	NU	NJ	NUP	—	—	106	106	110	116	123	159	—	—	2	2	3.17
NU 2219 E*	M	T, T7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
NU 2219 E	M	T, T7	NU	NJ	NUP	—	—	106	106	110	116	123	159	—	—	2	2	3.81
N 319	W	M	—	—	—	N	NF	108	—	—	—	—	—	187	177	2.5	2.5	6.09
NU 319	W	M	NU	NJ	NUP	—	—	108	108	118	124	134	187	—	—	2.5	2.5	6.23
NU 319 E*	M	T, T7	NU	NJ	NUP	—	—	108	108	118	124	134	187	—	—	2.5	2.5	7.13
NU 2319 E*	M	T, T7	NU	NJ	NUP	—	—	108	108	118	124	134	187	—	—	2.5	2.5	9.21
NU 419	M	—	NU	NJ	NUP	—	NF	111	111	130	136	149	224	224	206	3	3	13.6
NU 1020	(M)	—	NU	NJ	NUP	N	—	108	106.5	111	116	—	142	143.5	139	1.5	1	1.47
N 220	W	M	—	—	—	N	NF	111	—	—	—	—	—	169	163	2	2	3.36
NU 220 E*	M	T, T7	NU	NJ	NUP	—	—	111	111	116	122	130	169	—	—	2	2	3.81
NU 2220 E*	M	T, T7	NU	NJ	NUP	—	—	111	111	116	122	130	169	—	—	2	2	4.69
N 320	W	M	—	—	—	N	NF	113	—	—	—	—	—	202	190	2.5	2.5	7.59
NU 320	W	M	NU	NJ	NUP	—	—	113	113	126	132	143	202	—	—	2.5	2.5	7.69
NU 320 E*	M	T, T7	NU	NJ	NUP	—	—	113	113	124	132	143	202	—	—	2.5	2.5	8.63
NU 2320 E*	M	T, T7	NU	NJ	NUP	—	—	113	113	124	132	143	202	—	—	2.5	2.5	11.8
NU 420	M	—	NU	NJ	—	N	NF	116	116	135	141	156	234	234	215	3	3	15.5
NU 1021	(M)	—	NU	—	—	N	NF	114	111.5	118	122	—	151	153.5	147	2	1	1.83
N 221	W	M	—	—	—	N	NF	116	—	—	—	—	—	179	172	2	2	4.0
NU 221 E*	M	—	NU	NJ	NUP	—	—	116	116	121	129	137	179	—	—	2	2	4.58
N 321	W	M	—	—	—	N	NF	118	—	—	—	—	—	212	199	2.5	2.5	8.69
NU 321 E*	M	—	NU	NJ	NUP	—	—	118	118	131	137	149	212	—	—	2.5	2.5	9.84
NU 421	M	—	NU	NJ	—	N	NF	121	121	141	147	162	244	244	225	3	3	17.3
NU 1022	(M)	—	NU	NJ	—	N	NF	119	116.5	123	128	—	161	163.5	157	2	1	2.27
N 222	W	M	—	—	—	N	NF	121	—	—	—	—	—	189	182	2	2	4.64
NU 222 E*	M	T, T7	NU	NJ	NUP	—	—	121	121	129	135	144	189	—	—	2	2	5.37
NU 2222 E*	M	—	NU	NJ	NUP	—	—	121	121	129	135	144	189	—	—	2	2	7.65
N 322	W	M	—	—	—	N	NF	123	—	—	—	—	—	227	211	2.5	2.5	10.3
NU 322 E*	M	—	NU	NJ	NUP	—	—	123	123	139	145	158	227	—	—	2.5	2.5	11.8
NU 2322 E*	M	T,T7	NU	NJ	—	—	—	123	123	139	145	158	227	—	—	2.5	2.5	18.8
NU 422	M	—	NU	NJ	—	—	—	126	126	151	157	173	264	—	—	3	3	22.1

Notes

(1) (M) in the column of cage symbols are usually omitted from the bearing number.

(2) When L-Shaped thrust collars are used, the bearings become the NH type.

(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.

(4) d_b (max.) are values for adjusting rings for NU, NJ Types.

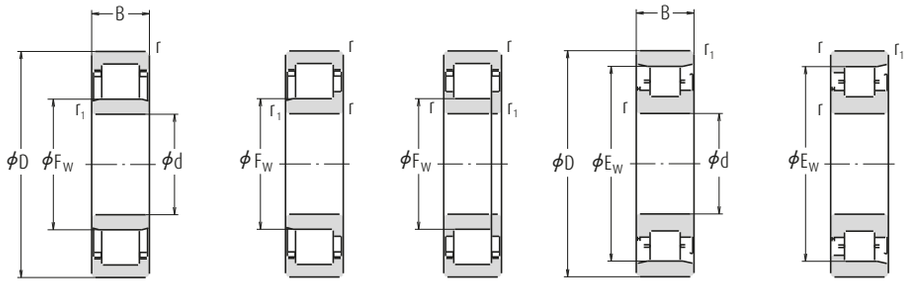
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Remark

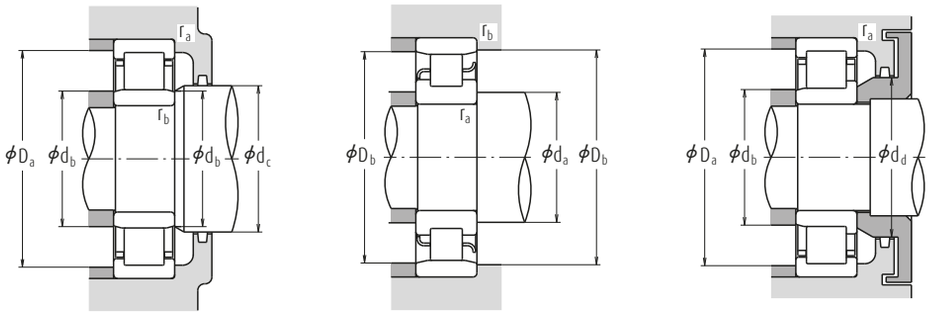
The bearings denoted by an asterisk (*) are OIDHPS Cylindrical roller bearings.

Single-Row Cylindrical Roller Bearings

Bore Diameter 120 – 150 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
									Thermal Reference Speed	Limiting Speeds	
d	D	B	r min.	r1 min.	Fw	Ew	Cr	C0r		Mechanical (5)	Grease
120	180	28	2.0	1.1	135	165	139 000	191 000	4 000	–	3 400
	215	40	2.1	2.1	–	191.5	260 000	320 000	4 000	–	2 400
	215	40	2.1	2.1	143.5	–	410 000	420 000	3 600	5 300	3 000
	215	58	2.1	2.1	143.5	–	555 000	620 000	3 600	4 800	2 600
	260	55	3.0	3.0	–	226	450 000	510 000	3 000	–	1 800
	260	55	3.0	3.0	154	–	650 000	610 000	2 800	4 800	2 200
	260	86	3.0	3.0	154	–	975 000	1 030 000	2 600	4 300	2 000
	310	72	5.0	5.0	170	260	675 000	770 000	2 400	–	2 000
130	200	33	2.0	1.1	148	182	172 000	238 000	4 000	–	3 200
	230	40	3.0	3.0	–	204	270 000	340 000	3 800	–	2 200
	230	40	3.0	3.0	153.5	–	445 000	455 000	3 400	5 000	2 600
	230	64	3.0	3.0	153.5	–	650 000	735 000	3 400	4 500	2 400
	280	58	4.0	4.0	–	243	500 000	570 000	2 800	–	2 200
	280	58	4.0	4.0	167	–	760 000	735 000	2 600	4 300	2 200
	280	93	4.0	4.0	167	–	1 130 000	1 230 000	2 400	3 800	1 900
	340	78	5.0	5.0	185	285	825 000	955 000	2 000	–	1 800
140	210	33	2.0	1.1	158	192	176 000	250 000	3 800	–	3 000
	250	42	3.0	3.0	–	221	297 000	375 000	3 400	–	2 000
	250	42	3.0	3.0	169	–	485 000	515 000	3 200	4 500	2 400
	250	68	3.0	3.0	169	–	675 000	790 000	3 200	4 000	2 200
	300	62	4.0	4.0	–	260	550 000	640 000	2 600	–	2 000
	300	62	4.0	4.0	180	–	815 000	795 000	2 400	4 000	2 000
	300	102	4.0	4.0	180	–	1 250 000	1 380 000	2 200	2 600	1 700
	360	82	5.0	5.0	198	302	875 000	1 020 000	1 900	–	1 700
150	225	35	2.1	1.5	169.5	205.5	202 000	294 000	3 600	–	2 800
	270	45	3.0	3.0	–	238	360 000	465 000	3 000	–	1 800
	270	45	3.0	3.0	182	–	550 000	595 000	2 800	4 300	2 200
	270	73	3.0	3.0	182	–	780 000	930 000	2 800	3 800	2 000
	320	65	4.0	4.0	–	277	665 000	805 000	2 200	–	1 800
	320	65	4.0	4.0	193	–	930 000	920 000	2 200	3 800	1 800
	320	108	4.0	4.0	193	–	1 430 000	1 600 000	2 000	2 400	1 600
	380	85	5.0	5.0	213	–	930 000	1 120 000	1 700	–	1 600

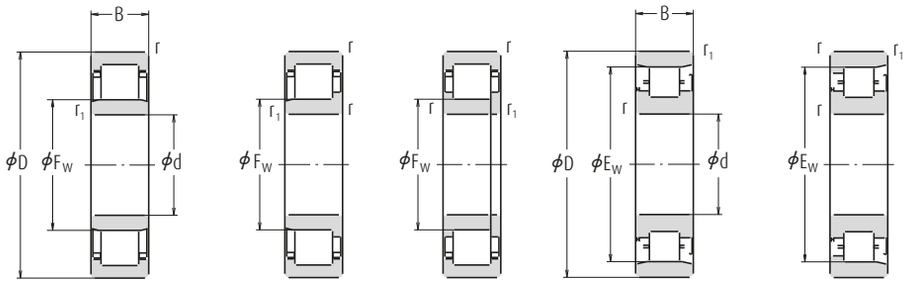
Notes (1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

Bearing Numbers								Abutment and Fillet Dimensions (mm)								Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	da(3) min.	db min.	db(4) max.	dc min.	dd min.	Da(3) max.	Db max.	Db min.	ra max.	rb max.	approx.
NU 1024	(M)	–	**NU**	**NJ**	**NUP**	**N**	–	129	126.5	133	138	–	171	173.5	167	2	1	2.43
N 224	**W**	**M**	–	–	–	**N**	**NF**	131	–	–	–	–	–	204	196	2	2	5.63
NU 224 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	131	131	140	146	156	204	–	–	2	2	6.43
NU 2224 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	131	131	140	146	156	204	–	–	2	2	9.51
N 324	**W**	**M**	–	–	–	**N**	**NF**	133	–	–	–	–	–	247	230	2.5	2.5	12.9
NU 324 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	133	133	150	156	171	247	–	–	2.5	2.5	15
NU 2324 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	133	133	150	156	171	247	–	–	2.5	2.5	25
NU 424	**M**	–	**NU**	**NJ**	**NUP**	**N**	–	140	140	166	172	190	290	290	266	4	4	30.2
NU 1026	(M)	–	**NU**	**NJ**	–	**N**	**NF**	139	136.5	146	151	–	191	193.5	184	2	1	3.66
N 226	**W**	**M**	–	–	–	**N**	**NF**	143	–	–	–	–	–	217	208	2.5	2.5	6.48
NU 226 E*	**M**	**T, T7**	**NU**	**NJ**	**NUP**	–	–	143	143	150	158	168	217	–	–	2.5	2.5	8.03
NU 2226 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	143	143	150	158	168	217	–	–	2.5	2.5	9.44
N 326	**M**	–	–	–	–	**N**	**NF**	146	–	–	–	–	–	264	247.5	3	3	17.7
NU 326 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	146	146	163	169	184	264	–	–	3	3	18.7
NU 2326 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	146	146	163	169	184	264	–	–	3	3	30
NU 426	**M**	–	**NU**	**NJ**	–	–	**NF**	150	150	180	187	208	320	320	291	4	4	39.6
NU 1028	(M)	–	**NU**	**NJ**	**NUP**	**N**	–	149	146.5	156	161	–	201	203.5	194	2	1	3.87
N 228	**W**	**M**	–	–	–	**N**	**NF**	153	–	–	–	–	–	237	225	2.5	2.5	8.08
NU 228 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	153	153	165	171	182	237	–	–	2.5	2.5	9.38
NU 2228 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	153	153	165	171	182	237	–	–	2.5	2.5	15.2
N 328	**M**	–	–	–	–	**N**	**NF**	156	–	–	–	–	–	284	266	3	3	21.7
NU 328 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	156	156	176	182	198	284	–	–	3	3	22.8
NU 2328 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	156	156	176	182	198	284	–	–	3	3	37.7
NU 428	**M**	–	**NU**	**NJ**	–	**N**	–	160	160	193	200	222	340	340	308	4	4	46.4
NU 1030	(M)	–	**NU**	**NJ**	–	**N**	**NF**	161	158	167	173	–	214	217	208	2	1.5	4.77
N 230	**W**	**M**	–	–	–	**N**	**NF**	163	–	–	–	–	–	257	242	2.5	2.5	10.4
NU 230 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	163	163	177	184	196	257	–	–	2.5	2.5	11.9
NU 2230 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	163	163	177	184	196	257	–	–	2.5	2.5	19.3
N 330	**M**	–	–	–	–	**N**	**NF**	166	–	–	–	–	–	304	283	3	3	25.8
NU 330 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	166	166	188	195	213	304	–	–	3	3	27.1
NU 2330 E*	**M**	–	**NU**	**NJ**	**NUP**	–	–	166	166	188	195	213	304	–	–	3	3	45.1
NU 430	**M**	–	**NU**	**NJ**	–	–	–	170	170	208	216	237	360	–	–	4	4	55.8

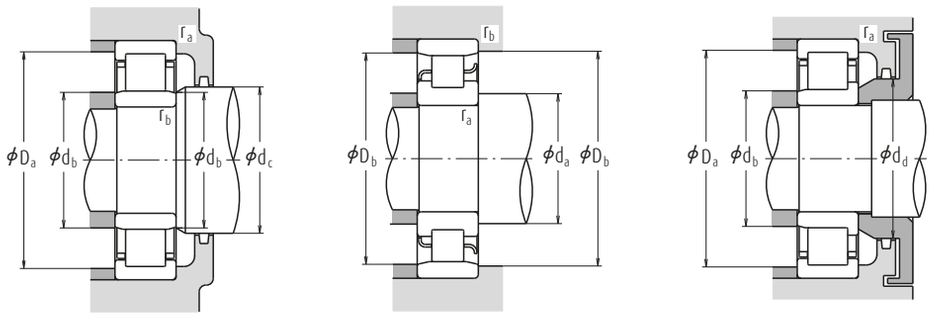
Notes (3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Single-Row Cylindrical Roller Bearings

Bore Diameter 160 - 190 mm



NU NJ NUP N NF



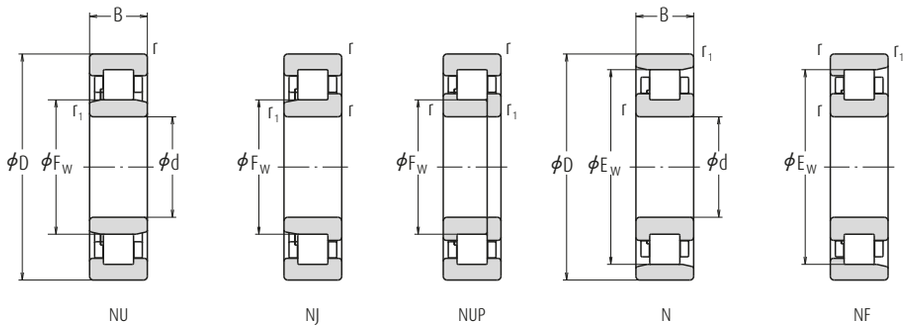
Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min^{-1})		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
160	240	38	2.1	1.5	180	220	238 000	340 000	3 400	–	2 600
	290	48	3.0	3.0	–	255	430 000	570 000	2 800	–	2 200
	290	48	3.0	3.0	195	–	615 000	665 000	2 600	4 000	2 200
	290	80	3.0	3.0	193	–	995 000	1 190 000	2 400	3 600	1 900
	340	68	4.0	4.0	–	292	700 000	875 000	2 000	–	1 700
	340	68	4.0	4.0	204	–	1 060 000	1 050 000	1 900	3 600	1 700
	340	114	4.0	4.0	204	–	1 310 000	1 820 000	1 800	2 400	1 500
170	260	42	2.1	2.1	193	237	287 000	415 000	3 200	–	2 400
	310	52	4	4	–	272	475 000	635 000	2 600	–	2 000
	310	52	4	4	207	–	740 000	800 000	2 400	3 800	2 000
	310	86	4	4	205	–	1 140 000	1 330 000	2 200	3 200	1 800
	360	72	4	4	–	310	795 000	1 010 000	1 900	–	1 600
	360	72	4	4	218	–	930 000	1 150 000	1 800	3 400	1 600
	360	120	4	4	216	–	1 490 000	2 070 000	1 600	2 200	1 400
180	280	46	2.1	2.1	205	255	355 000	510 000	3 000	–	2 200
	320	52	4	4	–	282	495 000	675 000	2 400	–	1 900
	320	52	4	4	217	–	770 000	850 000	2 200	3 600	1 900
	320	86	4	4	215	–	1 240 000	1 510 000	2 000	3 200	1 700
	380	75	4	4	–	328	905 000	1 150 000	1 700	–	1 500
	380	75	4	4	231	–	985 000	1 230 000	1 700	2 800	1 500
	380	126	4	4	227	–	1 560 000	2 220 000	1 500	2 000	1 300
190	290	46	2.1	2.1	215	265	365 000	535 000	2 800	–	2 000
	340	55	4	4	–	299	555 000	770 000	2 200	–	1 800
	340	55	4	4	230	–	885 000	955 000	2 000	3 400	1 800
	340	92	4	4	228	–	1 360 000	1 670 000	1 900	3 000	1 600
	400	78	5	5	–	345	975 000	1 260 000	1 600	–	1 400
	400	78	5	5	245	–	1 060 000	1 340 000	1 600	2 600	1 400
	400	132	5	5	240	–	1 770 000	2 520 000	1 400	2 000	1 300

Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1032	(M)	–	NU	NJ	–	N	NF	171	168	178	184	–	229	232	222	2	1.5	5.81
N 232	M	–	–	–	–	N	NF	173	–	–	–	–	–	277	261	2.5	2.5	14.1
NU 232 E*	M	–	NU	NJ	NUP	–	–	173	173	190	197	210	277	–	–	2.5	2.5	14.7
NU 2232 E*	M	–	NU	NJ	NUP	–	–	173	173	188	197	210	277	–	–	2.5	2.5	24.5
N 332	M	–	–	–	–	N	–	176	–	–	–	–	–	324	298	3	3	30.8
NU 332 E*	M	–	NU	NJ	NUP	–	–	176	176	199	211	228	324	–	–	3	3	32.1
NU 2332 E	M	–	NU	NJ	NUP	–	–	176	176	199	211	228	324	–	–	3	3	53.9
NU 1034	(M)	–	NU	NJ	–	N	–	181	181	190	197	–	249	249	239	2	2	7.91
N 234	M	–	–	–	–	N	NF	186	–	–	–	–	–	294	278	3	3	17.4
NU 234 E*	M	–	NU	NJ	NUP	–	–	186	186	202	211	223	294	–	–	3	3	18.3
NU 2234 E*	M	–	NU	NJ	NUP	–	–	186	186	200	211	223	294	–	–	3	3	29.9
N 334	M	–	–	–	–	N	NF	186	–	–	–	–	–	344	316	3	3	36.6
NU 334 E	M	–	NU	NJ	NUP	–	–	186	186	213	223	241	344	–	–	3	3	37.9
NU 2334 E	M	–	NU	NJ	NUP	–	–	186	186	210	223	241	344	–	–	3	3	63.4
NU 1036	(M)	–	NU	NJ	–	N	NF	191	191	202	209	–	269	269	258	2	2	10.2
N 236	M	–	–	–	–	N	NF	196	–	–	–	–	–	304	288	3	3	18.1
NU 236 E*	M	–	NU	NJ	NUP	–	–	196	196	212	221	233	304	–	–	3	3	19
NU 2236 E*	M	–	NU	NJ	NUP	–	–	196	196	210	221	233	304	–	–	3	3	31.4
N 336	M	–	–	–	–	N	NF	196	–	–	–	–	–	364	335	3	3	42.6
NU 336 E	M	–	NU	NJ	NUP	–	–	196	196	226	235	255	364	–	–	3	3	44
NU 2336 E	M	–	NU	NJ	NUP	–	–	196	196	222	235	255	364	–	–	3	3	74.6
NU 1038	(M)	–	NU	NJ	–	N	–	201	201	212	219	–	279	279	268	2	2	10.7
N 238	M	–	–	–	–	N	NF	206	–	–	–	–	–	324	305	3	3	22
NU 238 E*	M	–	NU	NJ	NUP	–	–	206	206	225	234	247	324	–	–	3	3	23
NU 2238 E*	M	–	NU	NJ	NUP	–	–	206	206	223	234	247	324	–	–	3	3	38.3
N 338	M	–	–	–	–	N	–	210	–	–	–	–	–	380	352	4	4	48.7
NU 338 E	M	–	NU	NJ	NUP	–	–	210	210	240	248	268	380	–	–	4	4	50.6
NU 2338 E	M	–	NU	NJ	NUP	–	–	210	210	235	248	268	380	–	–	4	4	86.2

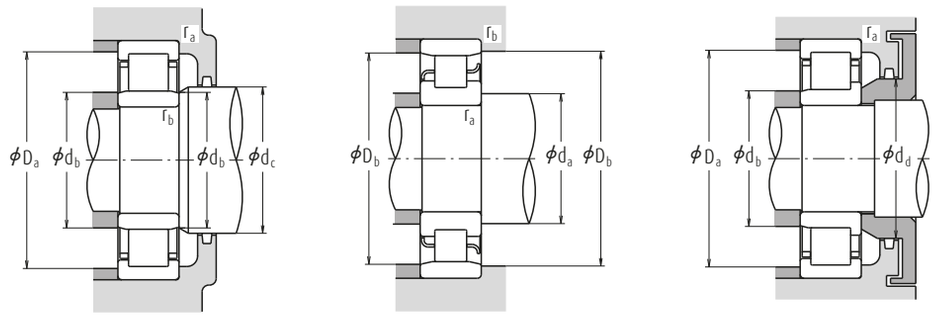
Notes
(1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

Notes
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Bore Diameter 200 – 320 mm



NU NJ NUP N NF



Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r_1 min.	F_w	E_w	C_r	C_{0r}	Thermal Reference Speed	Mechanical (5)	Grease
200	310	51	2.1	2.1	229	281	390 000	580 000	2 600	—	2 000
	360	58	4	4	—	316	620 000	865 000	2 000	—	1 700
	360	58	4	4	243	—	945 000	1 060 000	1 900	3 200	1 700
	360	98	4	4	241	—	1 500 000	1 870 000	1 800	2 200	1 500
	420	80	5	5	—	360	975 000	1 270 000	1 600	—	1 300
	420	80	5	5	258	—	1 140 000	1 450 000	1 500	2 600	1 200
	420	138	5	5	253	—	1 910 000	2 760 000	1 300	1 900	1 200
220	340	56	3	3	250	310	500 000	750 000	2 400	—	1 800
	400	65	4	4	—	350	760 000	1 080 000	1 800	—	1 500
	400	65	4	4	270	—	1 110 000	1 250 000	1 800	—	1 500
	400	108	4	4	270	—	1 140 000	1 810 000	1 700	—	1 300
	460	88	5	5	—	396	1 190 000	1 570 000	1 400	—	1 200
	460	88	5	5	284	—	1 190 000	1 570 000	1 400	—	1 200
240	360	56	3	3	270	330	530 000	820 000	2 200	—	1 600
	440	72	4	4	—	385	935 000	1 340 000	1 600	—	1 300
	440	72	4	4	295	—	935 000	1 340 000	1 600	—	1 300
	440	120	4	4	295	—	1 440 000	2 320 000	1 500	—	1 200
	500	95	5	5	—	430	1 360 000	1 820 000	1 200	—	1 100
	500	95	5	5	310	—	1 360 000	1 820 000	1 200	—	1 100
260	400	65	4	4	296	364	645 000	1 000 000	1 900	—	1 500
	480	80	5	5	—	420	1 100 000	1 580 000	1 500	—	1 200
	480	80	5	5	320	—	1 100 000	1 580 000	1 500	—	1 200
	480	130	5	5	320	—	1 710 000	2 770 000	1 300	—	1 100
	540	102	6	6	336	—	1 540 000	2 090 000	1 100	—	1 000
280	420	65	4	4	316	384	660 000	1 050 000	1 800	—	1 400
	500	80	5	5	—	440	1 140 000	1 680 000	1 300	—	1 100
	500	80	5	5	340	—	1 140 000	1 680 000	1 300	—	1 100
300	460	74	4	4	340	420	885 000	1 400 000	1 600	—	1 300
	540	85	5	5	364	—	1 400 000	2 070 000	1 200	—	1 100
320	480	74	4	4	360	440	905 000	1 470 000	1 500	—	1 200
	580	92	5	5	—	510	1 540 000	2 270 000	1 100	—	950
	580	92	5	5	390	—	1 540 000	2 270 000	1 100	—	950

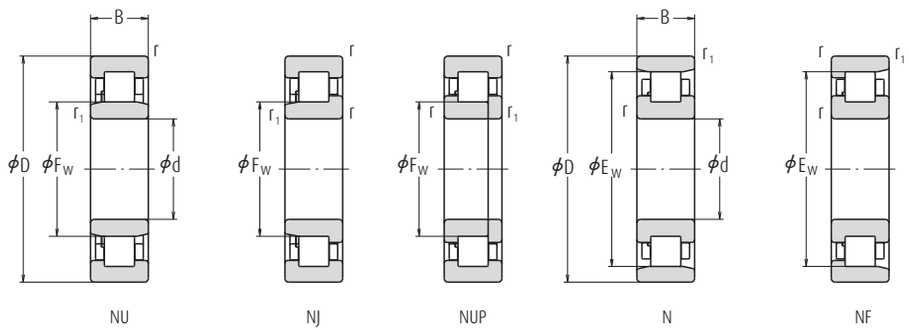
Notes
(1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

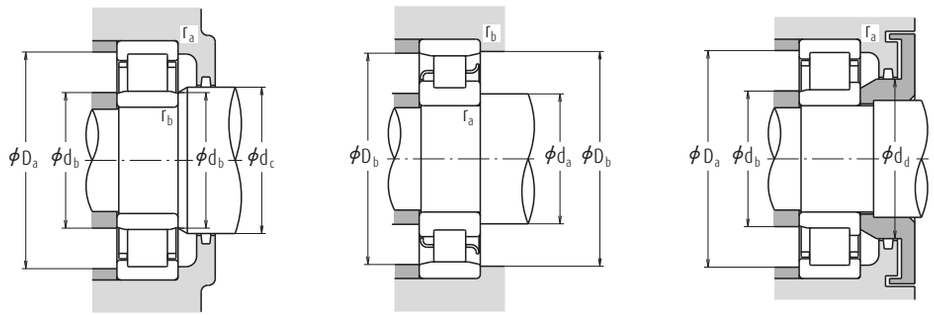
Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	d_a(3) min.	d_b min.	d_b(4) max.	d_c min.	d_d min.	D_a(3) max.	D_b max.	D_b min.	r_a max.	r_b max.	approx.
NU 1040	(M)	—	NU	NJ	—	N	NF	211	211	226	233	—	299	299	284	2	2	14
N 240	M	—	—	—	—	N	NF	216	—	—	—	—	—	344	323	3	3	26.2
NU 240 E*	M	—	NU	NJ	NUP	—	—	216	216	238	247	261	344	—	—	3	3	27.4
NU 2240 E*	M	—	NU	NJ	NUP	—	—	216	216	235	247	261	344	—	—	3	3	46.1
N 340	M	—	—	—	—	N	NF	220	—	—	—	—	—	400	367	4	4	55.3
NU 340 E	M	—	NU	NJ	NUP	—	—	220	220	252	263	283	400	—	—	4	4	57.1
NU 2340 E	M	—	NU	NJ	NUP	—	—	220	220	247	263	283	400	—	—	4	4	99.3
NU 1044	(M)	—	NU	NJ	—	N	—	233	233	247	254	—	327	327	313	2.5	2.5	18.2
N 244	M	—	—	—	—	N	NF	236	—	—	—	—	—	384	357	3	3	37
NU 244 E*	M	—	NU	NJ	NUP	—	—	236	236	264	273	289	384	—	—	3	3	37.3
NU 2244	M	—	NU	—	—	—	—	—	236	264	273	289	384	—	—	3	3	61.8
N 344	M	—	—	—	—	N	—	240	—	—	—	—	—	440	403	4	4	72.8
NU 344	M	—	NU	NJ	—	—	—	240	240	278	287	307	440	—	—	4	4	74.6
NU 1048	(M)	—	NU	NJ	—	N	—	253	253	266	275	—	347	347	333	2.5	2.5	19.5
N 248	M	—	—	—	—	N	NF	256	—	—	—	—	—	424	392	3	3	49.6
NU 248	M	—	NU	NJ	NUP	—	—	256	256	289	298	316	424	—	—	3	3	50.4
NU 2248	M	—	NU	—	—	—	—	—	256	289	298	316	424	—	—	3	3	84.9
N 348	M	—	—	—	—	N	—	260	—	—	—	—	—	480	438	4	4	92.3
NU 348	M	—	NU	NJ	—	—	—	260	260	304	313	333	480	—	—	4	4	94.6
NU 1052	(M)	—	NU	NJ	—	N	NF	276	276	292	300	—	384	384	367	3	3	29.1
N 252	M	—	—	—	—	N	—	280	—	—	—	—	—	460	428	4	4	66.2
NU 252	M	—	NU	NJ	—	—	—	280	280	314	323	343	460	—	—	4	4	67.1
NU 2252	M	—	NU	—	NUP	—	—	280	280	314	323	343	460	—	—	4	4	111
NU 352	M	—	NU	NJ	—	—	—	286	286	330	339	359	514	—	—	5	5	118
NU 1056	(M)	—	NU	NJ	NUP	N	NF	296	296	312	320	—	404	404	387	3	3	30.8
N 256	M	—	—	—	—	N	NF	300	—	—	—	—	—	480	448	4	4	69.6
NU 256	M	—	NU	NJ	—	—	—	300	300	334	344	364	480	—	—	4	4	70.7
NU 1060	(M)	—	NU	NJ	—	N	NF	316	316	336	344	—	444	444	424	3	3	43.7
NU 260	M	—	NU	NJ	—	—	—	320	320	358	368	391	520	—	—	4	4	89.2
NU 1064	(M)	—	NU	—	—	N	NF	336	336	356	365	—	464	464	444	3	3	46.1
N 264	M	—	—	—	—	N	—	340	—	—	—	—	—	560	519	4	4	110
NU 264	M	—	NU	NJ	—	—	—	340	340	384	394	420	560	—	—	4	4	112

Notes
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

Single-Row Cylindrical Roller Bearings

Bore Diameter 340 – 500 mm





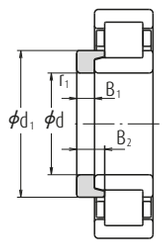
Boundary Dimensions (mm)							Basic Load Ratings (N)		Speeds (min⁻¹)		
										Limiting Speeds	
d	D	B	r min.	r1 min.	Fw	Ew	Cr	C0r	Thermal Reference Speed	Mechanical (5)	Grease
340	520	82	5	5	385	475	1 080 000	1 740 000	1 400	–	1 100
360	540	82	5	5	405	495	1 110 000	1 830 000	1 300	–	1 000
380	560	82	5	5	425	–	1 140 000	1 910 000	1 200	–	1 000
400	600	90	5	5	450	550	1 360 000	2 280 000	1 100	–	900
420	620	90	5	5	470	570	1 390 000	2 380 000	1 100	–	850
440	650	94	6	6	493	–	1 470 000	2 530 000	1 000	–	800
460	680	100	6	6	516	624	1 580 000	2 740 000	950	–	750
480	700	100	6	6	536	644	1 620 000	2 860 000	900	–	750
500	720	100	6	6	556	664	1 660 000	2 970 000	900	–	710

Notes
(1) (M) in the column of cage symbols are usually omitted from the bearing number.
(2) When L-Shaped thrust collars are used, the bearings become the NH type.

Bearing Numbers								Abutment and Fillet Dimensions (mm)									Mass (kg)
	Cage symbol (1) Standard option		NU	(2) NJ	NUP	N	NF	da(3) min.	db min.	db(4) max.	dc min.	dd min.	Da(3) max.	Db max.	Db min.	ra max.	rb max.	approx.
NU 1068	**(M)**	–	**NU**	**NJ**	–	**N**	**NF**	360	360	381	390	–	500	500	479	4	4	61.8
NU 1072	**(M)**	–	**NU**	–	–	**N**	**NF**	380	380	400	410	–	520	520	499	4	4	64.6
NU 1076	**(M)**	–	**NU**	–	–	–	–	–	400	420	430	–	540	–	–	4	4	67.5
NU 1080	**(M)**	–	**NU**	–	**NUP**	**N**	–	420	420	445	455	–	580	580	554.5	4	4	88.2
NU 1084	**(M)**	–	**NU**	–	–	**N**	–	440	440	465	475	–	600	600	574.5	4	4	91.7
NU 1088	**(M)**	–	**NU**	–	–	–	–	–	466	488	498	–	624	–	–	5	5	105
NU 1092	**(M)**	–	**NU**	–	**NUP**	**N**	–	486	486	511	521	–	654	654	628.5	5	5	123
NU 1096	**(M)**	–	**NU**	**NJ**	–	**N**	–	506	506	531	541	–	674	674	654	5	5	127
NU10/500	**(M)**	–	**NU**	–	–	**N**	–	526	526	551	558	–	694	694	674	5	5	131

Notes
(3) If axial loads are applied, increase d_a and reduce D_a from the values listed above.
(4) d_b (max.) are values for adjusting rings for NU, NJ Types.
(5) The limiting speeds (mechanical) in the bearing tables are the value for the standard cage type.

L-Shaped Thrust Collars
Bore Diameter 20 – 85 mm

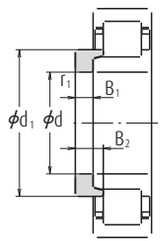


L-Shaped Thrust Collar

Boundary Dimensions (mm)					Thrust Collar Numbers	Mass (kg)
d	d_1	B_1	B_2	r_1 min.		approx.
20	30	3	6.75	0.6	**HJ 204**	0.012
	29.8	3	5.5	0.6	**HJ 204 E**	0.011
	30	3	7.5	0.6	**HJ 2204**	0.012
	29.8	3	6.5	0.6	**HJ 2204 E**	0.012
	31.7	4	7.5	0.6	**HJ 304**	0.017
	31.4	4	6.5	0.6	**HJ 304 E**	0.017
	31.8	4	8.5	0.6	**HJ 2304**	0.017
	31.4	4	7.5	0.6	HJ 2304 E	0.018
25	34.8	3	6	0.6	**HJ 205 E**	0.014
	34.8	3	6.5	0.6	**HJ 2205 E**	0.014
	38.2	4	7	1.1	**HJ 305 E**	0.025
	38.2	4	8	1.1	HJ 2305 E	0.026
	43.6	6	10.5	1.5	**HJ 405**	0.057
30	41.3	4	7	0.6	**HJ 206 E**	0.025
	41.4	4	7.5	0.6	**HJ 2206 E**	0.025
	45.1	5	8.5	1.1	**HJ 306 E**	0.042
	45.1	5	9.5	1.1	HJ 2306 E	0.043
	50.5	7	11.5	1.5	**HJ 406**	0.080
35	48.2	4	7	0.6	**HJ 207 E**	0.033
	48.2	4	8.5	0.6	**HJ 2207 E**	0.035
	51.1	6	9.5	1.1	**HJ 307 E**	0.060
	51.1	6	11	1.1	HJ 2307 E	0.062
	59	8	13	1.5	**HJ 407**	0.12
40	54.1	5	8.5	1.1	**HJ 208 E**	0.049
	54.1	5	9	1.1	**HJ 2208 E**	0.050
	57.6	7	11	1.5	**HJ 308 E**	0.088
	57.7	7	12.5	1.5	HJ 2308 E	0.091
	64.8	8	13	2	**HJ 408**	0.14
45	59.1	5	8.5	1.1	**HJ 209 E**	0.055
	59.1	5	9	1.1	**HJ 2209 E**	0.055
	64.5	7	11.5	1.5	**HJ 309 E**	0.11
	64.5	7	13	1.5	HJ 2309 E	0.113
	71.7	8	13.5	2	**HJ 409**	0.175
50	64.1	5	9	1.1	**HJ 210 E**	0.061
	64.1	5	9	1.1	**HJ 2210 E**	0.061
	71.4	8	13	2	**HJ 310 E**	0.151
	71.4	8	14.5	2	HJ 2310 E	0.155
	78.8	9	14.5	2.1	**HJ 410**	0.23

Boundary Dimensions (mm)					Thrust Collar Numbers	Mass (kg)
d	d_1	B_1	B_2	r_1 min.		approx.
55	70.9	6	9.5	1.1	**HJ 211 E**	0.087
	70.9	6	10	1.1	**HJ 2211 E**	0.088
	77.6	9	14	2	**HJ 311 E**	0.195
	77.6	9	15.5	2	HJ 2311 E	0.20
	85.2	10	16.5	2.1	**HJ 411**	0.29
60	77.7	6	10	1.5	**HJ 212 E**	0.108
	77.7	6	10	1.5	**HJ 2212 E**	0.108
	84.5	9	14.5	2.1	**HJ 312 E**	0.231
	84.5	9	16	2.1	HJ 2312 E	0.237
	91.8	10	16.5	2.1	**HJ 412**	0.34
65	84.5	6	10	1.5	HJ 213 E	0.129
	84.5	6	10.5	1.5	HJ 2213 E	0.131
	90.6	10	15.5	2.1	HJ 313 E	0.288
	90.6	10	18	2.1	HJ 2313 E	0.298
	98.5	11	18	2.1	**HJ 413**	0.42
70	89.5	7	11	1.5	HJ 214 E	0.157
	89.5	7	11.5	1.5	HJ 2214 E	0.158
	97.5	10	15.5	2.1	HJ 314 E	0.33
	97.5	10	18.5	2.1	HJ 2314 E	0.345
	110.5	12	20	3	**HJ 414**	0.605
75	94.5	7	11	1.5	HJ 215 E	0.166
	94.5	7	11.5	1.5	HJ 2215 E	0.167
	104.2	11	16.5	2.1	HJ 315 E	0.41
	104.2	11	19.5	2.1	HJ 2315 E	0.43
	116	13	21.5	3	**HJ 415**	0.71
80	101.6	8	12.5	2	HJ 216 E	0.222
	101.6	8	12.5	2	HJ 2216 E	0.222
	110.6	11	17	2.1	HJ 316 E	0.46
	110.6	11	20	2.1	HJ 2316 E	0.48
	122	13	22	3	**HJ 416**	0.78
85	107.6	8	12.5	2	HJ 217 E	0.25
	107.6	8	13	2	HJ 2217 E	0.252
	117.9	12	18.5	3	HJ 317 E	0.575
	117.9	12	22	3	HJ 2317 E	0.595
	126	14	24	4	**HJ 417**	0.88

L-Shaped Thrust Collars
Bore Diameter 90 – 320 mm



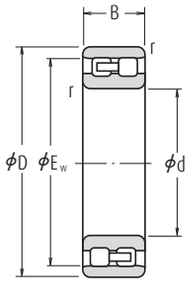
L-Shaped Thrust Collar

Boundary Dimensions (mm)					Thrust Collar Numbers	Mass (kg)
d	d_1	B_1	B_2	r_1 min.		approx.
90	114.3	9	14	2	HJ 218 E	0.32
	114.3	9	15	2	HJ 2218 E	0.325
	124.2	12	18.5	3	HJ 318 E	0.63
	124.2	12	22	3	HJ 2318 E	0.66
	137	14	24	4	**HJ 418**	1.05
95	120.6	9	14	2.1	HJ 219 E	0.355
	120.6	9	15.5	2.1	HJ 2219 E	0.365
	132.2	13	20.5	3	HJ 319 E	0.785
	132.2	13	24.5	3	HJ 2319 E	0.815
	147	15	25.5	4	**HJ 419**	1.3
100	127.5	10	15	2.1	HJ 220 E	0.44
	127.5	10	16	2.1	HJ 2220 E	0.45
	139.6	13	20.5	3	HJ 320 E	0.89
	139.6	13	23.5	3	HJ 2320 E	0.92
	153.5	16	27	4	**HJ 420**	1.5
105	145	13	20.5	3	**HJ 321 E**	0.97
	159.5	16	27	4	**HJ 421**	1.65
110	141.7	11	17	2.1	HJ 222 E	0.62
	141.7	11	19.5	2.1	HJ 2222 E	0.645
	155.8	14	22	3	HJ 322 E	1.21
	155.8	14	26.5	3	HJ 2322 E	1.27
	171	17	29.5	4	**HJ 422**	2.1
120	153.4	11	17	2.1	HJ 224 E	0.71
	153.4	11	20	2.1	HJ 2224 E	0.745
	168.6	14	22.5	3	HJ 324 E	1.41
	168.6	14	26	3	HJ 2324 E	1.46
	188	17	30.5	5	**HJ 424**	2.6
130	164.2	11	17	3	HJ 226 E	0.79
	164.2	11	21	3	HJ 2226 E	0.84
	182.3	14	23	4	HJ 326 E	1.65
	182.3	14	28	4	HJ 2326 E	1.73
	205	18	32	5	**HJ 426**	3.3
140	180	11	18	3	HJ 228 E	0.99
	180	11	23	3	HJ 2228 E	1.07
	196	15	25	4	HJ 328 E	2.04
	196	15	31	4	HJ 2328 E	2.14
	219	18	33	5	**HJ 428**	3.75

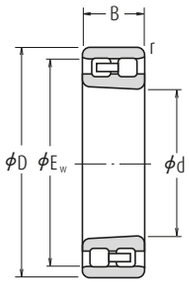
Boundary Dimensions (mm)					Thrust Collar Numbers	Mass (kg)
d	d_1	B_1	B_2	r_1 min.		approx.
150	193.7	12	19.5	3	HJ 230 E	1.26
	193.7	12	24.5	3	HJ 2230 E	1.35
	210	15	25	4	HJ 330 E	2.35
	210	15	31.5	4	HJ 2330 E	2.48
	234	20	36.5	5	**HJ 430**	4.7
160	207.3	12	20	3	HJ 232 E	1.48
	206.1	12	24.5	3	HJ 2232 E	1.55
	222	15	25	4	HJ 332 E	2.59
	222.1	15	32	4	HJ 2332 E	2.76
170	220.8	12	20	4	HJ 234 E	1.7
	219.5	12	24	4	HJ 2234 E	1.79
	238	16	33.5	4	**HJ 2334 E**	3.25
180	230.8	12	20	4	HJ 236 E	1.79
	229.5	12	24	4	HJ 2236 E	1.88
	252	17	35	4	**HJ 2336 E**	3.85
190	244.5	13	21.5	4	HJ 238 E	2.19
	243.2	13	26.5	4	HJ 2238 E	2.31
	260.6	18	36.5	5	**HJ 2338 E**	4.45
200	258.2	14	23	4	HJ 240 E	2.65
	258	14	34	4	**HJ 2240**	2.6
	256.9	14	28	4	HJ 2240 E	2.78
	280	18	30	5	**HJ 340 E**	5.0
220	286	15	27.5	4	**HJ 244**	3.55
	286	15	36.5	4	**HJ 2244**	3.55
	307	20	36	5	**HJ 344**	7.05
240	313	16	29.5	4	**HJ 248**	4.65
	313	16	38.5	4	**HJ 2248**	4.65
	334	22	39.5	5	**HJ 348**	8.2
260	340	18	33	5	**HJ 252**	6.2
	340	18	40.5	5	**HJ 2252**	6.2
	362	24	43	6	**HJ 352**	11.4
280	360	18	33	5	**HJ 256**	7.4
300	387	20	34.5	5	**HJ 260**	9.15
320	415	21	37	5	**HJ 264**	11.3

Double-Row Cylindrical Roller Bearings

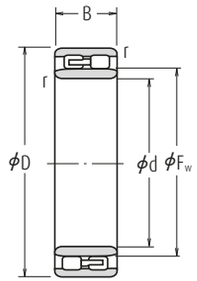
Bore Diameter 25 – 140 mm



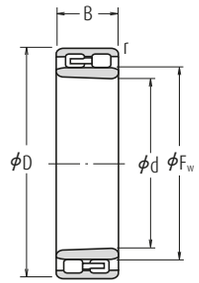
NN
Cylindrical Bore



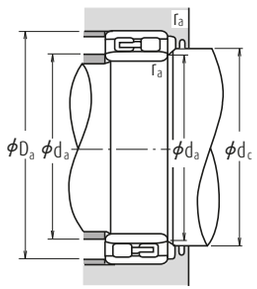
NN
Tapered Bore

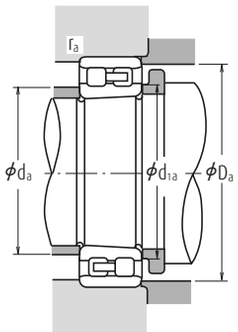


NNU
Cylindrical Bore



NNU
Tapered Bore





Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B	r min.	F_w	E_w	C_r	C_{0r}	Grease	Oil
25	47	16	0.6	–	41.3	25 800	30 000	14 000	17 000
30	55	19	1	–	48.5	31 000	37 000	12 000	14 000
35	62	20	1	–	55	39 500	50 000	10 000	12 000
40	68	21	1	–	61	43 500	55 500	9 000	11 000
45	75	23	1	–	67.5	52 000	68 500	8 500	10 000
50	80	23	1	–	72.5	53 000	72 500	7 500	9 000
55	90	26	1.1	–	81	69 500	96 500	6 700	8 000
60	95	26	1.1	–	86.1	73 500	106 000	6 300	7 500
65	100	26	1.1	–	91	77 000	116 000	6 000	7 100
70	110	30	1.1	–	100	97 500	148 000	5 600	6 700
75	115	30	1.1	–	105	96 500	149 000	5 300	6 300
80	125	34	1.1	–	113	119 000	186 000	4 800	6 000
85	130	34	1.1	–	118	125 000	201 000	4 500	5 600
90	140	37	1.5	–	127	143 000	228 000	4 300	5 000
95	145	37	1.5	–	132	150 000	246 000	4 000	5 000
100	140	40	1.1	112	–	155 000	295 000	4 000	5 000
	150	37	1.5	–	137	157 000	265 000	4 000	4 800
105	145	40	1.1	117	–	161 000	315 000	3 800	4 800
	160	41	2	–	146	198 000	320 000	3 800	4 500
110	150	40	1.1	122	–	167 000	335 000	3 600	4 500
	170	45	2	–	155	229 000	375 000	3 400	4 300
120	165	45	1.1	133.5	–	183 000	360 000	3 200	4 000
	180	46	2	–	165	239 000	405 000	3 200	3 800
130	180	50	1.5	144	–	274 000	545 000	3 000	3 800
	200	52	2	–	182	284 000	475 000	3 000	3 600
140	190	50	1.5	154	–	283 000	585 000	2 800	3 600
	210	53	2	–	192	298 000	515 000	2 800	3 400

Note (1) The suffix K represents bearings with tapered bores (taper 1 : 12).

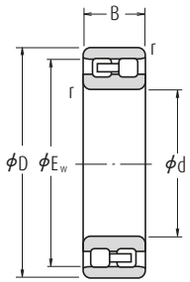
Remark Production of double-row cylindrical roller bearings is generally in the high precision classes (Class 5 or better).

Bearing Numbers		Abutment and Fillet Dimensions (mm)							Mass (kg)
		d_a(2)		d_{1a}	d_c	D_a		r_a	
Cylindrical Bore	Tapered Bore (1)	min.	max.	min.	min.	max.	min.	max.	approx.
NN 3005	**NN 3005 K**	29	–	29	–	43	42	0.6	0.127
NN 3006	**NN 3006 K**	35	–	36	–	50	50	1	0.198
NN 3007	**NN 3007 K**	40	–	41	–	57	56	1	0.258
NN 3008	**NN 3008 K**	45	–	46	–	63	62	1	0.309
NN 3009	**NN 3009 K**	50	–	51	–	70	69	1	0.407
NN 3010	**NN 3010 K**	55	–	56	–	75	74	1	0.436
NN 3011	**NN 3011 K**	61.5	–	62	–	83.5	83	1	0.647
NN 3012	**NN 3012 K**	66.5	–	67	–	88.5	88	1	0.693
NN 3013	**NN 3013 K**	71.5	–	72	–	93.5	93	1	0.741
NN 3014	**NN 3014 K**	76.5	–	77	–	103.5	102	1	1.06
NN 3015	**NN 3015 K**	81.5	–	82	–	108.5	107	1	1.11
NN 3016	**NN 3016 K**	86.5	–	87	–	118.5	115	1	1.54
NN 3017	**NN 3017 K**	91.5	–	92	–	123.5	120	1	1.63
NN 3018	**NN 3018 K**	98	–	99	–	132	129	1.5	2.09
NN 3019	**NN 3019 K**	103	–	104	–	137	134	1.5	2.19
NNU 4920	**NNU 4920 K**	106.5	111	108	115	133.5	–	1	1.9
NN 3020	**NN 3020 K**	108	–	109	–	142	139	1.5	2.28
NNU 4921	**NNU 4921 K**	111.5	116	113	120	138.5	–	1	1.99
NN 3021	**NN 3021 K**	114	–	115	–	151	148	2	2.88
NNU 4922	**NNU 4922 K**	116.5	121	118	125	143.5	–	1	2.07
NN 3022	**NN 3022 K**	119	–	121	–	161	157	2	3.71
NNU 4924	**NNU 4924 K**	126.5	133	128	137	158.5	–	1	2.85
NN 3024	**NN 3024 K**	129	–	131	–	171	167	2	4.04
NNU 4926	**NNU 4926 K**	138	143	140	148	172	–	1.5	3.85
NN 3026	**NN 3026 K**	139	–	141	–	191	185	2	5.88
NNU 4928	**NNU 4928 K**	148	153	150	158	182	–	1.5	4.08
NN 3028	**NN 3028 K**	149	–	151	–	201	195	2	6.34

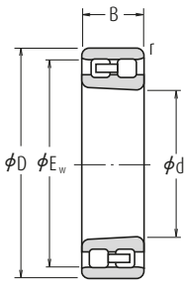
Note (2) d_a (max.) are values for adjusting rings for the NNU Type.

Double-Row Cylindrical Roller Bearings

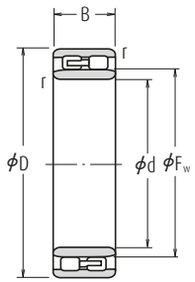
Bore Diameter 150 – 360 mm



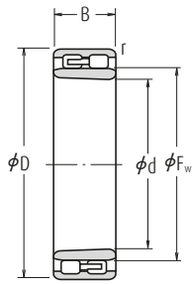
NN
Cylindrical Bore



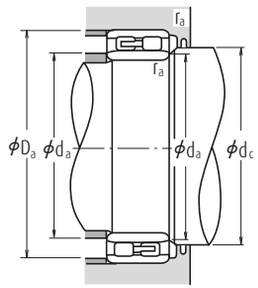
NN
Tapered Bore

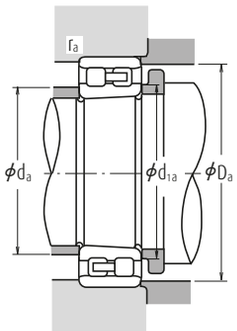


NNU
Cylindrical Bore



NNU
Tapered Bore





Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B	r min.	F_w	E_w	C_r	C_{0r}	Grease	Oil
150	210	60	2	167	–	350 000	715 000	2 600	3 200
	225	56	2.1	–	206	335 000	585 000	2 600	3 000
160	220	60	2	177	–	365 000	760 000	2 400	3 000
	240	60	2.1	–	219	375 000	660 000	2 400	2 800
170	230	60	2	187	–	375 000	805 000	2 400	2 800
	260	67	2.1	–	236	450 000	805 000	2 200	2 600
180	250	69	2	200	–	480 000	1 020 000	2 200	2 600
	280	74	2.1	–	255	565 000	995 000	2 000	2 400
190	260	69	2	211.5	–	485 000	1 060 000	2 000	2 600
	290	75	2.1	–	265	595 000	1 080 000	2 000	2 400
200	280	80	2.1	223	–	570 000	1 220 000	1 900	2 400
	310	82	2.1	–	282	655 000	1 170 000	1 800	2 200
220	300	80	2.1	243	–	600 000	1 330 000	1 700	2 200
	340	90	3	–	310	815 000	1 480 000	1 700	2 000
240	320	80	2.1	263	–	625 000	1 450 000	1 600	2 000
	360	92	3	–	330	855 000	1 600 000	1 500	1 800
260	360	100	2.1	289	–	935 000	2 100 000	1 400	1 800
	400	104	4	–	364	1 030 000	1 920 000	1 400	1 700
280	380	100	2.1	309	–	960 000	2 230 000	1 300	1 700
	420	106	4	–	384	1 080 000	2 080 000	1 300	1 500
300	420	118	3	336	–	1 230 000	2 870 000	1 200	1 500
	460	118	4	–	418	1 290 000	2 460 000	1 200	1 400
320	440	118	3	356	–	1 260 000	3 050 000	1 100	1 400
	480	121	4	–	438	1 350 000	2 670 000	1 100	1 300
340	520	133	5	–	473	1 670 000	3 300 000	1 000	1 200
360	540	134	5	–	493	1 700 000	3 450 000	950	1 200

Bearing Numbers		Abutment and Fillet Dimensions (mm)							Mass (kg)
Cylindrical Bore	Tapered Bore (1)	d_a (2) min.	d_a (2) max.	d_{1a} min.	d_c min.	D_a max.	D_a min.	r_a max.	approx.
NNU 4930	**NNU 4930 K**	159	166	162	171	201	–	2	6.39
NN 3030	**NN 3030 K**	161	–	162	–	214	209	2	7.77
NNU 4932	**NNU 4932 K**	169	176	172	182	211	–	2	6.76
NN 3032	**NN 3032 K**	171	–	172	–	229	222	2	9.41
NNU 4934	**NNU 4934 K**	179	186	182	192	221	–	2	7.12
NN 3034	**NN 3034 K**	181	–	183	–	249	239	2	12.8
NNU 4936	**NNU 4936 K**	189	199	193	205	241	–	2	10.4
NN 3036	**NN 3036 K**	191	–	193	–	269	258	2	16.8
NNU 4938	**NNU 4938 K**	199	211	203	217	251	–	2	10.9
NN 3038	**NN 3038 K**	201	–	203	–	279	268	2	17.8
NNU 4940	**NNU 4940 K**	211	222	214	228	269	–	2	15.3
NN 3040	**NN 3040 K**	211	–	214	–	299	285	2	22.7
NNU 4944	**NNU 4944 K**	231	242	234	248	289	–	2	16.6
NN 3044	**NN 3044 K**	233	–	236	–	327	313	2.5	29.6
NNU 4948	**NNU 4948 K**	251	262	254	269	309	–	2	18
NN 3048	**NN 3048 K**	253	–	256	–	347	334	2.5	32.7
NNU 4952	**NNU 4952 K**	271	288	275	295	349	–	2	31.1
NN 3052	**NN 3052 K**	276	–	278	–	384	368	3	47.7
NNU 4956	**NNU 4956 K**	291	308	295	315	369	–	2	33
NN 3056	**NN 3056 K**	296	–	298	–	404	388	3	51.1
NNU 4960	**NNU 4960 K**	313	335	318	343	407	–	2.5	51.9
NN 3060	**NN 3060 K**	316	–	319	–	444	422	3	70.7
NNU 4964	**NNU 4964 K**	333	355	338	363	427	–	2.5	54.9
NN 3064	**NN 3064 K**	336	–	340	–	464	442	3	76.6
NN 3068	**NN 3068 K**	360	–	365	–	500	477	4	102
NN 3072	**NN 3072 K**	380	–	385	–	520	497	4	106

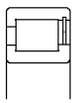
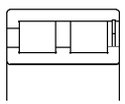
Note (1) The suffix K represents bearings with tapered bores (taper 1 : 12).

Remark Production of double-row cylindrical roller bearings is generally in the high precision classes (Class 5 or better).

Note (2) d_a (max.) are values for adjusting rings for the NNU Type.

Full-Complement Cylindrical Roller Bearings

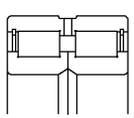
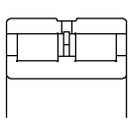
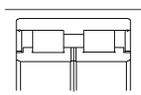
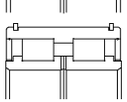
Features of Various Types

Figure	Type	Design and Features
	NCF	The outer and inner rings and rollers are non-separable since a retaining snap ring is installed at the side opposite the outer ring rib. They can sustain axial loads in only one direction.
	NNCF	NNCF is a double-row version of NCF. They can sustain heavy radial loads.

Series of Cylindrical Roller Bearings for Sheaves

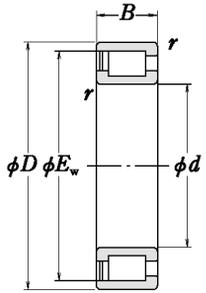
Bearing Type		Fixed-End	Free-End
Open Type	Without Snap Ring	RS-48E4 RS-49E4	RSF-48E4 RSF-49E4
Shielded Type	Without Snap Ring With Snap Ring	RS-50 RS-50NR	—

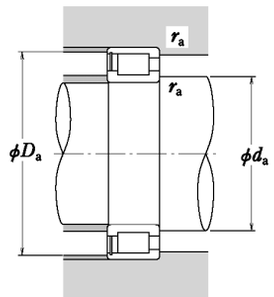
Features of Various Types

Figure	Type	Design and Features
	RS-48E4 RS-49E4	Double-row outer ring with center rib, two single-row inner rings with ribs. The outer and inner rings and rollers are non-separable since there are two retaining snap rings at the sides of the outer ring. They can suntain an axial load in either direction so they can be used as fixed-end bearings. An oil groove and holes are provided at the center of the outer ring.
	RSF-48E4 RSF-49E4	Double-row outer ring without ribs, double-row inner ring with three ribs. The outer and inner rings and rollers are non-separable since there is a retaining snap ring at the middle of the outer ring. They can be used as free-end bearings. The permissible axial movement is listed in the dimensional tables. An oil groove and holes are provided at the center of the outer ring.
 	RS-50 RS-50NR	Both sides shielded, double-row outer ring with center rib, two inner rings with ribs. They can sustain an axial load in either direction. They are prelubricated, but it is possible to replenish the grease through an oil groove and holes in parts mating with the inner rings. If there are snap rings at the outside of the outer ring, this type becomes RS-50NR. They are surface-treated for rust prevention.

Full-Complement Cylindrical Roller Bearings

NCF Type, Single-Row
Bore Diameter 100 – 260 mm





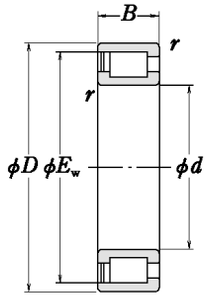
Boundary Dimensions (mm)					Basic Load Ratings (kN)		Bearing Numbers
d	D	B	r min.	E_w	C_r	C_{0r}	
100	140	24	1.1	130.5	132	209	**NCF2920V**
	150	37	1.5	139.7	209	310	**NCF3020V**
110	150	24	1.1	141	138	229	**NCF2922V**
	170	45	2	156.3	278	405	**NCF3022V**
120	165	27	1.1	154	177	305	**NCF2924V**
	180	46	2	167.58	293	440	**NCF3024V**
130	180	30	1.5	166.5	210	370	**NCF2926V**
	200	52	2	183.81	415	615	**NCF3026V**
140	190	30	1.5	179.4	227	395	**NCF2928V**
	210	53	2	197.82	435	680	**NCF3028V**
150	210	36	2	195	289	505	**NCF2930V**
	225	56	2.1	206.82	460	710	**NCF3030V**
160	220	36	2	207	310	535	**NCF2932V**
	240	60	2.1	224.8	520	810	**NCF3032V**
170	215	22	1.5	203.5	149	272	**NCF1834V**
	230	36	2	218	320	570	**NCF2934V**
	260	67	2.1	242.87	675	1 070	**NCF3034V**
180	225	22	1.5	215	154	290	**NCF1836V**
	250	42	2	231.5	390	695	**NCF2936V**
	280	74	2.1	260.3	785	1 260	**NCF3036V**
190	240	24	1.5	228.7	178	335	**NCF1838V**
	260	42	2	243.6	435	785	**NCF2938V**
	290	75	2.1	269.9	805	1 320	**NCF3038V**
200	250	24	1.5	237	182	350	**NCF1840V**
	280	48	2.1	261	530	955	**NCF2940V**
	310	82	2.1	287.8	910	1 510	**NCF3040V**
220	270	24	2	257.7	191	385	**NCF1844V**
	300	48	2.1	282	555	1 050	**NCF2944V**
	340	90	3	312.3	1 100	1 820	**NCF3044V**
240	300	28	2	283	236	470	**NCF1848V**
	320	48	2.1	303	580	1 140	**NCF2948V**
	360	92	3	335.25	1 160	1 990	**NCF3048V**
260	320	28	2	307	247	510	**NCF1852V**
	360	60	2.1	333.2	750	1 460	**NCF2952V**
	400	104	4	376.1	1 570	2 600	**NCF3052V**

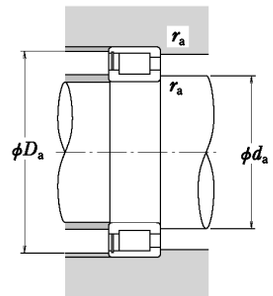
Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a min.	D_a max.	r_a max.	approx.
109	131	1	1.0
111	140	1.5	2.1
119	142	1	1.1
122	157	2	3.3
130	155	1	1.7
132	168	2	3.6
141	168	1.5	2.2
142	187	2	5.6
151	180	1.5	2.3
152	198	2	5.9
163	196	2	3.7
165	209	2	7.1
173	208	2	3.8
175	225	2	8.6
182	204	1.5	1.8
183	219	2	4.1
185	244	2	11.9
192	216	1.5	1.8
193	236	2	6.0
195	263	2	15.8
202	229	1.5	2.4
203	245	2	6.5
206	273	2	16.7
213	238	1.5	2.5
216	263	2	8.9
216	293	2	21.4
234	258	2	2.7
236	283	2	9.6
238	320	2.5	28.2
254	285	2	4.2
257	304	2	10.4
259	340	2.5	31.2
275	308	2	4.5
277	342	2	18.1
282	377	3	45.3

Remark Full-complement cylindrical roller bearings are designed for specific applications, when using them, please contact OID.

Full-Complement Cylindrical Roller Bearings

NCF Type, Single-Row
Bore Diameter 300 – 800 mm





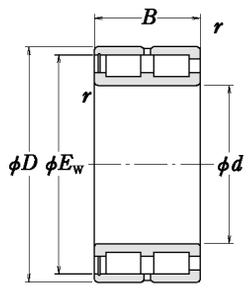
Boundary Dimensions (mm)					Basic Load Ratings (kN)		Bearing Numbers
d	D	B	r min.	E_w	C_r	C_{0r}	
300	380	38	2.5	359	445	870	**NCF1860V**
	420	72	3	389.6	1 120	2 220	**NCF2960V**
	460	118	4	341.7	1 980	3 500	**NCF3060V**
320	400	38	2.1	380	460	925	**NCF1864V**
	440	72	3	410	1 150	2 340	**NCF2964V**
	480	121	4	449.6	2 170	3 900	**NCF3064V**
340	420	38	2.1	401	475	985	**NCF1868V**
	460	72	3	430.3	1 190	2 470	**NCF2968V**
	520	133	5	485.8	2 480	4 350	**NCF3068V**
360	440	38	2.5	422	490	1 040	**NCF1872V**
	480	72	3	450.7	1 220	2 610	**NCF2972V**
	540	134	5	503.6	2 550	4 600	**NCF3072V**
380	480	46	2.5	452.8	575	1 230	**NCF1876V**
	520	82	4	486.7	1 600	3 350	**NCF2976V**
	560	135	5	521.4	2 610	4 800	**NCF3076V**
400	500	46	2.5	475.7	590	1 300	**NCF1880V**
	540	82	4	511	1 650	3 550	**NCF2980V**
	600	148	5	558.7	3 050	5 750	**NCF3080AV**
420	520	46	2.1	491	600	1 340	**NCF1884V**
	560	82	4	523.2	1 680	3 650	**NCF2984V**
	620	150	5	577.7	3 000	5 650	**NCF3084V**
440	540	46	2.1	514	615	1 410	**NCF1888V**
	600	95	4	562	2 070	4 300	**NCF2988V**
460	580	56	3	552.7	920	1 950	**NCF1892V**
	620	95	4	576.5	2 100	4 450	**NCF2992V**
480	600	56	3	573	940	2 040	**NCF1896V**
	650	100	5	615	2 380	5 100	**NCF2996V**
500	620	56	3	593.5	960	2 120	**NCF18/500V**
	670	100	5	630.2	2 420	5 250	**NCF29/500V**
530	650	56	3	624	990	2 240	**NCF18/530V**
560	680	56	3	654.7	1 020	2 360	**NCF18/560V**
	820	195	6	770	5 600	11 300	**NCF30/560V**
600	730	60	3	695.5	1 140	2 680	**NCF18/600V**
	800	118	5	752	3 050	7 300	**NCF29/600V**
630	780	69	4	742	1 470	3 400	**NCF18/630V**
670	820	69	4	780	1 520	3 550	**NCF18/670V**
710	870	74	4	832.5	1 650	3 900	**NCF18/710V**
750	920	78	4	882.3	1 930	4 600	**NCF18/750V**
800	980	82	5	936	2 110	5 100	**NCF18/800V**

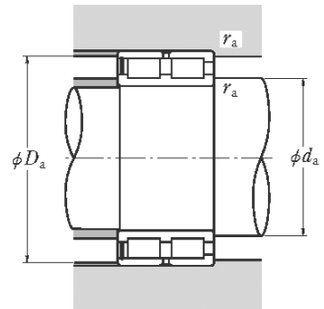
Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a min.	D_a max.	r_a max.	approx.
319	360	2	9.7
320	398	2.5	30.7
323	435	3	67.6
338	381	2	10.3
340	418	2.5	33
343	454	3	73
359	402	2	10.7
361	438	2.5	34.1
368	490	4	97
380	423	2	11.5
381	457	2.5	36
388	509	4	102
400	458	2	18.6
404	493	3	52
408	529	4	108
421	478	2	19.5
425	513	3	53.4
429	568	4	139
440	498	2	20.5
445	533	3	55.7
449	588	4	147
461	518	2	21.3
466	572	3	78.2
483	555	2.5	32.5
486	591	3	81.2
503	575	2.5	33.8
510	617	4	95.1
524	594	2.5	35
531	637	4	98.4
554	625	2.5	36.9
585	655	2.5	39.3
598	778	5	332.5
626	702	2.5	48.9
633	764	4	164.9
659	748	3	68.8
700	787	3	72.7
741	836	3	87.6
786	883	4	103.3
832	950	4	123.1

Remark Full-complement cylindrical roller bearings are designed for specific applications, when using them, please contact OID.

Full-Complement Cylindrical Roller Bearings

NNCF Type, Double-Row
Bore Diameter 100 – 260 mm





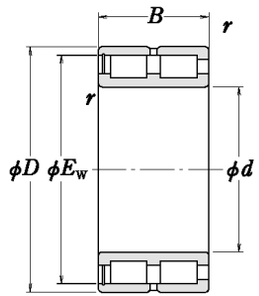
Boundary Dimensions (mm)					Basic Load Ratings (kN)		Bearing Numbers
d	D	B	r min.	E_w	C_r	C_{0r}	
100	140	40	1.1	129.8	194	400	**NNCF4920V**
	150	67	1.5	139.7	360	615	**NNCF5020V**
110	150	40	1.1	138.4	202	430	**NNCF4922V**
	170	80	2	156.3	490	840	**NNCF5022V**
120	165	45	1.1	153.8	226	480	**NNCF4924V**
	180	80	2	167.58	500	885	**NNCF5024V**
130	180	50	1.5	165.7	262	555	**NNCF4926V**
	200	95	2	183.81	710	1 230	**NNCF5026V**
140	190	50	1.5	176.2	272	595	**NNCF4928V**
	210	95	2	197.82	750	1 360	**NNCF5028V**
150	210	60	2	191.6	390	865	**NNCF4930V**
	225	100	2.1	206.82	785	1 420	**NNCF5030V**
160	220	60	2	204.1	410	930	**NNCF4932V**
	240	109	2.1	224.8	895	1 620	**NNCF5032V**
170	230	60	2	212.4	415	975	**NNCF4934V**
	260	122	2.1	242.87	1 160	2 140	**NNCF5034V**
180	250	69	2	230.5	550	1 230	**NNCF4936V**
	280	136	2.1	260.3	1 340	2 510	**NNCF5036V**
190	260	69	2	240.7	565	1 290	**NNCF4938V**
	290	136	2.1	269.9	1 380	2 630	**NNCF5038V**
200	250	50	1.5	235.9	320	825	**NNCF4840V**
	280	80	2.1	259.5	665	1 500	**NNCF4940V**
	310	150	2.1	287.75	1 560	3 000	**NNCF5040V**
220	270	50	1.5	256.9	340	905	**NNCF4844V**
	300	80	2.1	277	695	1 620	**NNCF4944V**
	340	160	3	312.3	1 890	3 650	**NNCF5044V**
240	300	60	2	282.6	495	1 340	**NNCF4848V**
	320	80	2.1	300	725	1 770	**NNCF4948V**
	360	160	3	335.25	1 990	4 000	**NNCF5048V**
260	320	60	2	303.6	515	1 450	**NNCF4852V**
	360	100	2.1	331.5	1 050	2 530	**NNCF4952V**
	400	190	4	376.1	2 690	5 200	**NNCF5052V**

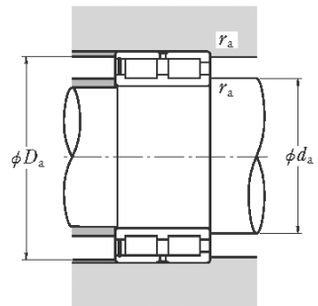
Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a min.	D_a max.	r_a max.	approx.
109	130	1	2.0
111	140	1.5	3.8
119	140	1	2.1
122	157	2	6.1
130	155	1	2.9
132	168	2	6.5
141	168	1.5	3.9
142	187	2	10.3
151	178	1.5	4.2
152	198	2	10.8
163	196	2	6.6
165	209	2	13
173	206	2	7.0
175	225	2	15.8
183	216	2	7.3
185	244	2	22.1
193	236	2	10.7
195	263	2	29.4
203	245	2	11.1
206	273	2	30.8
213	237	1.5	5.9
216	263	2	15.7
216	293	2	39.7
233	257	1.5	6.4
236	283	2	17
238	320	2.5	50.7
254	285	2	10.3
257	302	2	18.4
259	340	2.5	54.3
275	304	2	11
277	342	2	32
282	377	2	82.7

Remark Full-complement cylindrical roller bearings are designed for specific applications, when using them, please contact OID.

Full-Complement Cylindrical Roller Bearings

NNCF Type, Double-Row
Bore Diameter 280 – 500 mm





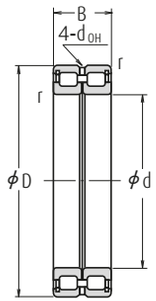
Boundary Dimensions (mm)					Basic Load Ratings (kN)		Bearing Numbers
d	D	B	r min.	E_W	C_r	C_{0r}	
280	350	69	2	332.5	685	1 860	**NNCF4856V**
	380	100	2.1	352.5	1 090	2 720	**NNCF4956V**
	420	190	4	390.5	2 770	5 450	**NNCF5056V**
300	380	80	2.1	357.2	805	2 160	**NNCF4860V**
	420	118	3	386.5	1 580	3 800	**NNCF4960V**
	460	218	4	431.7	3 400	7 000	**NNCF5060V**
320	400	80	2.1	380.2	835	2 310	**NNCF4864V**
	440	118	3	404.5	1 620	4 000	**NNCF4964V**
	480	218	4	446.9	3 500	7 350	**NNCF5064V**
340	420	80	2.1	397.4	855	2 430	**NNCF4868V**
	460	118	3	431	1 690	4 300	**NNCF4968V**
	520	243	5	485.8	4 250	8 750	**NNCF5068V**
360	440	80	2.1	420.4	885	2 580	**NNCF4872V**
	480	118	3	449	1 730	4 500	**NNCF4972V**
	540	243	5	503.6	4 350	9 150	**NNCF5072V**
380	480	100	2.1	450.6	1 260	3 600	**NNCF4876V**
	520	140	4	482.5	2 180	5 650	**NNCF4976V**
	560	243	5	521.4	4 500	9 600	**NNCF5076V**
400	500	100	2.1	471.7	1 290	3 750	**NNCF4880V**
	540	140	4	503	2 240	5 900	**NNCF4980V**
	600	272	5	558.7	5 050	10 900	**NNCF5080V**
420	520	100	2.1	492	1 320	3 950	**NNCF4884V**
	560	140	4	523	2 290	6 200	**NNCF4984V**
	620	272	5	577.7	5 150	11 300	**NNCF5084V**
440	540	100	2.1	513	1 350	4 150	**NNCF4888V**
	600	160	4	560.5	3 000	7 850	**NNCF4988V**
460	580	118	3	549.2	1 730	5 150	**NNCF4892V**
	620	160	4	573	3 050	8 050	**NNCF4992V**
480	600	118	3	565.8	1 760	5 300	**NNCF4896V**
	650	170	5	603	3 350	8 900	**NNCF4996V**
500	620	118	3	590.7	1 810	5 600	**NNCF48/500V**
	670	170	5	629	3 400	9 350	**NNCF49/500V**

Abutment and Fillet Dimensions (mm)			Mass (kg)
d_a min.	D_a max.	r_a max.	approx.
295	334	2	16
297	361	2	34
302	395	3	87.7
318	361	2	23
320	398	2.5	52
323	435	3	125
338	381	2	24.3
340	418	2.5	55
343	454	3	131
359	400	2	25.6
361	438	2.5	58
368	490	4	177
379	421	2	27
381	457	2.5	61
388	509	4	186
399	459	2	45.5
404	493	3	90.5
408	529	4	194
420	479	2	47.5
425	513	3	94.5
429	568	4	256
440	498	2	49.5
445	533	3	98.5
449	588	4	267
461	518	2	51.5
466	572	3	136
483	555	2.5	77.5
486	591	3	142
503	575	2.5	80.5
510	617	4	167
524	594	2.5	83.5
531	637	4	173

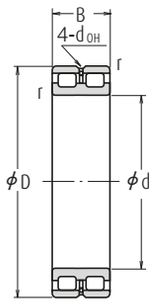
Remark Full-complement cylindrical roller bearings are designed for specific applications, when using them, please contact OID.

Full-Complement Cylindrical Roller Bearings for Sheaves

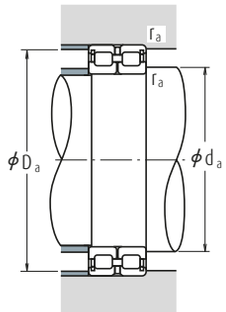
RS-48 · RS-49 Types
RSF-48 · RSF-49 Types
Bore Diameter 50 – 220 mm



Fixed-End Bearing
RS



Free-End Bearing
RSF



Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B	r min.	C_r	C_{0r}	Grease	Oil
50	72	22	0.6	48 000	75 500	2 000	4 000
60	85	25	1	68 500	118 000	1 600	3 200
65	90	25	1	70 500	125 000	1 600	3 200
70	100	30	1	102 000	168 000	1 400	2 800
80	110	30	1	109 000	191 000	1 300	2 600
90	125	35	1.1	147 000	268 000	1 100	2 200
100	125	25	1	87 500	189 000	1 100	2 200
	140	40	1.1	194 000	400 000	1 000	2 000
105	130	25	1	89 000	196 000	1 000	2 000
	145	40	1.1	199 000	420 000	950	1 900
110	140	30	1	114 000	260 000	950	1 900
	150	40	1.1	202 000	430 000	900	1 800
120	150	30	1	119 000	283 000	900	1 800
	165	45	1.1	226 000	480 000	800	1 600
130	165	35	1.1	162 000	390 000	800	1 600
	180	50	1.5	262 000	555 000	750	1 500
140	175	35	1.1	167 000	415 000	710	1 400
	190	50	1.5	272 000	595 000	670	1 400
150	190	40	1.1	235 000	575 000	670	1 300
	210	60	2	390 000	865 000	630	1 300
160	200	40	1.1	243 000	615 000	600	1 200
	220	60	2	410 000	930 000	600	1 200
170	215	45	1.1	265 000	650 000	600	1 200
	230	60	2	415 000	975 000	600	1 200
180	225	45	1.1	272 000	685 000	560	1 100
	250	69	2	495 000	1 130 000	530	1 100
190	240	50	1.5	315 000	785 000	530	1 100
	260	69	2	510 000	1 180 000	500	1 000
200	250	50	1.5	320 000	825 000	500	1 000
	280	80	2.1	665 000	1 500 000	480	950
220	270	50	1.5	340 000	905 000	450	900
	300	80	2.1	695 000	1 620 000	430	850

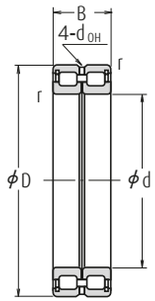
Remark Cylindrical roller bearings for sheaves are designed for specific applications, when using them, please contact OID.

Bearing Numbers (1)		Dimensions (mm)		Abutment and Fillet Dimensions (mm)			Mass (kg)
Fixed-End Bearing	Free-End Bearing	d_{OH}(2)	Axial Disp.(3)	d_a min.	D_a max.	r_a max.	approx.
RS-4910E4	**RSF-4910E4**	2.5	1.5	54	68	0.6	0.30
RS-4912E4	**RSF-4912E4**	2.5	1.5	65	80	1	0.46
RS-4913E4	**RSF-4913E4**	2.5	2	70	85	1	0.50
RS-4914E4	**RSF-4914E4**	3	2	75	95	1	0.79
RS-4916E4	**RSF-4916E4**	3	2	85	105	1	0.89
RS-4918E4	**RSF-4918E4**	3	2	96.5	118.5	1	1.35
RS-4820E4	**RSF-4820E4**	2.5	1.5	105	120	1	0.74
RS-4920E4	**RSF-4920E4**	3	2	106.5	133.5	1	1.97
RS-4821E4	**RSF-4821E4**	2.5	1.5	110	125	1	0.77
RS-4921E4	**RSF-4921E4**	3	2	111.5	138.5	1	2.05
RS-4822E4	**RSF-4822E4**	3	2	115	135	1	1.09
RS-4922E4	**RSF-4922E4**	3	2	116.5	143.5	1	2.15
RS-4824E4	**RSF-4824E4**	3	2	125	145	1	1.28
RS-4924E4	**RSF-4924E4**	4	3	126.5	158.5	1	2.95
RS-4826E4	**RSF-4826E4**	3	2	136.5	158.5	1	1.9
RS-4926E4	**RSF-4926E4**	5	3.5	138	172	1.5	3.95
RS-4828E4	**RSF-4828E4**	3	2	146.5	168.5	1	2.03
RS-4928E4	**RSF-4928E4**	5	3.5	148	182	1.5	4.25
RS-4830E4	**RSF-4830E4**	3	2	156.5	183.5	1	2.85
RS-4930E4	**RSF-4930E4**	5	3.5	159	201	2	6.65
RS-4832E4	**RSF-4832E4**	3	2	166.5	193.5	1	3.05
RS-4932E4	**RSF-4932E4**	5	3.5	169	211	2	7.0
RS-4834E4	**RSF-4834E4**	4	3	176.5	208.5	1	4.1
RS-4934E4	**RSF-4934E4**	4	3.5	179	221	2	7.35
RS-4836E4	**RSF-4836E4**	4	3	186.5	218.5	1	4.3
RS-4936E4	**RSF-4936E4**	6	4.5	189	241	2	10.7
RS-4838E4	**RSF-4838E4**	5	3.5	198	232	1.5	5.65
RS-4938E4	**RSF-4938E4**	6	4.5	199	251	2	11.1
RS-4840E4	**RSF-4840E4**	5	3.5	208	242	1.5	5.95
RS-4940E4	**RSF-4940E4**	7	5	211	269	2	15.7
RS-4844E4	**RSF-4844E4**	5	3.5	228	262	1.5	6.45
RS-4944E4	**RSF-4944E4**	7	5	231	289	2	17

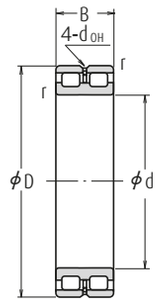
Notes
(1) The suffix E4 indicates that the outer ring is provided with oil holes and oil groove.
(2) d_{OH} represents the oil hole diameter in the outer ring.
(3) Permissible axial displacement for free-end bearings.

Full-Complement Cylindrical Roller Bearings for Sheaves

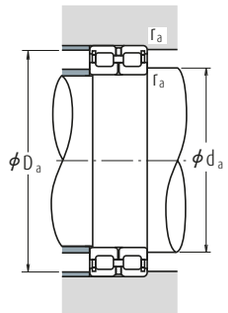
RS-48 · RS-49 Types
RSF-48 · RSF-49 Types
Bore Diameter 240 – 560 mm



Fixed-End Bearing
RS



Free-End Bearing
RSF



Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B	r min.	C_r	C_{0r}	Grease	Oil
240	300	60	2	495 000	1 340 000	430	850
	320	80	2.1	725 000	1 770 000	400	800
260	320	60	2	515 000	1 450 000	380	750
	360	100	2.1	1 050 000	2 530 000	360	710
280	350	69	2	610 000	1 690 000	340	710
	380	100	2.1	1 090 000	2 720 000	340	670
300	380	80	2.1	805 000	2 160 000	320	630
	420	118	3	1 460 000	3 400 000	300	600
320	400	80	2.1	835 000	2 310 000	300	600
	440	118	3	1 500 000	3 600 000	280	560
340	420	80	2.1	855 000	2 430 000	280	560
	460	118	3	1 560 000	3 900 000	260	530
360	440	80	2.1	885 000	2 580 000	260	530
	480	118	3	1 600 000	4 050 000	260	500
380	480	100	2.1	1 260 000	3 600 000	240	500
	520	140	4	2 040 000	5 200 000	240	450
400	500	100	2.1	1 290 000	3 750 000	240	480
	540	140	4	2 100 000	5 450 000	220	450
420	520	100	2.1	1 320 000	3 950 000	220	450
	560	140	4	2 150 000	5 700 000	200	430
440	540	100	2.1	1 350 000	4 150 000	200	430
	600	160	4	2 840 000	7 350 000	190	380
460	580	118	3	1 730 000	5 150 000	190	380
	620	160	4	2 870 000	7 500 000	190	380
480	600	118	3	1 760 000	5 300 000	190	380
	650	170	5	3 200 000	8 500 000	180	360
500	620	118	3	1 810 000	5 600 000	180	360
	670	170	5	3 300 000	8 900 000	170	340
530	710	180	5	3 400 000	9 200 000	160	320
560	750	190	5	3 800 000	10 100 000	150	300

Remark Cylindrical roller bearings for sheaves are designed for specific applications, when using them, please contact OID.

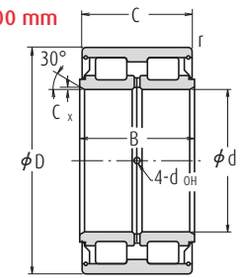
Bearing Numbers (1)		Dimensions (mm)		Abutment and Fillet Dimensions (mm)			Mass (kg)
Fixed-End Bearing	Free-End Bearing	d_{OH}(2)	Axial Disp.(3)	d_a min.	D_a max.	r_a max.	approx.
RS-4848E4	**RSF-4848E4**	5	3.5	249	291	2	10.3
RS-4948E4	**RSF-4948E4**	7	5	251	309	2	18.4
RS-4852E4	**RSF-4852E4**	5	3.5	269	311	2	11
RS-4952E4	**RSF-4952E4**	8	6	271	349	2	32
RS-4856E4	**RSF-4856E4**	6	4.5	289	341	2	16
RS-4956E4	**RSF-4956E4**	8	6	291	369	2	34
RS-4860E4	**RSF-4860E4**	6	5	311	369	2	23
RS-4960E4	**RSF-4960E4**	9	7	313	407	2.5	52
RS-4864E4	**RSF-4864E4**	6	5	331	389	2	24.3
RS-4964E4	**RSF-4964E4**	9	7	333	427	2.5	55
RS-4868E4	**RSF-4868E4**	6	5	351	409	2	25.6
RS-4968E4	**RSF-4968E4**	9	7	353	447	2.5	58
RS-4872E4	**RSF-4872E4**	6	5	371	429	2	27
RS-4972E4	**RSF-4972E4**	9	7	373	467	2.5	61
RS-4876E4	**RSF-4876E4**	8	6	391	469	2	45.5
RS-4976E4	**RSF-4976E4**	11	8	396	504	3	90.5
RS-4880E4	**RSF-4880E4**	8	6	411	489	2	47.5
RS-4980E4	**RSF-4980E4**	11	8	416	524	3	94.5
RS-4884E4	**RSF-4884E4**	8	6	431	509	2	49.5
RS-4984E4	**RSF-4984E4**	11	8	436	544	3	98.5
RS-4888E4	**RSF-4888E4**	8	6	451	529	2	51.5
RS-4988E4	**RSF-4988E4**	11	8	456	584	3	136
RS-4892E4	**RSF-4892E4**	9	7	473	567	2.5	77.5
RS-4992E4	**RSF-4992E4**	11	8	476	604	3	142
RS-4896E4	**RSF-4896E4**	9	7	493	587	2.5	80.5
RS-4996E4	**RSF-4996E4**	12	9	500	630	4	167
RS-48/500E4	**RSF-48/500E4**	9	7	513	607	2.5	83.5
RS-49/500E4	**RSF-49/500E4**	12	9	520	650	4	173
RS-49/530E4	**RSF-49/530E4**	12	11	550	690	4	206
RS-49/560E4	**RSF-49/560E4**	12	11	580	730	4	231

Notes
(1) The suffix E4 indicates that the outer ring is provided with oil holes and oil groove.
(2) d_{OH} represents the oil hole diameter in the outer ring.
(3) Permissible axial displacement for free-end bearings.

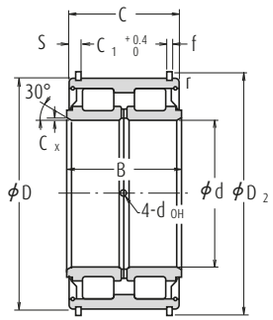
Full-Complement Cylindrical Roller Bearings for Sheaves

RS-50 Type (Prelubricated)

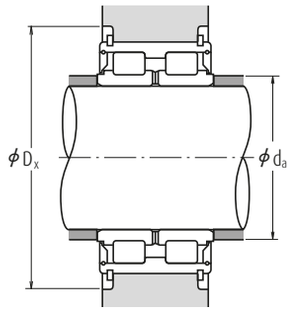
Bore Diameter 40 – 400 mm



Without Locating Rings



With Locating Rings



Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)
d	D	B	C	C_x(1) min.	r min.	C_r	C_{0r}	Grease
40	68	38	37	0.4	0.6	79 500	116 000	2 400
45	75	40	39	0.4	0.6	95 500	144 000	2 200
50	80	40	39	0.4	0.6	100 000	158 000	2 000
55	90	46	45	0.6	0.6	118 000	193 000	1 800
60	95	46	45	0.6	0.6	123 000	208 000	1 700
65	100	46	45	0.6	0.6	128 000	224 000	1 600
70	110	54	53	0.6	0.6	171 000	285 000	1 400
75	115	54	53	0.6	0.6	179 000	305 000	1 400
80	125	60	59	0.6	0.6	251 000	430 000	1 200
85	130	60	59	0.6	0.6	256 000	445 000	1 200
90	140	67	66	1	0.6	305 000	540 000	1 100
95	145	67	66	1	0.6	310 000	565 000	1 100
100	150	67	66	1	0.6	320 000	585 000	1 000
110	170	80	79	1.1	1	385 000	695 000	900
120	180	80	79	1.1	1	400 000	750 000	850
130	200	95	94	1.1	1	535 000	1 000 000	750
140	210	95	94	1.1	1	550 000	1 040 000	710
150	225	100	99	1.3	1	620 000	1 210 000	670
160	240	109	108	1.3	1.1	695 000	1 370 000	630
170	260	122	121	1.3	1.1	860 000	1 680 000	600
180	280	136	135	1.3	1.1	980 000	1 910 000	530
190	290	136	135	1.3	1.1	1 120 000	2 230 000	500
200	310	150	149	1.3	1.1	1 310 000	2 650 000	480
220	340	160	159	1.5	1.1	1 510 000	3 100 000	430
240	360	160	159	1.5	1.1	1 570 000	3 350 000	400
260	400	190	189	1.5	1.5	2 130 000	4 500 000	360
280	420	190	189	1.5	1.5	2 170 000	4 700 000	340
300	460	218	216	1.5	1.5	2 670 000	5 850 000	300
320	480	218	216	1.5	1.5	2 720 000	6 100 000	300
340	520	243	241	2	2	3 350 000	7 550 000	260
360	540	243	241	2	2	3 450 000	7 850 000	260
380	560	243	241	2	2	3 550 000	8 400 000	240
400	600	272	270	2	2	4 250 000	9 950 000	220

Note (1) Chamfer dimension of inner ring in radial direction.

Remarks
1. Good quality grease is prepacked in bearings.
2. Grease can be supplied through oil holes in the inner rings.

Bearing Numbers		Locating Ring Dimensions (mm)				Oil Holes (mm)	Abutment and Fillet Dimensions (mm)		Mass (kg)
Without Locating Rings	With Locating Rings	C_1	S	D_2	f	d_{OH}	d_a min.	D_X min.	approx.
RS-5008	**RS-5008NR**	28	4.5	71.8	2	2.5	43.5	77.5	0.56
RS-5009	**RS-5009NR**	30	4.5	78.8	2	2.5	48.5	84.5	0.70
RS-5010	**RS-5010NR**	30	4.5	83.8	2	2.5	53.5	89.5	0.76
RS-5011	**RS-5011NR**	34	5.5	94.8	2.5	3	60	101	1.17
RS-5012	**RS-5012NR**	34	5.5	99.8	2.5	3	65	106	1.25
RS-5013	**RS-5013NR**	34	5.5	104.8	2.5	3	70	111	1.32
RS-5014	**RS-5014NR**	42	5.5	114.5	2.5	3	75	121	1.87
RS-5015	**RS-5015NR**	42	5.5	119.5	2.5	3	80	126	2.0
RS-5016	**RS-5016NR**	48	5.5	129.5	2.5	3	85	136	2.65
RS-5017	**RS-5017NR**	48	5.5	134.5	2.5	3	90	141	2.75
RS-5018	**RS-5018NR**	54	6	145.4	2.5	4	96	153.5	3.75
RS-5019	**RS-5019NR**	54	6	150.4	2.5	4	101	158.5	3.95
RS-5020	**RS-5020NR**	54	6	155.4	2.5	4	106	163.5	4.05
RS-5022	**RS-5022NR**	65	7	175.4	2.5	5	116.5	183.5	6.1
RS-5024	**RS-5024NR**	65	7	188	3	5	126.5	197	7.0
RS-5026	**RS-5026NR**	77	8.5	207	3	5	136.5	217	10.6
RS-5028	**RS-5028NR**	77	8.5	217	3	5	146.5	227	11.3
RS-5030	**RS-5030NR**	81	9	232	3	6	157	242	13.7
RS-5032	**RS-5032NR**	89	9.5	247	3	6	167	257	16.8
RS-5034	**RS-5034NR**	99	11	270	4	6	177	285	22.2
RS-5036	**RS-5036NR**	110	12.5	294	5	6	187	318	30
RS-5038	**RS-5038NR**	110	12.5	304	5	6	197	328	32
RS-5040	**RS-5040NR**	120	14.5	324	5	6	207	352	41
RS-5044	**RS-5044NR**	130	14.5	356	6	7	228.5	382	53
RS-5048	**RS-5048NR**	130	14.5	376	6	7	248.5	402	57
RS-5052	**RS-5052NR**	154	17.5	416	7	8	270	444	86
RS-5056	**RS-5056NR**	154	17.5	436	7	8	290	472	92
RS-5060	**RS-5060NR**	178	19	476	7	8	310	512	130
RS-5064	–	–	–	–	–	8	330	–	135
RS-5068	–	–	–	–	–	10	352	–	185
RS-5072	–	–	–	–	–	10	372	–	192
RS-5076	–	–	–	–	–	10	392	–	196
RS-5080	–	–	–	–	–	10	412	–	280

Remarks
3. Cylindrical roller bearings for sheaves are designed for specific applications, when using them, please contact OID.
4. For shield with outside diameter larger than 180 mm, the above figure is different actual shape. For detail drawing, please contact OID.

OID MECHANICAL PARTS BEARINGS



Spherical Roller Bearings

Spherical Roller Bearings

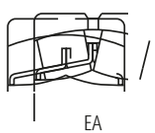
DESIGNS, TYPES AND FEATURES

High load capacity designs EA, C, CD and CA, shown in the figures are available. Types EA, C and CD have pressed steel cages, and type CA has machined brass cage. The EA type bearings listed here are classified as OIDHPS bearings, which offer particularly high load-carrying capacity, high limiting speeds and are highly functional under high-temperature operating conditions of up to 200°C.

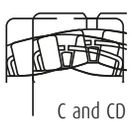
An oil groove and holes are provided in the outer ring to supply lubricant and the bearing numbers are suffixed with E4.

To use bearings with oil grooves and holes, it is recommended to provide an oil groove in the housing bore, since the depth of the groove in the bearing is limited. The number and dimensions of the oil groove and hole.

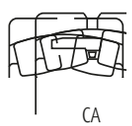
If bearings with a hole for a locking pin to prevent outer ring rotation are required, please inform OID.



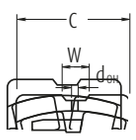
EA



C and CD



CA



Dimensions of Oil Grooves and Holes

Units : mm

Nominal Outer Ring Width C		Oil Groove Width W	Hole Diameter d_{OH}
over	incl.		
18	30	5	2.5
30	40	6	3
40	50	7	4
50	65	8	5
65	80	10	6
80	100	12	8
100	120	15	10
120	160	20	12
160	200	25	15
200	250	30	20
250	315	35	20
315	400	40	25
400	—	40	25

Number of Oil Holes

Nominal Outer Ring Diameter D (mm)		Number of Holes
over	incl.	
—	180	4
180	250	6
250	315	6
315	400	6
400	500	6
500	630	8
630	800	8
800	1000	8
1000	1250	8
1250	1600	8
1600	2000	8

TECHNICAL DATA

Free Space of Spherical Roller Bearings

The spherical roller bearing has self-aligning ability and capacity to carry substantially large radial and bi-axial loads. For these reasons, this bearing is used widely in many applications. Application problems include a long span, which causes substantial deflection of the shaft, as well as installation errors and axial misalignment. These bearings may be exposed to a large radial or shock loads.

Grease lubrication is common for spherical roller bearings because it simplifies the seal construction around the housing and makes maintenance and inspection easier. In this case, it is important to select a grease appropriate to the operating conditions and to fill the bearing with the proper amount of grease considering the housing internal space.

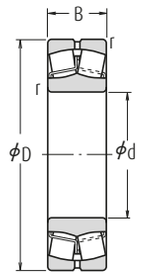
As a reference, the bearing free space for conventional types plus four other types (EA, C, CD, and CA). Under general operating conditions, it is appropriate to pack a large quantity of grease into the bearing internal space and to pack grease into the housing internal space other than the bearing itself, to the extent of 1/3 to 2/3 that of the free space.

Remarks

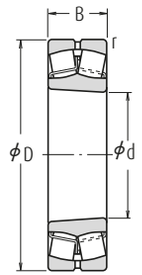
22211 to 22226, 22311 to 22324 are EA Type Bearings.
23122 to 23148, 23218 to 23244 are C Type Bearings.
23022 to 23036, 22228 to 22236 are CD Type Bearings.
23038 to 23060, 23152 to 23160, 22238 to 22260,
23248 to 23260, and 22326 to 22360 are CA Type Bearing.

Spherical Roller Bearings

Bore Diameter 20 – 55 mm



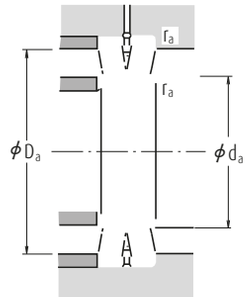
Cylindrical Bore
EA



Tapered Bore
EA



Without an Oil Groove or Holes
CD



Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min^{-1})		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
20	52	15	1.1	29 300	26 900	10 000	—	6 300	**21304CDE4**
25	52	18	1.0	37 500	37 000	10 000	—	7 100	**22205CE4**
	62	17	1.1	43 000	40 500	9 000	—	5 300	**21305CDE4**
30	62	20	1.0	50 000	50 000	8 500	—	6 000	**22206CE4**
	72	19	1.1	55 000	54 000	7 500	—	4 500	**21306CDE4**
35	72	23	1.1	69 000	71 000	7 500	—	5 300	**22207CE4**
	80	21	1.5	71 500	76 000	7 100	—	4 000	**21307CDE4**
40	80	23	1.1	113 000	99 000	7 100	12 000	6 700	**22208EAE4***
	90	23	1.5	118 000	111 000	6 700	11 000	6 000	**21308EAE4***
	90	33	1.5	170 000	153 000	5 600	9 000	5 300	**22308EAE4***
45	85	23	1.1	118 000	111 000	6 300	11 000	6 000	**22209EAE4***
	100	25	1.5	149 000	144 000	6 000	9 000	5 000	**21309EAE4***
	100	36	1.5	207 000	195 000	5 000	8 000	4 500	**22309EAE4***
50	90	23	1.1	124 000	119 000	6 000	9 500	5 600	**22210EAE4***
	110	27	2.0	178 000	174 000	5 300	8 000	4 500	**21310EAE4***
	110	40	2.0	246 000	234 000	4 800	7 100	4 300	**22310EAE4***
55	100	25	1.5	149 000	144 000	5 300	9 000	5 300	**22211EAE4***
	120	29	2.0	178 000	174 000	5 300	8 000	4 500	**21311EAE4***
	120	43	2.0	292 000	292 000	4 300	6 000	3 800	**22311EAE4***

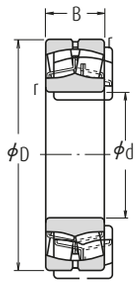
Note (1) The suffix K represents bearings with tapered bores (taper 1 : 12).

Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
21304CDKE4	27	28	45	42	1.0	0.31	3.2	2.1	2.1	0.17
22205CKE4	31	31	46	45	1.0	0.35	2.9	1.9	1.9	0.17
21305CDKE4	32	34	55	51	1.0	0.29	3.4	2.3	2.3	0.26
22206CKE4	36	37	56	54	1.0	0.33	3.1	2.1	2.0	0.27
21306CDKE4	37	40	65	59	1.0	0.28	3.6	2.4	2.3	0.39
22207CKE4	42	43	65	63	1.0	0.32	3.1	2.1	2.0	0.42
21307CDKE4	44	47	71	67	1.5	0.28	3.6	2.4	2.4	0.53
22208EAKE4*	47	49	73	70	1.0	0.28	3.6	2.4	2.4	0.50
21308EAKE4*	49	54	81	75	1.5	0.25	3.9	2.7	2.6	0.73
22308EAKE4*	49	52	81	77	1.5	0.35	2.8	1.9	1.9	0.98
22209EAKE4*	52	54	78	75	1.0	0.25	3.9	2.7	2.6	0.55
21309EAKE4*	54	65	91	89	1.5	0.23	4.3	2.9	2.8	0.96
22309EAKE4*	54	59	91	86	1.5	0.34	2.9	2.0	1.9	1.34
22210EAKE4*	57	60	83	81	1.0	0.24	4.3	2.9	2.8	0.61
21310EAKE4*	60	72	100	98	2.0	0.23	4.4	3.0	2.9	1.21
22310EAKE4*	60	64	100	93	2.0	0.35	2.8	1.9	1.9	1.78
22211EAKE4*	64	65	91	89	1.5	0.23	4.3	2.9	2.8	0.81
21311EAKE4*	65	72	110	98	2.0	0.23	4.4	3.0	2.9	1.58
22311EAKE4*	65	73	110	103	2.0	0.34	2.9	2.0	1.9	2.3

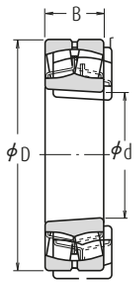
Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

Spherical Roller Bearings

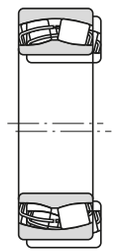
Bore Diameter 60 – 90 mm

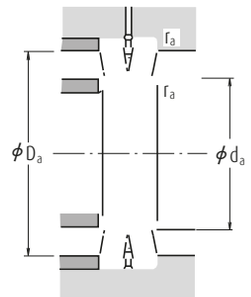


Cylindrical Bore
EA



Tapered Bore
EA


Without an Oil Groove or Holes
CD



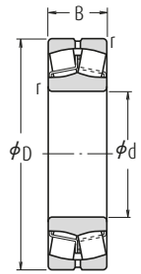
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
60	95	26.0	1.1	98 500	141 000	4 800	—	3 600	**23012CE4**
	110	28.0	1.5	178 000	174 000	5 300	8 000	4 800	**22212EAE4***
	130	31.0	2.1	238 000	244 000	4 800	6 700	3 800	**21312EAE4***
	130	46.0	2.1	340 000	340 000	4 000	5 600	3 600	**22312EAE4***
65	120	31.0	1.5	221 000	230 000	4 800	7 500	4 300	**22213EAE4***
	140	33.0	2.1	264 000	275 000	4 500	6 000	3 600	**21313EAE4***
	140	48.0	2.1	375 000	380 000	3 800	5 000	3 200	**22313EAE4***
70	125	31.0	1.5	225 000	232 000	4 500	7 100	4 000	**22214EAE4***
	150	35.0	2.1	310 000	325 000	4 300	5 600	3 200	**21314EAE4***
	150	51.0	2.1	425 000	435 000	3 600	4 800	3 000	**22314EAE4***
75	130	31.0	1.5	238 000	244 000	4 300	6 700	4 000	**22215EAE4***
	160	37.0	2.1	310 000	325 000	4 000	5 600	3 200	**21315EAE4***
	160	55.0	2.1	485 000	505 000	3 400	4 300	2 800	**22315EAE4***
80	140	33.0	2.0	264 000	275 000	4 000	6 000	3 600	**22216EAE4***
	170	39.0	2.1	355 000	375 000	3 800	4 800	3 000	**21316EAE4***
	170	58.0	2.1	540 000	565 000	3 200	3 800	2 600	**22316EAE4***
85	150	36.0	2.0	310 000	325 000	4 000	5 600	3 400	**22217EAE4***
	180	41.0	3.0	360 000	395 000	3 800	5 000	3 000	**21317EAE4***
	180	60.0	3.0	600 000	630 000	3 000	3 400	2 400	**22317EAE4***
90	160	40.0	2.0	360 000	395 000	3 800	5 000	3 200	**22218EAE4***
	160	52.4	2.0	340 000	490 000	2 800	—	1 800	**23218CE4**
	190	43.0	3.0	415 000	450 000	3 600	4 500	2 800	**21318EAE4***
	190	64.0	3.0	665 000	705 000	2 800	3 000	2 400	**22318EAE4***

Note (1) The suffix K represents bearings with tapered bores (taper 1 : 12).

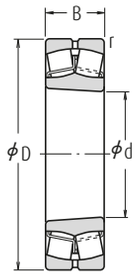
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23012CKE4	67	68	88	85	1	0.26	3.9	2.6	2.5	0.68
22212EAKE4*	69	72	101	98	1.5	0.23	4.4	3.0	2.9	1.1
21312EAKE4*	72	87	118	117	2	0.22	4.5	3.0	3.0	1.98
22312EAKE4*	72	79	118	111	2	0.34	3.0	2.0	1.9	2.89
22213EAKE4*	74	80	111	107	1.5	0.24	4.2	2.8	2.7	1.51
21313EAKE4*	77	94	128	126	2	0.22	4.6	3.1	3.0	2.45
22313EAKE4*	77	84	128	119	2	0.33	3.0	2.0	2.0	3.52
22214EAKE4*	79	84	116	111	1.5	0.23	4.3	2.9	2.8	1.58
21314EAKE4*	82	101	138	135	2	0.22	4.6	3.1	3.0	3.0
22314EAKE4*	82	91	138	129	2	0.33	3.0	2.0	2.0	4.28
22215EAKE4*	84	87	121	117	1.5	0.22	4.5	3.0	3.0	1.64
21315EAKE4*	87	101	148	134	2	0.22	4.6	3.1	3.0	3.64
22315EAKE4*	87	97	148	137	2	0.33	3.0	2.0	2.0	5.26
22216EAKE4*	90	94	130	126	2	0.22	4.6	3.1	3.0	2.01
21316EAKE4*	92	109	158	146	2	0.23	4.4	3.0	2.9	4.32
22316EAKE4*	92	103	158	145	2	0.33	3.0	2.0	2.0	6.23
22217EAKE4*	95	101	140	135	2	0.22	4.6	3.1	3.0	2.54
21317EAKE4*	99	108	166	142	2.5	0.24	4.3	2.9	2.8	5.2
22317EAKE4*	99	110	166	155	2.5	0.33	3.1	2.1	2.0	7.23
22218EAKE4*	100	108	150	142	2	0.24	4.3	2.9	2.8	3.3
23218CKE4	100	105	150	138	2	0.32	3.2	2.1	2.1	4.51
21318EAKE4*	104	115	176	152	2.5	0.24	4.3	2.9	2.8	6.1
22318EAKE4*	104	115	176	163	2.5	0.33	3.1	2.1	2.0	8.56

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

Bore Diameter 95 – 110 mm



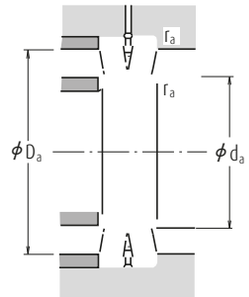
Cylindrical Bore
EA



Tapered Bore
EA



Without an Oil Groove or Holes
CD



Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
95	170	43.0	2.1	415 000	450 000	3 800	4 500	3 000	**22219EAE4***
	170	55.6	2.1	370 000	525 000	2 600	—	1 700	**23219CAME4**
	200	45.0	3.0	430 000	435 000	3 600	—	1 500	**21319CAME4***
	200	45.0	3.0	430 000	435 000	3 600	—	1 500	**21319CE4**
	200	67.0	3.0	735 000	780 000	2 600	3 000	2 200	**22319EAE4***
100	150	37.0	1.5	212 000	335 000	3 200	—	2 200	**23020CDE4**
	150	50.0	1.5	276 000	470 000	2 800	—	1 800	**24020CE4**
	165	52.0	2.0	345 000	530 000	2 800	—	1 700	**23120CE4**
	165	65.0	2.0	345 000	535 000	2 400	—	1 700	**24120CAME4**
	180	46.0	2.1	455 000	490 000	3 600	4 300	2 800	**22220EAE4***
	180	60.3	2.1	525 000	605 000	2 800	3 800	1 600	**23220CAME4***
	180	60.3	2.1	525 000	605 000	2 800	—	1 600	**23220CE4**
	215	47.0	3.0	495 000	485 000	3 400	4 500	1 400	**21320CAME4***
	215	47.0	3.0	495 000	485 000	3 400	—	1 400	**21320CE4**
	215	73.0	3.0	750 000	785 000	2 600	3 400	1 700	**22320CAME4(2)***
110	170	45.0	2.0	293 000	465 000	3 200	—	2 000	**23022CDE4**
	170	60.0	2.0	380 000	645 000	2 800	—	1 600	**24022CE4**
	180	56.0	2.0	480 000	630 000	3 200	4 000	1 600	**23122CAME4***
	180	56.0	2.0	480 000	630 000	3 200	—	1 600	**23122CE4**
	180	69.0	2.0	575 000	750 000	2 200	3 400	1 600	**24122CAME4***
	180	69.0	2.0	575 000	750 000	2 200	—	1 600	**24122CE4**
	200	53.0	2.1	605 000	645 000	3 400	3 400	2 600	**22222EAE4***
	200	69.8	2.1	645 000	760 000	2 600	3 400	1 500	**23222CAME4***
	200	69.8	2.1	645 000	760 000	2 200	—	1 500	**23222CE4**
	240	50.0	3.0	450 000	545 000	3 000	—	1 300	**21322CAE4**
	240	50.0	3.0	565 000	545 000	3 000	4 300	1 300	**21322CAME4***
	240	80.0	3.0	1 030 000	1 120 000	2 200	—	1 500	**22322EAE4***
	240	80.0	3.0	925 000	980 000	2 200	3 000	1 500	**22322CAME4(2)***

Notes

(1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

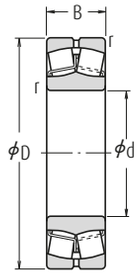
(2) EA is also available. Load rating of EA is around 10% higher than CAM's, please consult OID.

Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
22219EAKE4*	107	115	158	152	2	0.24	4.3	2.9	2.8	4.04
23219CAME4	107	—	158	146	2	0.32	3.1	2.1	2.0	5.33
21319CAME4*	109	127	186	172	2.5	0.22	4.6	3.1	3.0	6.92
21319CKE4	109	127	186	172	2.5	0.22	4.6	3.1	3.0	6.92
22319EAE4*	109	121	186	172	2.5	0.33	3.1	2.1	2.0	9.91
23020CDKE4	109	112	141	136	1.5	0.22	4.6	3.1	3.0	2.31
24020CK30E4	109	110	141	132	1.5	0.30	3.4	2.3	2.2	3.08
23120CKE4	110	113	155	144	2	0.30	3.4	2.3	2.2	4.38
24120CAMK30E4	110	—	155	143	2	0.35	2.9	1.9	1.9	5.42
22220EAKE4*	112	119	168	160	2	0.24	4.3	2.9	2.8	4.84
23220CAMKE4*	112	118	168	155	2	0.32	3.2	2.1	2.1	6.6
23220CKE4	112	118	168	155	2	0.32	3.2	2.1	2.1	6.6
21320CAMKE4*	114	133	201	184	2.5	0.21	4.7	3.2	3.1	8.46
21320CKE4	114	133	201	184	2.5	0.21	4.7	3.2	3.1	8.46
22320CAMKE4(2)*	114	130	201	184	2.5	0.33	3.0	2.0	2.0	12.7
23022CDKE4	120	124	160	153	2	0.24	4.2	2.8	2.8	3.76
24022CK30E4	120	121	160	148	2	0.32	3.1	2.1	2.1	4.96
23122CAMKE4*	120	127	170	158	2	0.28	3.5	2.4	2.3	5.7
23122CKE4	120	127	170	158	2	0.29	3.6	2.4	2.3	5.8
24122CAMK30E4*	120	123	170	154	2	0.36	2.8	1.9	1.8	6.84
24122CK30E4	120	123	170	154	2	0.37	2.9	1.9	1.8	6.85
22222EAKE4*	122	129	188	178	2	0.25	4.0	2.7	2.6	6.99
23222CAMKE4*	122	130	188	170	2	0.34	3.0	2.0	1.9	9.54
23222CKE4	122	130	188	170	2	0.35	3.1	2.1	1.10	9.55
21322CAKE4	124	—	226	206	2.5	0.22	4.6	3.1	3.0	11.2
21322CAMKE4*	124	—	226	206	2.5	0.22	4.6	3.1	3.0	11.2
22322EAKE4*	124	145	226	206	2.5	0.33	3.1	2.1	2.0	17.6
22322CAMKE4 (2)*	124	145	226	206	2.5	0.33	3.1	2.1	2.0	17.6

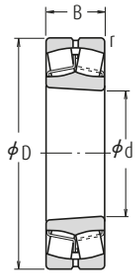
Remarks

1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of Shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

Bore Diameter 120 – 130 mm



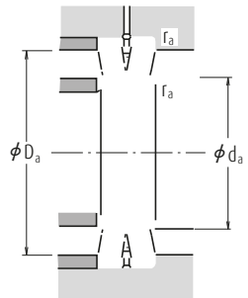
Cylindrical Bore
EA



Tapered Bore
EA



Without an Oil Groove or Holes
CD



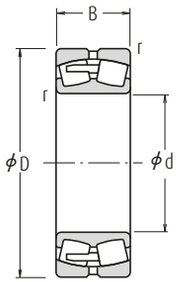
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
120	180	46.0	2.0	395 000	525 000	3 200	4 500	1 800	23024CAME4 *
	180	46.0	2.0	395 000	525 000	3 200	—	1 800	23024CDE4
	180	60.0	2.0	480 000	680 000	2 600	3 600	1 500	24024CAME4 *
	180	60.0	2.0	480 000	680 000	2 600	—	1 500	24024CE4
	200	62.0	2.0	580 000	720 000	2 800	3 600	1 400	23124CAME4 *
	200	62.0	2.0	580 000	720 000	2 800	—	1 400	23124CE4
	200	80.0	2.0	695 000	905 000	2 000	3 000	1 400	24124CAME4 *
	200	80.0	2.0	695 000	905 000	2 000	—	1 400	24124CE4
	215	58.0	2.1	685 000	765 000	3 200	3 000	2 400	22224EAE4 *
	215	76.0	2.1	790 000	970 000	2 200	3 000	1 300	23224CAME4 *
	215	76.0	2.1	790 000	970 000	2 000	—	1 300	23224CE4
	260	86.0	3.0	1 190 000	1 320 000	—	—	—	22324EAE4*
	260	86.0	3.0	1 060 000	1 120 000	1 900	2 800	1 400	22324CAME4(2) *
130	200	52.0	2.0	500 000	655 000	3 000	3 800	1 700	23026CAME4 *
	200	52.0	2.0	500 000	655 000	3 000	—	1 700	23026CDE4
	200	69.0	2.0	620 000	865 000	2 200	3 200	1 400	24026CAME4 *
	200	69.0	2.0	620 000	865 000	2 200	—	1 400	24026CE4
	210	64.0	2.0	630 000	825 000	2 200	3 400	1 300	23126CAME4 *
	210	64.0	2.0	630 000	825 000	2 600	—	1 300	23126CE4
	210	80.0	2.0	735 000	1 010 000	1 800	2 800	1 300	24126CAME4 *
	210	80.0	2.0	735 000	1 010 000	1 800	—	1 300	24126CE4
	230	64.0	3.0	820 000	940 000	2 800	2 600	2 200	22226EAE4 *
	230	80.0	3.0	875 000	1 080 000	2 000	2 800	1 200	23226CAME4 *
	230	80.0	3.0	875 000	1 080 000	2 000	—	1 200	23226CE4
	280	93.0	4.0	1 240 000	1 350 000	1 800	2 600	1 300	22326CAME4 *
	280	93.0	4.0	1 240 000	1 350 000	1 800	—	1 300	22326CE4

Notes
(1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).
(2) EA is also available. Load rating of EA is around 10% higher than CAM's, please consult OID.

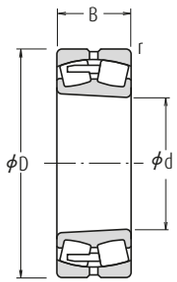
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23024CAMKE4 *	130	134	170	163	2	0.22	4.5	3.0	2.9	4.11
23024CDKE4	130	134	170	163	2	0.22	4.5	3.0	2.9	4.11
24024CAMK30E4 *	130	131	170	158	2	0.32	3.2	2.1	2.1	5.33
24024CK30E4	130	131	170	158	2	0.32	3.2	2.1	2.1	5.33
23124CAMKE4 *	130	138	190	175	2	0.29	3.5	2.4	2.3	7.85
23124CKE4	130	138	190	175	2	0.29	3.5	2.4	2.3	7.85
24124CAMK30E4 *	130	136	190	171	2	0.37	2.7	1.8	1.8	10
24124CK30E4	130	136	190	171	2	0.37	2.7	1.8	1.8	10
22224EAKE4 *	132	142	203	190	2	0.25	3.9	2.7	2.6	8.8
23224CAMKE4 *	132	140	203	182	2	0.34	2.9	2.0	1.9	12.1
23224CKE4	132	140	203	182	2	0.34	2.9	2.0	1.9	12.1
22324EAKE4*	134	157	246	222	2.5	0.32	3.1	2.1	2.0	22.2
22324CAMKE4(2) *	134	157	246	222	2.5	0.32	3.1	2.1	2.0	22.2
23026CAMKE4 *	140	147	190	180	2	0.23	4.3	2.9	2.8	5.98
23026CDKE4	140	147	190	180	2	0.23	4.3	2.9	2.8	5.98
24026CAMK30E4 *	140	143	190	175	2	0.31	3.2	2.2	2.1	7.84
24026CK30E4	140	143	190	175	2	0.31	3.2	2.2	2.1	7.84
23126CAMKE4 *	140	149	200	184	2	0.28	3.6	2.4	2.4	8.69
23126CKE4	140	149	200	184	2	0.28	3.6	2.4	2.4	8.69
24126CAMK30E4 *	140	146	200	180	2	0.35	2.9	1.9	1.9	10.7
24126CK30E4	140	146	200	180	2	0.35	2.9	1.9	1.9	10.7
22226EAKE4 *	144	152	216	204	2.5	0.26	3.8	2.6	2.5	11
23226CAMKE4 *	144	150	216	196	2.5	0.34	2.9	2.0	1.9	14.3
23226CKE4	144	150	216	196	2.5	0.34	2.9	2.0	1.9	14.3
22326CAMKE4 *	148	166	262	236	3	0.34	2.9	2.0	1.9	28.1
22326CKE4	148	166	262	236	3	0.34	2.9	2.0	1.9	28.1

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of Shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

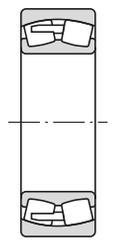
Bore Diameter 140 – 150 mm



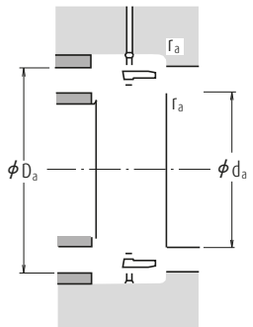
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove or Holes
CA



140	210	53	2	525 000	715 000	2 800	3 800	1 600	**23028CAME4** *
	210	53	2	420 000	715 000	2 800	—	1 600	**23028CDE4**
	210	69	2	635 000	905 000	2 200	3 000	1 300	**24028CAME4** *
	210	69	2	525 000	945 000	2 200	—	1 300	**24028CE4**
	225	68	2.1	725 000	945 000	2 400	3 200	1 200	**23128CAME4** *
	225	68	2.1	580 000	945 000	2 400	—	1 200	**23128CE4**
	225	85	2.1	835 000	1 160 000	1 600	2 600	1 200	**24128CAME4** *
	225	85	2.1	670 000	1 160 000	1 600	—	1 200	**24128CE4**
	250	68	3	835 000	945 000	2 600	3 200	1 400	**22228CAME4** *
	250	68	3	645 000	930 000	2 600	—	1 400	**22228CDE4**
	250	88	3	1 040 000	1 300 000	1 800	2 600	1 100	**23228CAME4** *
	250	88	3	835 000	1 300 000	1 800	—	1 100	**23228CE4**
	300	102	4	1 450 000	1 590 000	1 700	2 400	1 200	**22328CAME4** *
	300	102	4	1 160 000	1 590 000	1 700	—	1 200	**22328CE4**
150	225	56	2.1	590 000	815 000	2 600	3 600	1 400	**23030CAME4** *
	225	56	2.1	470 000	815 000	2 600	—	1 400	**23030CDE4**
	225	75	2.1	740 000	1 090 000	1 900	3 000	1 200	**24030CAME4** *
	225	75	2.1	590 000	1 090 000	1 900	—	1 200	**24030CE4**
	250	80	2.1	905 000	1 180 000	2 200	2 800	1 100	**23130CAME4** *
	250	80	2.1	725 000	1 180 000	2 200	—	1 100	**23130CE4**
	250	100	2.1	1 070 000	1 450 000	1 400	2 400	1 100	**24130CAME4** *
	250	100	2.1	890 000	1 530 000	1 400	—	1 100	**24130CE4**
	270	73	3	955 000	1 120 000	2 400	3 000	1 300	**22230CAME4** *
	270	73	3	765 000	1 120 000	2 400	—	1 300	**22230CDE4**
	270	96	3	1 220 000	1 560 000	1 700	2 400	1 100	**23230CAME4** *
	270	96	3	975 000	1 560 000	1 700	—	1 100	**23230CE4**
	320	108	4	1 530 000	1 690 000	1 600	2 200	1 100	**22330CAME4** *

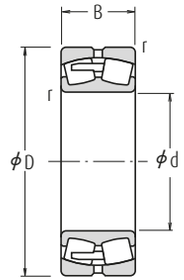
Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23028CAMKE4 *	150	157	200	190	2	0.22	4.5	3.0	2.9	6.49
23028CDKE4	150	157	200	190	2	0.22	4.5	3.0	2.9	6.49
24028CAMK30E4 *	150	154	200	186	2	0.29	3.4	2.3	2.2	8.37
24028CK30E4	150	154	200	186	2	0.29	3.4	2.3	2.2	8.37
23128CAMKE4 *	152	158	213	198	2	0.28	3.6	2.4	2.3	10.5
23128CKE4	152	158	213	198	2	0.28	3.6	2.4	2.3	10.5
24128CAMK30E4 *	152	156	213	193	2	0.35	2.9	1.9	1.9	13
24128CK30E4	152	156	213	193	2	0.35	2.9	1.9	1.9	13
22228CAMKE4 *	154	167	236	219	2.5	0.25	4.0	2.7	2.6	14.5
22228CDKE4	154	167	236	219	2.5	0.25	4.0	2.7	2.6	14.5
23228CAMKE4 *	154	163	236	213	2.5	0.35	2.9	1.9	1.9	18.8
23228CKE4	154	163	236	213	2.5	0.35	2.9	1.9	1.9	18.8
22328CAMKE4 *	158	177	282	253	3	0.35	2.9	1.9	1.9	35.4
22328CKE4	158	177	282	253	3	0.35	2.9	1.9	1.9	35.4
23030CAMKE4 *	162	168	213	203	2	0.22	4.6	3.1	3.0	7.9
23030CDKE4	162	168	213	203	2	0.22	4.6	3.1	3.0	7.9
24030CAMK30E4 *	162	165	213	198	2	0.30	3.4	2.3	2.2	10.5
24030CK30E4	162	165	213	198	2	0.30	3.4	2.3	2.2	10.5
23130CAMKE4 *	162	174	238	218	2	0.30	3.4	2.3	2.2	15.8
23130CKE4	162	174	238	218	2	0.30	3.4	2.3	2.2	15.8
24130CAMK30E4 *	162	169	238	212	2	0.38	2.6	1.8	1.7	19.8
24130CK30E4	162	169	238	212	2	0.38	2.6	1.8	1.7	19.8
22230CAMKE4 *	164	179	256	236	2.5	0.26	3.9	2.6	2.5	18.4
22230CDKE4	164	179	256	236	2.5	0.26	3.9	2.6	2.5	18.4
23230CAMKE4 *	164	176	256	230	2.5	0.35	2.9	1.9	1.9	24.2
23230CKE4	164	176	256	230	2.5	0.35	2.9	1.9	1.9	24.2
22330CAMKE4 *	164	—	302	270	3	0.35	2.9	1.9	1.9	41.5

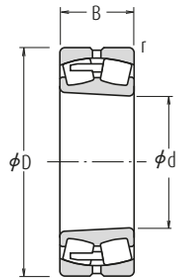
Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

Spherical Roller Bearings

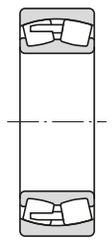
Bore Diameter 160 – 170 mm



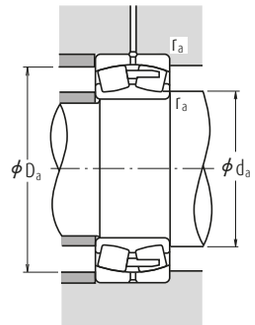
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA



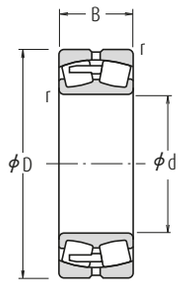
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min^{-1})		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
160	220	45	2	450 000	675 000	3 000	3 200	1 400	**23932CAME4** *
	220	45	2	360 000	675 000	3 000	—	1 400	**23932CAE4**
	240	60	2.1	675 000	955 000	2 400	3 200	1 300	**23032CAME4** *
	240	60	2.1	540 000	955 000	2 400	—	1 300	**23032CDE4**
	240	80	2.1	845 000	1 260 000	1 800	2 800	1 100	**24032CAME4** *
	240	80	2.1	680 000	1 260 000	1 800	—	1 100	**24032CE4**
	270	86	2.1	1 070 000	1 400 000	2 000	2 600	1 000	**23132CAME4** *
	270	86	2.1	855 000	1 400 000	2 000	—	1 000	**23132CE4**
	270	109	2.1	1 240 000	1 670 000	1 300	2 200	1 000	**24132CAME4** *
	270	109	2.1	1 040 000	1 760 000	1 300	—	1 000	**24132CE4**
	290	80	3	1 140 000	1 320 000	2 200	2 800	1 200	**22232CAME4** *
	290	80	3	910 000	1 320 000	2 200	—	1 200	**22232CDE4**
	290	104	3	1 370 000	1 770 000	1 500	2 200	1 000	**23232CAME4** *
	290	104	3	1 100 000	1 770 000	1 500	—	1 000	**23232CE4**
	340	114	4	1 700 000	1 900 000	1 400	2 200	1 100	**22332CAME4** *
170	230	45	2	450 000	680 000	3 000	3 600	1 400	**23934CAME4** *
	260	67	2.1	795 000	1 090 000	2 200	3 000	1 200	**23034CAME4** *
	260	67	2.1	640 000	1 090 000	2 200	—	1 200	**23034CDE4**
	260	90	2.1	1 030 000	1 520 000	1 600	2 400	1 000	**24034CAME4** *
	260	90	2.1	825 000	1 520 000	1 600	—	1 000	**24034CE4**
	280	88	2.1	1 180 000	1 570 000	1 800	2 600	1 000	**23134CAME4** *
	280	88	2.1	940 000	1 570 000	1 800	—	1 000	**23134CE4**
	280	109	2.1	1 280 000	1 770 000	1 200	2 200	1 000	**24134CAME4** *
	280	109	2.1	1 080 000	1 860 000	1 200	—	1 000	**24134CE4**
	310	86	4	1 240 000	1 500 000	2 000	2 600	1 100	**22234CAME4** *
	310	86	4	990 000	1 500 000	2 000	—	1 100	**22234CDE4**
	310	110	4	1 500 000	1 910 000	1 400	2 200	900	**23234CAME4** *
	310	110	4	1 200 000	1 910 000	1 400	—	900	**23234CE4**
	360	120	4	1 970 000	2 110 000	1 300	2 000	1 000	**22334CAME4** *

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

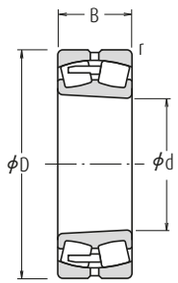
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23932CAMKE4 *	170	—	210	203	2	0.18	5.6	3.8	3.7	4.97
23932CAKE4	170	—	210	203	2	0.18	5.6	3.8	3.7	4.97
23032CAMKE4 *	172	179	228	216	2	0.22	4.5	3.0	2.9	9.66
23032CDKE4	172	179	228	216	2	0.22	4.5	3.0	2.9	9.66
24032CAMK30E4 *	172	177	228	212	2	0.30	3.4	2.3	2.2	12.7
24032CK30E4	172	177	228	212	2	0.30	3.4	2.3	2.2	12.7
23132CAMKE4 *	172	185	258	234	2	0.30	3.4	2.3	2.2	20.3
23132CKE4	172	185	258	234	2	0.30	3.4	2.3	2.2	20.3
24132CAMK30E4 *	172	179	258	229	2	0.39	2.6	1.7	1.7	25.4
24132CK30E4	172	179	258	229	2	0.39	2.6	1.7	1.7	25.4
22232CAMKE4 *	174	190	276	255	2.5	0.26	3.8	2.6	2.5	23.1
22232CDKE4	174	190	276	255	2.5	0.26	3.8	2.6	2.5	23.1
23232CAMKE4 *	174	189	276	245	2.5	0.34	2.9	2.0	1.9	30.5
23232CKE4	174	189	276	245	2.5	0.34	2.9	2.0	1.9	30.5
22332CAMKE4 *	178	—	322	287	3	0.35	2.9	1.9	1.9	49.3
23934CAMKE4 *	180	—	220	213	2	0.17	5.8	3.9	3.8	5.38
23034CAMKE4 *	182	191	248	233	2	0.23	4.3	2.9	2.8	13
23034CDKE4	182	191	248	233	2	0.23	4.3	2.9	2.8	13
24034CAMK30E4 *	182	188	248	228	2	0.31	3.2	2.2	2.1	17.3
24034CK30E4	182	188	248	228	2	0.31	3.2	2.2	2.1	17.3
23134CAMKE4 *	182	194	268	245	2	0.29	3.5	2.3	2.3	21.8
23134CKE4	182	194	268	245	2	0.29	3.5	2.3	2.3	21.8
24134CAMK30E4 *	182	190	268	239	2	0.37	2.7	1.8	1.8	26.6
24134CK30E4	182	190	268	239	2	0.37	2.7	1.8	1.8	26.6
22234CAMKE4 *	188	206	292	270	3	0.26	3.8	2.6	2.5	28.8
22234CDKE4	188	206	292	270	3	0.26	3.8	2.6	2.5	28.8
23234CAMKE4 *	188	201	292	261	3	0.34	2.9	2.0	1.9	36.4
23234CKE4	188	201	292	261	3	0.34	2.9	2.0	1.9	36.4
22334CAMKE4 *	188	—	342	304	3	0.35	2.9	1.9	1.9	57.9

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

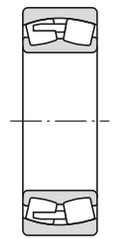
Bore Diameter 180 – 190 mm



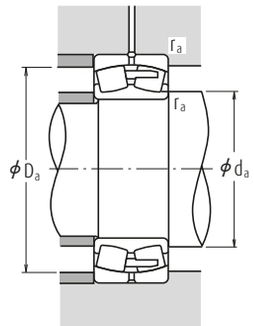
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA



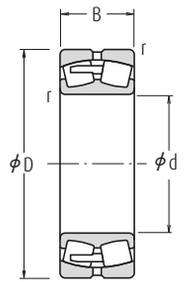
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
180	250	52	2	470 000	890 000	2 600	—	1 200	**23936CAE4**
	250	52	2	590 000	890 000	2 600	3 000	1 200	**23936CAME4** *
	280	74	2.1	935 000	1 270 000	2 000	2 800	1 200	**23036CAME4** *
	280	74	2.1	750 000	1 270 000	2 000	—	1 200	**23036CDE4**
	280	100	2.1	1 210 000	1 750 000	1 500	2 200	950	**24036CAME4** *
	280	100	2.1	965 000	1 750 000	1 500	—	950	**24036CE4**
	300	96	3	1 320 000	1 760 000	1 700	2 200	900	**23136CAME4** *
	300	96	3	1 050 000	1 760 000	1 700	—	900	**23136CE4**
	300	118	3	1 490 000	2 040 000	1 100	2 000	900	**24136CAME4** *
	300	118	3	1 190 000	2 040 000	1 100	—	900	**24136CE4**
	320	86	4	1 280 000	1 540 000	2 000	2 600	1 100	**22236CAME4** *
	320	86	4	1 020 000	1 540 000	2 000	—	1 100	**22236CDE4**
	320	112	4	1 620 000	2 110 000	1 300	2 000	850	**23236CAME4** *
	320	112	4	1 300 000	2 110 000	1 300	—	850	**23236CE4**
	380	126	4	2 170 000	2 340 000	1 200	2 000	950	**22336CAME4** *
190	260	52	2	575 000	875 000	2 600	3 000	1 200	**23938CAME4** *
	290	75	2.1	970 000	1 350 000	2 000	2 600	1 100	**23038CAME4** *
	290	100	2.1	1 220 000	1 840 000	1 400	2 200	900	**24038CAME4** *
	290	100	2.1	975 000	1 840 000	1 400	—	900	**24038CE4**
	320	104	3	1 480 000	2 020 000	1 600	2 200	850	**23138CAME4** *
	320	104	3	1 190 000	2 020 000	1 600	—	850	**23138CE4**
	320	128	3	1 710 000	2 330 000	1 000	1 900	850	**24138CAME4** *
	320	128	3	1 370 000	2 330 000	1 000	—	850	**24138CE4**
	340	92	4	1 420 000	1 730 000	1 800	2 400	1 000	**22238CAME4** *
	340	120	4	1 800 000	2 350 000	1 200	1 900	800	**23238CAME4** *
	340	120	4	1 440 000	2 350 000	1 200	—	800	**23238CE4**
	400	132	5	2 370 000	2 590 000	1 200	1 900	900	**22338CAME4** *

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

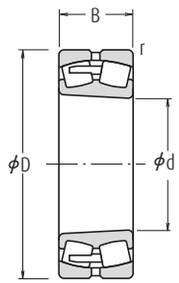
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23936CAKE4	190	—	240	230	2	0.18	5.5	3.7	3.6	7.64
23936CAMKE4*	190	—	240	230	2	0.18	5.5	3.7	3.6	7.64
23036CAMKE4*	192	202	268	249	2	0.24	4.2	2.8	2.8	17.1
23036CDKE4	192	202	268	249	2	0.24	4.2	2.8	2.8	17.1
24036CAMK30E4*	192	200	268	245	2	0.32	3.1	2.1	2.0	22.7
24036CK30E4	192	200	268	245	2	0.32	3.1	2.1	2.0	22.7
23136CAMKE4*	194	206	286	260	2.5	0.30	3.4	2.3	2.2	27.5
23136CKE4	194	206	286	260	2.5	0.30	3.4	2.3	2.2	27.5
24136CAMK30E4*	194	202	286	255	2.5	0.37	2.7	1.8	1.8	33.1
24136CK30E4	194	202	286	255	2.5	0.37	2.7	1.8	1.8	33.1
22236CAMKE4*	198	212	302	278	3	0.26	3.9	2.6	2.6	30.2
22236CDKE4	198	212	302	278	3	0.26	3.9	2.6	2.6	30.2
23236CAMKE4*	198	211	302	274	3	0.33	3.0	2.0	2.0	38.9
23236CKE4	198	211	302	274	3	0.33	3.0	2.0	2.0	38.9
22336CAMKE4*	198	—	362	322	3	0.34	2.9	2.0	1.9	67
23938CAMKE4*	200	—	250	240	2	0.18	5.7	3.8	3.7	8.03
23038CAMKE4*	202	—	278	261	2	0.24	4.2	2.8	2.8	17.6
24038CAMK30E4*	202	210	278	253	2	0.31	3.2	2.2	2.1	24
24038CK30E4	202	210	278	253	2	0.31	3.2	2.2	2.1	24
23138CAMKE4*	204	219	306	276	2.5	0.31	3.3	2.2	2.2	34.5
23138CKE4	204	219	306	276	2.5	0.31	3.3	2.2	2.2	34.5
24138CAMK30E4*	204	211	306	269	2.5	0.40	2.5	1.7	1.6	41.5
24138CK30E4	204	211	306	269	2.5	0.40	2.5	1.7	1.6	41.5
22238CAMKE4*	208	—	322	296	3	0.26	3.8	2.6	2.5	35.5
23238CAMKE4*	208	222	322	288	3	0.35	2.9	1.9	1.9	47.6
23238CKE4	208	222	322	288	3	0.35	2.9	1.9	1.9	47.6
22338CAMKE4*	212	—	378	338	4	0.34	2.9	2.0	1.9	77.6

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

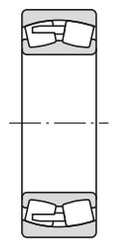
Bore Diameter 200 – 220 mm



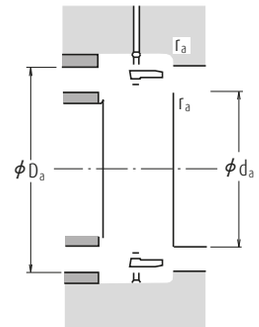
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA



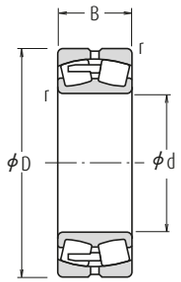
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
200	280	60	2.1	570 000	1 060 000	—	—	—	**23940CAE4**
	280	60	2.1	710 000	1 060 000	2 400	2 600	1 100	**23940CAME4** *
	310	82	2.1	1 180 000	1 700 000	1 800	2 400	1 000	**23040CAME4** *
	310	109	2.1	1 420 000	2 120 000	1 300	2 000	850	**24040CAME4** *
	310	109	2.1	1 140 000	2 120 000	1 300	—	850	**24040CE4**
	340	112	3	1 700 000	2 330 000	1 500	2 000	800	**23140CAME4** *
	340	112	3	1 360 000	2 330 000	1 500	—	800	**23140CE4**
	340	140	3	1 960 000	2 660 000	950	1 800	800	**24140CAME4** *
	340	140	3	1 570 000	2 670 000	950	—	800	**24140CE4**
	360	98	4	1 620 000	2 010 000	1 700	2 200	950	**22240CAME4** *
	360	128	4	2 070 000	2 750 000	1 100	1 800	750	**23240CAME4** *
	360	128	4	1 660 000	2 750 000	1 100	—	750	**23240CE4**
	420	138	5	2 500 000	2 990 000	1 000	1 700	850	**22340CAME4** *
220	300	60	2.1	785 000	1 240 000	2 200	2 600	1 000	**23944CAME4** *
	340	90	3	1 360 000	1 980 000	1 600	2 200	950	**23044CAME4** *
	340	118	3	1 640 000	2 490 000	1 200	1 900	750	**24044CAME4** *
	340	118	3	1 360 000	2 600 000	1 200	—	750	**24044CE4**
	370	120	4	1 960 000	2 710 000	1 300	1 800	710	**23144CAME4** *
	370	120	4	1 570 000	2 710 000	1 300	—	710	**23144CE4**
	370	150	4	2 250 000	3 200 000	850	1 600	710	**24144CAME4** *
	370	150	4	1 800 000	3 200 000	850	—	710	**24144CE4**
	400	108	4	1 960 000	2 430 000	1 500	2 000	850	**22244CAME4** *
	400	144	4	2 520 000	3 400 000	1 000	1 600	670	**23244CAME4** *
	400	144	4	2 020 000	3 400 000	850	—	670	**23244CE4**
	460	145	5	2 940 000	3 400 000	950	1 600	750	**22344CAME4** *

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

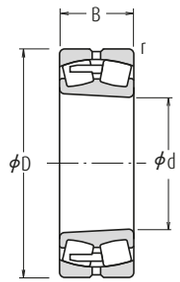
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23940CAKE4	212	—	268	258	2	0.20	5.1	3.4	3.3	11
23940CAMKE4*	212	—	268	258	2	0.20	5.1	3.4	3.3	11
23040CAMKE4*	212	—	268	279	2	0.25	4.0	2.7	2.6	22.6
24040CAMK30E4*	212	223	298	271	2	0.32	3.1	2.1	2.0	30.4
24040CK30E4	212	223	298	271	2	0.32	3.1	2.1	2.0	30.4
23140CAMKE4*	214	232	326	293	2.5	0.31	3.2	2.2	2.1	42.7
23140CKE4	214	232	326	293	2.5	0.31	3.2	2.2	2.1	42.7
24140CAMK30E4*	214	226	326	290	2.5	0.39	2.6	1.8	1.7	51.3
24140CK30E4	214	226	326	290	2.5	0.39	2.6	1.8	1.7	51.3
22240CAMKE4*	218	—	342	315	3	0.26	3.8	2.6	2.5	42.6
23240CAMKE4*	218	237	342	307	3	0.34	2.9	2.0	1.9	57.1
23240CKE4	222	237	342	307	3	0.34	2.9	2.0	1.9	57.1
22340CAMKE4*	232	—	398	352	4	0.34	2.9	2.0	1.9	92.6
23944CAMKE4*	234	—	288	278	2	0.18	5.7	3.8	3.7	12.2
23044CAMKE4*	234	—	326	302	2.5	0.24	4.1	2.8	2.7	29.7
24044CAMK30E4*	234	244	326	296	2.5	0.31	3.2	2.1	2.1	40.5
24044CK30E4	238	244	326	296	2.5	0.31	3.2	2.1	2.1	40.5
23144CAMKE4*	238	254	352	320	3	0.30	3.3	2.2	2.2	53
23144CKE4	238	254	352	320	3	0.30	3.3	2.2	2.2	53
24144CAMK30E4*	238	248	352	313	3	0.39	2.6	1.7	1.7	66.7
24144CK30E4	238	248	352	313	3	0.39	2.6	1.7	1.7	66.7
22244CAMKE4*	238	—	382	348	3	0.27	3.7	2.5	2.4	59
23244CAMKE4*	238	260	382	337	3	0.35	2.9	1.9	1.9	80.4
23244CKE4	238	260	382	337	3	0.35	2.9	1.9	1.9	80.4
22344CAMKE4*	242	—	438	391	4	0.33	3.0	2.0	2.0	116

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

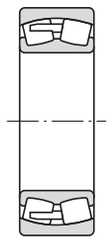
Bore Diameter 240 – 280 mm



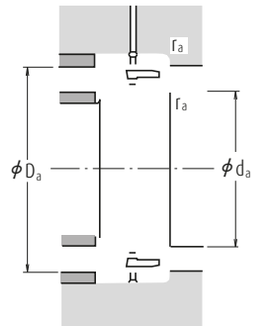
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA



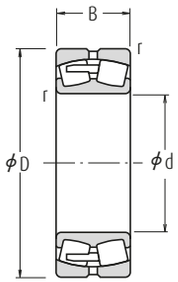
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
240	320	60	2.1	635 000	1 300 000	1 900	2 600	950	**23948CAE4**
	320	60	2.1	795 000	1 300 000	1 900	2 600	950	**23948CAME4***
	360	92	3	1 450 000	2 140 000	1 500	2 200	850	**23048CAME4***
	360	118	3	1 730 000	2 730 000	1 100	1 800	710	**24048CAME4***
	360	118	3	1 390 000	2 730 000	1 100	—	710	**24048CE4**
	400	128	4	2 230 000	3 100 000	1 200	1 700	670	**23148CAME4***
	400	128	4	1 790 000	3 100 000	1 200	—	670	**23148CE4**
	400	160	4	2 660 000	3 800 000	750	1 500	670	**24148CAME4***
	400	160	4	2 130 000	3 800 000	750	—	670	**24148CE4**
	440	120	4	2 340 000	2 890 000	1 400	1 800	750	**22248CAME4***
	440	160	4	3 050 000	4 050 000	850	1 500	630	**23248CAME4***
	500	155	5	3 250 000	3 800 000	850	1 500	670	**22348CAME4***
260	360	75	2.1	1 170 000	1 870 000	1 800	2 200	850	**23952CAME4***
	400	104	4	1 780 000	2 580 000	1 300	1 900	800	**23052CAME4***
	400	140	4	2 270 000	3 500 000	950	1 600	630	**24052CAME4***
	440	144	4	2 700 000	3 750 000	1 100	1 500	600	**23152CAME4***
	440	180	4	3 200 000	4 700 000	630	1 300	600	**24152CAME4***
	480	130	5	2 720 000	3 400 000	1 200	1 700	670	**22252CAME4***
	480	174	5	3 400 000	4 550 000	800	1 400	560	**23252CAME4***
	540	165	6	3 900 000	4 600 000	750	1 400	630	**22352CAME4***
280	380	75	2.1	1 160 000	1 950 000	1 600	2 000	800	**23956CAME4***
	420	106	4	1 930 000	2 950 000	1 200	1 800	710	**23056CAME4***
	420	140	4	2 350 000	3 800 000	850	1 500	600	**24056CAME4***
	460	146	5	2 790 000	4 000 000	1 000	1 500	560	**23156CAME4***
	460	180	5	3 300 000	5 000 000	600	1 300	560	**24156CAME4***
	500	130	5	2 850 000	3 650 000	1 100	1 600	630	**22256CAME4***
	500	176	5	3 600 000	4 900 000	750	1 300	530	**23256CAME4***
	580	175	6	4 350 000	5 150 000	710	1 300	560	**22356CAME4***

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

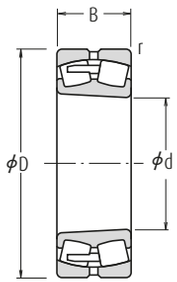
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23948CAKE4	252	—	308	298	2	0.17	6.0	4.0	3.9	13.3
23948CAMKE4*	253	—	308	298	2	0.18	6.1	4.1	3.10	13.4
23048CAMKE4*	254	—	346	324	2.5	0.24	4.2	2.8	2.7	32.6
24048CAMK30E4*	254	265	346	317	2.5	0.29	3.4	2.3	2.2	43.4
24048CK30E4	254	265	346	317	2.5	0.29	3.4	2.3	2.2	43.4
23148CAMKE4*	258	275	382	347	3	0.30	3.3	2.2	2.2	66.9
23148CKE4	258	275	382	347	3	0.30	3.3	2.2	2.2	66.9
24148CAMK30E4*	258	268	382	341	3	0.38	2.7	1.8	1.8	79.5
24148CK30E4	258	268	382	341	3	0.38	2.7	1.8	1.8	79.5
22248CAMKE4*	258	—	422	383	3	0.27	3.7	2.5	2.4	80.2
23248CAMKE4*	258	—	422	372	3	0.37	2.7	1.8	1.8	106
22348CAMKE4*	262	—	478	423	4	0.32	3.2	2.1	2.1	147
23952CAMKE4*	272	—	348	333	2	0.19	5.4	3.6	3.5	23
23052CAMKE4*	278	—	382	356	3	0.25	4.1	2.7	2.7	46.6
24052CAMK30E4*	278	—	382	348	3	0.32	3.1	2.1	2.1	62.6
23152CAMKE4*	278	—	422	380	3	0.32	3.2	2.1	2.1	88.2
24152CAMK30E4*	278	—	422	371	3	0.39	2.6	1.7	1.7	109
22252CAMKE4*	282	—	458	418	4	0.27	3.7	2.5	2.5	104
23252CAMKE4*	282	—	458	406	4	0.37	2.7	1.8	1.8	137
22352CAMKE4*	288	—	512	462	5	0.32	3.2	2.1	2.1	180
23956CAMKE4*	292		368	351	2	0.18	5.7	3.9	3.8	24.5
23056CAMKE4*	298		402	377	3	0.24	4.2	2.8	2.7	50.5
24056CAMK30E4*	298		402	369	3	0.31	3.3	2.2	2.2	66.4
23156CAMKE4*	302		438	400	4	0.30	3.3	2.2	2.2	94.3
24156CAMK30E4*	302		438	392	4	0.37	2.7	1.8	1.8	115
22256CAMKE4*	302		478	439	4	0.25	4.0	2.7	2.6	110
23256CAMKE4*	302		478	425	4	0.35	2.9	1.9	1.9	147
22356CAMKE4*	308		552	496	5	0.31	3.2	2.1	2.1	221

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

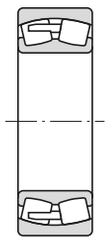
Bore Diameter 300 – 380 mm



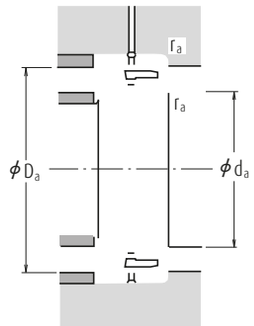
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA

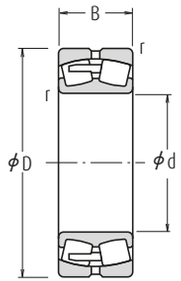


Numbers				Abutment and Fillet Dimensions (mm)			Constant	Axial Load Factors			Mass (kg)
				d_a	D_a	r_a					
Tapered Bore (1)				min. max.	max. min.	max.	e	Y_2	Y_3	Y_0	approx.
300	420	90	3	1 540 000	2 490 000	1 500	1 800	710	**23960CAME4***
	460	118	4	2 400 000	3 700 000	1 100	1 600	670	**23060CAME4***
	460	160	4	2 890 000	4 600 000	800	1 400	530	**24060CAME4***
	500	160	5	3 350 000	4 800 000	900	1 400	500	**23160CAME4***
	500	200	5	3 900 000	5 800 000	530	1 200	500	**24160CAME4***
	540	140	5	3 250 000	4 250 000	1 000	1 500	600	**22260CAME4***
	540	192	5	4 250 000	5 900 000	670	1 200	480	**23260CAME4***
320	440	90	3	1 620 000	2 750 000	1 400	1 700	670	**23964CAME4***
	480	121	4	2 450 000	3 850 000	1 000	1 600	630	**23064CAME4***
	480	160	4	3 050 000	5 050 000	710	1 300	500	**24064CAME4***
	540	176	5	3 850 000	5 500 000	800	1 300	480	**23164CAME4***
	540	218	5	4 400 000	6 650 000	500	1 100	480	**24164CAME4***
	580	150	5	3 750 000	4 850 000	950	1 400	530	**22264CAME4***
	580	208	5	4 850 000	6 900 000	600	1 100	450	**23264CAME4***
340	460	90	3	1 670 000	2 840 000	1 300	1 700	630	**23968CAME4***
	520	133	5	2 850 000	4 400 000	950	1 500	560	**23068CAME4***
	520	180	5	3 650 000	6 050 000	670	1 200	480	**24068CAME4***
	580	190	5	4 500 000	6 600 000	710	1 200	430	**23168CAME4***
	580	243	5	5 300 000	7 900 000	450	1 000	430	**24168CAME4***
	620	224	6	4 400 000	7 800 000	480	—	400	**23268CAME4**
360	480	90	3	1 730 000	3 050 000	1 200	1 700	600	**23972CAME4***
	540	134	5	2 990 000	4 700 000	900	1 400	530	**23072CAME4***
	540	180	5	3 650 000	6 100 000	630	1 200	450	**24072CAME4***
	600	192	5	4 800 000	7 100 000	670	1 100	400	**23172CAME4***
	600	243	5	5 250 000	8 000 000	430	1 000	400	**24172CAME4***
	600	232	6	4 800 000	8 550 000	450	—	380	**23272CAME4**
380	520	106	4	2 340 000	4 100 000	1 100	1 500	530	**23976CAME4***
	560	135	5	3 150 000	5 100 000	850	1 400	530	**23076CAME4***
	560	180	5	3 850 000	6 600 000	600	1 200	430	**24076CAME4***
	620	194	5	4 000 000	7 600 000	530	—	400	**23176CAME4**
	620	243	5	4 350 000	8 450 000	360	—	400	**24176CAME4**
	680	240	6	5 150 000	9 200 000	430	—	360	**23276CAME4**

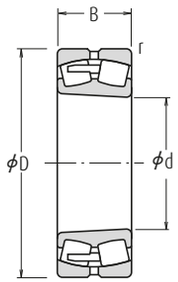
Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

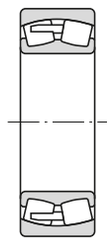
Bore Diameter 400 – 460 mm



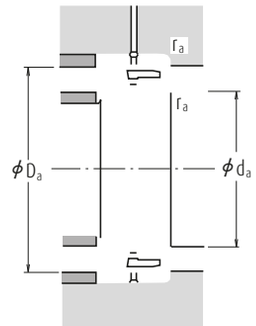
Cylindrical Bore
CA



Tapered Bore
CA



Without an Oil Groove and Holes
CA



Numbers				Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
Tapered Bore (1)				d_a min.	d_a max.	D_a max.	D_a min.	r_a max.	e	Y_2	Y_3	Y_0	approx.
400	540	106	4	2 370 000	4 250 000	1 000	1 400	530	**23980CAME4***				
	600	148	5	3 700 000	5 900 000	800	1 300	480	**23080CAME4***				
	600	200	5	4 500 000	7 600 000	550	1 100	400	**24080CAME4***				
	650	200	6	4 150 000	7 900 000	500	—	380	**23180CAME4**				
	650	250	6	4 950 000	10 100 000	320	—	380	**24180CAME4**				
	720	256	6	5 800 000	10 400 000	380	—	340	**23280CAME4**				
420	560	106	4	2 340 000	4 250 000	1 000	1 400	500	**23984CAME4***				
	620	150	5	2 910 000	5 850 000	670	—	450	**23084CAME4**				
	620	200	5	3 750 000	8 100 000	480	—	380	**24084CAME4**				
	700	224	6	5 000 000	9 400 000	480	—	340	**23184CAME4**				
	700	280	6	6 000 000	12 000 000	280	—	340	**24184CAME4**				
	760	272	7.5	6 450 000	11 700 000	360	—	320	**23284CAME4**				
440	600	118	4	2 190 000	4 800 000	630	—	450	**23988CAME4**				
	650	157	6	3 150 000	6 350 000	630	—	430	**23088CAME4**				
	650	212	6	4 150 000	9 100 000	450	—	360	**24088CAME4**				
	720	226	6	5 300 000	10 300 000	430	—	320	**23188CAME4**				
	720	280	6	6 000 000	12 100 000	280	—	320	**24188CAME4**				
	790	280	7.5	6 900 000	12 800 000	340	—	300	**23288CAME4**				
460	620	118	4	2 220 000	4 950 000	600	—	430	**23992CAME4**				
	680	163	6	3 450 000	7 100 000	600	—	400	**23092CAME4**				
	680	218	6	4 500 000	9 950 000	430	—	340	**24092CAME4**				
	760	240	7.5	5 700 000	10 900 000	430	—	300	**23192CAME4**				
	760	300	7.5	6 300 000	12 400 000	280	—	300	**24192CAME4**				
	830	296	7.5	7 350 000	13 700 000	320	—	280	**23292CAME4**				

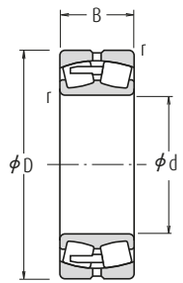
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
Tapered Bore (1)	d_a min.	d_a max.	D_a max.	D_a min.	r_a max.	e	Y_2	Y_3	Y_0	approx.
23980CAMKE4*	418		522	501	3	0.18	5.7	3.9	3.8	69.1
23080CAMKE4*	422		578	540	4	0.23	4.4	3.0	2.9	146
24080CAMK30E4*	422		578	527	4	0.31	3.3	2.2	2.2	193
23180CAMKE4	428		622	569	5	0.29	3.4	2.3	2.3	257
24180CAMK30E4	428		622	551	5	0.37	2.7	1.8	1.8	316
23280CAMKE4	428		692	610	5	0.36	2.8	1.9	1.9	449
23984CAMKE4*	438		542	521	3	0.17	6.0	4.0	3.9	71.6
23084CAMKE4	442		598	562	4	0.23	4.3	2.9	2.8	151
24084CAMK30E4	442		598	549	4	0.31	3.2	2.2	2.1	199
23184CAMKE4	448		672	607	5	0.31	3.3	2.2	2.2	341
24184CAMK30E4	448		672	598	5	0.38	2.6	1.8	1.7	421
23284CAMKE4	456		724	644	6	0.35	2.9	1.9	1.9	534
23988CAMKE4	458		582	555	3	0.18	5.7	3.9	3.8	96.3
23088CAMKE4	468		622	587	5	0.23	4.3	2.9	2.8	173
24088CAMK30E4	468		622	576	5	0.31	3.2	2.1	2.1	237
23188CAMKE4	468		692	627	5	0.3	3.3	2.2	2.2	360
24188CAMK30E4	468		692	617	5	0.37	2.7	1.8	1.8	433
23288CAMKE4	476		754	669	6	0.35	2.9	1.9	1.9	594
23992CAMKE4	478		602	575	3	0.17	5.9	4.0	3.9	100
23092CAMKE4	488		652	615	5	0.22	4.6	3.1	3.0	201
24092CAMK30E4	488		652	604	5	0.29	3.4	2.3	2.3	266
23192CAMKE4	496		724	661	6	0.31	3.3	2.2	2.2	423
24192CAMK30E4	496		724	646	6	0.39	2.6	1.7	1.7	512
23292CAMKE4	496		794	702	6	0.36	2.8	1.9	1.8	691

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

Remarks
1. The bearings denoted by an asterisk (*) are OIDHPS bearings and an oil groove and holes are standard for them.
2. When making a selection of the recommended fit (Tolerance of shaft), in case of OIDHPS bearings, the conditions are different.
   The segmentations are: Light Loads ($\leqq 0.05C_r$); Normal Loads (0.05 to $0.10C_r$); and Heavy Loads ($>0.10C_r$).
3. For the dimensions of adapters and withdrawal sleeves

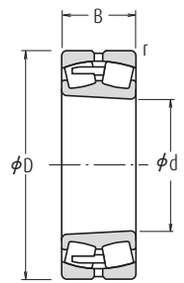
Spherical Roller Bearings

Bore Diameter 480 – 560 mm



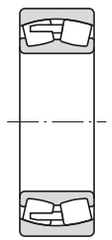
Cylindrical Bore

CA



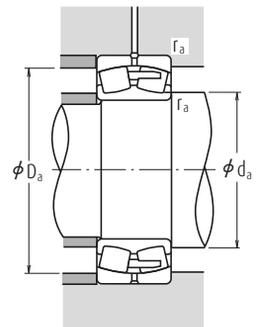
Tapered Bore

CA



Without an Oil Groove and Holes

CA



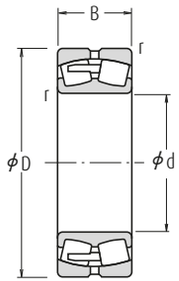
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min^{-1})		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
480	650	128	5	2 580 000	5 850 000	560	–	400	**23996CAME4**
	700	165	6	3 800 000	7 950 000	560	–	400	**23096CAME4**
	700	218	6	4 600 000	10 200 000	400	–	320	**24096CAME4**
	790	248	7.5	6 050 000	11 700 000	400	–	300	**23196CAME4**
	790	308	7.5	7 150 000	14 600 000	240	–	300	**24196CAME4**
	870	310	7.5	7 850 000	14 400 000	300	–	260	**23296CAME4**
500	670	128	5	2 460 000	5 550 000	560	–	400	**239/500CAME4**
	720	167	6	3 750 000	8 100 000	530	–	380	**230/500CAME4**
	720	218	6	4 450 000	9 900 000	400	–	300	**240/500CAME4**
	830	264	7.5	6 850 000	13 400 000	360	–	280	**231/500CAME4**
	830	325	7.5	8 000 000	16 000 000	220	–	280	**241/500CAME4**
	920	336	7.5	9 000 000	16 600 000	280	–	260	**232/500CAME4**
530	710	136	5	2 930 000	6 800 000	500	–	360	**239/530CAME4**
	780	185	6	4 440 000	9 200 000	500	–	340	**230/530CAME4**
	780	250	6	5 400 000	11 800 000	360	–	280	**240/530CAME4**
	870	272	7.5	7 150 000	14 100 000	340	–	260	**231/530CAME4**
	870	335	7.5	8 500 000	17 500 000	200	–	260	**241/530CAME4**
	980	355	9.5	10 100 000	18 800 000	260	–	240	**232/530CAME4**
560	750	140	5	3 100 000	7 250 000	480	–	340	**239/560CAME4**
	820	195	6	5 000 000	10 700 000	450	–	320	**230/560CAME4**
	820	258	6	5 950 000	13 300 000	340	–	260	**240/560CAME4**
	920	280	7.5	7 850 000	15 500 000	320	–	240	**231/560CAME4**
	920	355	7.5	9 400 000	19 600 000	190	–	240	**241/560CAME4**
	1 030	365	9.5	10 900 000	20 500 000	240	–	220	**232/560CAME4**

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

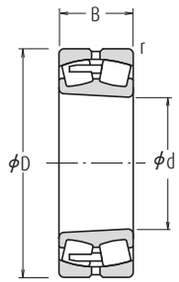
Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
23996CAMKE4	502		628	602	4	0.18	5.7	3.8	3.7	121
23096CAMKE4	508		672	633	5	0.22	4.6	3.1	3.0	211
24096CAMK30E4	508		672	625	5	0.30	3.4	2.3	2.2	270
23196CAMKE4	516		754	688	6	0.31	3.3	2.2	2.2	475
24196CAMK30E4	516		754	670	6	0.39	2.6	1.7	1.7	567
23296CAMKE4	516		834	733	6	0.36	2.8	1.9	1.8	795
239/500CAMKE4	522		648	622	4	0.17	6.0	4.0	3.9	124
230/500CAMKE4	528		692	655	5	0.21	4.8	3.2	3.1	220
240/500CAMK30E4	528		692	643	5	0.30	3.4	2.3	2.2	276
231/500CAMKE4	536		794	720	6	0.31	3.2	2.2	2.1	567
241/500CAMK30E4	536		794	703	6	0.39	2.6	1.7	1.7	666
232/500CAMKE4	536		884	773	6	0.38	2.7	1.8	1.8	969
239/530CAMKE4	552		688	659	4	0.17	6.0	4.0	3.9	149
230/530CAMKE4	558		752	706	5	0.22	4.6	3.1	3.0	298
240/530CAMK30E4	558		752	690	5	0.31	3.3	2.2	2.2	390
231/530CAMKE4	566		834	758	6	0.30	3.3	2.2	2.2	628
241/530CAMK30E4	566		834	740	6	0.38	2.6	1.8	1.7	773
232/530CAMKE4	574		936	824	8	0.38	2.7	1.8	1.7	1 170
239/560CAMKE4	582		728	697	4	0.16	6.1	4.1	4.0	172
230/560CAMKE4	588		792	742	5	0.22	4.5	3.0	2.9	344
240/560CAMK30E4	588		792	729	5	0.30	3.3	2.2	2.2	440
231/560CAMKE4	596		884	804	6	0.30	3.4	2.3	2.2	727
241/560CAMK30E4	596		884	782	6	0.39	2.6	1.8	1.7	886
232/560CAMKE4	604		986	870	8	0.36	2.8	1.9	1.8	1 320

Remark For the dimensions of adapters (d=470 mm) and withdrawal sleeves

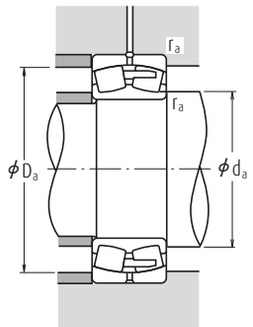
Bore Diameter 600 – 750 mm



Cylindrical Bore
CA



Tapered Bore
CA



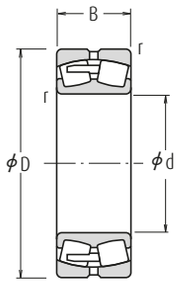
Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min^{-1})		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
600	800	150	5	3 450 000	8 100 000	450	–	320	**239/600CAME4**
	870	200	6	5 450 000	12 200 000	400	–	300	**230/600CAME4**
	870	272	6	6 600 000	15 100 000	300	–	240	**240/600CAME4**
	980	300	7.5	8 750 000	17 500 000	280	–	220	**231/600CAME4**
	980	375	7.5	10 400 000	21 900 000	170	–	220	**241/600CAME4**
	1 090	388	9.5	12 700 000	24 900 000	200	–	200	**232/600CAME4**
630	850	165	6	4 000 000	9 350 000	400	–	300	**239/630CAME4**
	920	212	7.5	5 900 000	12 700 000	400	–	280	**230/630CAME4**
	920	290	7.5	7 550 000	17 700 000	280	–	220	**240/630CAME4**
	1 030	315	7.5	9 600 000	19 400 000	260	–	200	**231/630CAME4**
	1 030	400	7.5	11 300 000	23 900 000	160	–	200	**241/630CAME4**
	1 150	412	12	13 400 000	25 600 000	200	–	180	**232/630CAME4**
670	900	170	6	4 350 000	10 300 000	380	–	260	**239/670CAME4**
	980	230	7.5	6 850 000	15 000 000	360	–	240	**230/670CAME4**
	980	308	7.5	8 450 000	19 500 000	260	–	200	**240/670CAME4**
	1 090	336	7.5	10 600 000	21 600 000	240	–	190	**231/670CAME4**
	1 090	412	7.5	12 400 000	26 500 000	150	–	190	**241/670CAME4**
	1 220	438	12	14 900 000	28 700 000	180	–	170	**232/670CAME4**
710	950	180	6	4 800 000	11 700 000	360	–	240	**239/710CAME4**
	1 030	236	7.5	7 100 000	15 800 000	340	–	240	**230/710CAME4**
	1 030	315	7.5	8 850 000	20 700 000	240	–	190	**240/710CAME4**
	1 150	438	9.5	13 900 000	30 500 000	130	–	170	**241/710CAME4**
	1 280	450	12	15 700 000	30 500 000	170	–	160	**232/710CAME4**
750	1 000	185	6	5 250 000	12 800 000	320	–	220	**239/750CAME4**
	1 090	250	7.5	7 750 000	17 200 000	320	–	220	**230/750CAME4**
	1 090	335	7.5	10 100 000	24 000 000	220	–	180	**240/750CAME4**
	1 360	475	15	17 700 000	35 500 000	150	–	140	**232/750CAME4**

Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
239/600CAMKE4	622		778	745	4	0.17	5.9	3.9	3.9	205
230/600CAMKE4	628		842	794	5	0.21	4.8	3.3	3.2	389
240/600CAMK30E4	628		842	772	5	0.30	3.3	2.2	2.2	529
231/600CAMKE4	636		944	856	6	0.30	3.4	2.3	2.2	898
241/600CAMK30E4	636		944	836	6	0.39	2.6	1.8	1.7	1 050
232/600CAMKE4	644		1 046	923	8	0.36	2.8	1.9	1.8	1 590
239/630CAMKE4	658		822	786	5	0.18	5.6	3.8	3.7	259
230/630CAMKE4	666		884	835	6	0.22	4.7	3.1	3.1	468
240/630CAMK30E4	666		884	815	6	0.30	3.3	2.2	2.2	637
231/630CAMKE4	666		994	900	6	0.30	3.4	2.3	2.2	1 040
241/630CAMK30E4	666		994	876	6	0.38	2.7	1.8	1.7	1 250
232/630CAMKE4	684		1 096	970	10	0.36	2.8	1.9	1.8	1 850
239/670CAMKE4	698		872	836	5	0.17	5.8	3.9	3.8	300
230/670CAMKE4	706		944	891	6	0.22	4.7	3.1	3.1	571
240/670CAMK30E4	706		944	868	6	0.30	3.3	2.2	2.2	773
231/670CAMKE4	706		1 054	952	6	0.30	3.3	2.2	2.2	1 230
241/670CAMK30E4	706		1 054	934	6	0.37	2.7	1.8	1.8	1 440
232/670CAMKE4	724		1 166	1 024	10	0.37	2.7	1.8	1.8	2 210
239/710CAMKE4	738		922	883	5	0.17	5.8	3.9	3.8	352
230/710CAMKE4	746		994	936	6	0.22	4.6	3.1	3.0	647
240/710CAMK30E4	746		994	916	6	0.29	3.4	2.3	2.2	861
241/710CAMK30E4	754		1 106	981	8	0.38	2.6	1.8	1.7	1 730
232/710CAMKE4	764		1 226	1 080	10	0.36	2.8	1.9	1.8	2 470
239/750CAMKE4	778		972	931	5	0.17	6.0	4.1	4.0	398
230/750CAMKE4	786		1 054	990	6	0.22	4.6	3.1	3.0	768
240/750CAMK30E4	786		1 054	969	6	0.29	3.4	2.3	2.2	1 030
232/750CAMKE4	814		1 296	1 148	12	0.36	2.8	1.9	1.8	2 980

Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

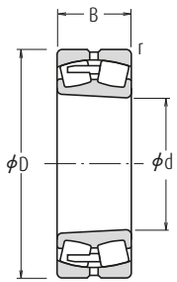
Spherical Roller Bearings

Bore Diameter 800 – 1400 mm



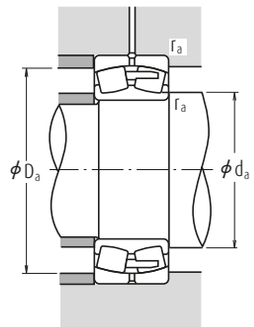
Cylindrical Bore

CA



Tapered Bore

CA



Boundary Dimensions (mm)				Basic Load Ratings (N)		Thermal Reference Speed	Speeds (min⁻¹)		Bearing
							Limiting Speeds		
d	D	B	r min.	C_r	C_{0r}		Mechanical	Grease	Cylindrical Bore
800	1 060	195	6	5 600 000	13 700 000	300	–	220	**239/800CAME4**
	1 150	258	7.5	8 350 000	19 100 000	300	–	200	**230/800CAME4**
	1 150	345	7.5	10 900 000	26 300 000	200	–	160	**240/800CAME4**
	1 280	375	9.5	13 800 000	29 200 000	190	–	150	**231/800CAME4**
	1 420	488	15	20 300 000	41 000 000	130	–	130	**232/800CAME4**
850	1 120	200	6	6 100 000	15 200 000	280	–	190	**239/850CAME4**
	1 220	272	7.5	9 300 000	21 400 000	280	–	180	**230/850CAME4**
	1 220	365	7.5	11 600 000	28 300 000	190	–	150	**240/850CAME4**
	1 500	515	15	22 300 000	45 500 000	120	–	120	**232/850CAME4**
900	1 180	206	6	6 660 000	16 700 000	260	–	180	**239/900CAME4**
	1 280	280	7.5	9 850 000	22 800 000	260	–	160	**230/900CAME4**
	1 280	375	7.5	12 800 000	31 500 000	170	–	140	**240/900CAME4**
	1 580	515	15	23 400 000	47 500 000	120	–	110	**232/900CAME4**
950	1 250	224	7.5	7 600 000	19 900 000	240	–	160	**239/950CAME4**
	1 360	300	7.5	11 300 000	26 500 000	240	–	150	**230/950CAME4**
	1 360	412	7.5	14 500 000	36 500 000	160	–	120	**240/950CAME4**
	1 660	530	15	24 700 000	50 500 000	110	–	100	**232/950CAME4**
1 000	1 320	236	7.5	8 200 000	21 700 000	220	–	150	**239/1000CAME4**
	1 420	308	7.5	11 900 000	28 100 000	220	–	140	**230/1000CAME4**
	1 420	412	7.5	15 300 000	38 500 000	150	–	110	**240/1000CAME4**
1 060	1 400	250	7.5	9 300 000	24 400 000	200	–	130	**239/1060CAME4**
	1 500	325	9.5	13 000 000	31 500 000	200	–	120	**230/1060CAME4**
	1 500	438	9.5	16 800 000	43 000 000	140	–	100	**240/1060CAME4**
1 120	1 580	345	9.5	15 400 000	38 000 000	180	–	110	**230/1120CAME4**
	1 580	462	9.5	18 700 000	49 500 000	120	–	95	**240/1120CAME4**
1 180	1 660	475	9.5	20 200 000	52 500 000	120	–	85	**240/1180CAME4**
1 250	1 750	500	9.5	21 000 000	59 500 000	110	–	75	**240/1250CAME4**
1 320	1 850	530	12	22 600 000	63 500 000	100	–	67	**240/1320CAME4**
1 400	1 950	545	12	24 500 000	65 000 000	95	–	60	**240/1400CAME4**

Numbers	Abutment and Fillet Dimensions (mm)					Constant	Axial Load Factors			Mass (kg)
	d_a		D_a		r_a					
Tapered Bore (1)	min.	max.	max.	min.	max.	e	Y_2	Y_3	Y_0	approx.
239/800CAMKE4	828		1 032	987	5	0.17	6.0	4.0	3.9	462
230/800CAMKE4	836		1 114	1 045	6	0.21	4.7	3.2	3.1	870
240/800CAMK30E4	836		1 114	1 029	6	0.27	3.7	2.5	2.5	1 130
231/800CAMKE4	844		1 236	1 127	8	0.28	3.6	2.4	2.3	1 870
232/800CAMKE4	864		1 356	1 208	12	0.35	2.8	1.9	1.9	3 250
239/850CAMKE4	878		1 092	1 046	5	0.16	6.2	4.2	4.1	523
230/850CAMKE4	886		1 184	1 109	6	0.21	4.8	3.2	3.1	1 020
240/850CAMK30E4	886		1 184	1 093	6	0.28	3.6	2.4	2.4	1 350
232/850CAMKE4	914		1 436	1 274	12	0.35	2.8	1.9	1.9	3 890
239/900CAMKE4	928		1 152	1 103	5	0.16	6.4	4.3	4.2	591
230/900CAMKE4	936		1 244	1 169	6	0.20	4.9	3.3	3.2	1 160
240/900CAMK30E4	936		1 244	1 147	6	0.28	3.6	2.4	2.4	1 520
232/900CAMKE4	964		1 516	1 354	12	0.33	3.0	2.0	2.0	4 300
239/950CAMKE4	986		1 214	1 169	6	0.16	6.3	4.2	4.1	732
230/950CAMKE4	986		1 324	1 241	6	0.21	4.8	3.2	3.2	1 400
240/950CAMK30E4	986		1 324	1 219	6	0.28	3.6	2.4	2.3	1 880
232/950CAMKE4	1 014		1 596	1 428	12	0.32	3.1	2.1	2.1	4 800
239/1000CAMKE4	1 036		1 284	1 229	6	0.16	6.4	4.3	4.2	881
230/1000CAMKE4	1 036		1 384	1 298	6	0.20	4.9	3.3	3.2	1 560
240/1000CAMK30E4	1 036		1 384	1 275	6	0.27	3.7	2.5	2.4	2 010
239/1060CAMKE4	1 096		1 384	1 302	6	0.16	6.1	4.1	4.0	1 030
230/1060CAMKE4	1 104		1 456	1 368	8	0.21	4.9	3.3	3.2	1 790
240/1060CAMK30E4	1 104		1 456	1 346	8	0.28	3.6	2.4	2.4	2 410
230/1120CAMKE4	1 164		1 536	1 444	8	0.20	5.0	3.4	3.3	2 120
240/1120CAMK30E4	1 164		1 536	1 421	8	0.27	3.7	2.5	2.5	2 790
240/1180CAMK30E4	1 224		1 616	1 494	8	0.27	3.7	2.5	2.4	3 180
240/1250CAMK30E4	1 294		1 706	1 579	8	0.25	4.0	2.7	2.6	3 700
240/1320CAMK30E4	1 374		1 796	1 656	10	0.26	3.9	2.6	2.6	4 400
240/1400CAMK30E4	1 454		1 896	1 767	10	0.25	4.0	2.7	2.6	4 900

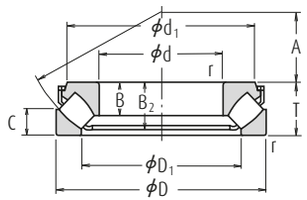
Note (1) The suffix K or K30 represents bearings with tapered bores (taper 1 : 12 or 1 : 30).

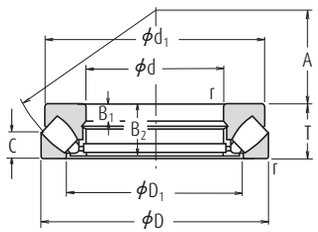
OID MECHANICAL PARTS BEARINGS

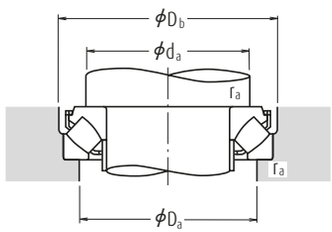


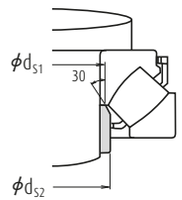
Thrust Spherical Roller Bearings

Bore Diameter 60 – 200 mm







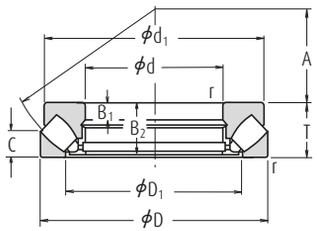


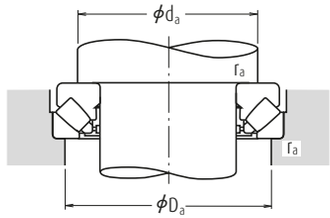
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	Oil	
60	130	42	1.5	330 000	885 000	2 600	**29412 E**
65	140	45	2	405 000	1 100 000	2 400	**29413 E**
70	150	48	2	450 000	1 240 000	2 400	**29414 E**
75	160	51	2	515 000	1 430 000	2 200	**29415 E**
80	170	54	2.1	575 000	1 600 000	2 000	**29416 E**
85	150	39	1.5	330 000	1 040 000	2 400	**29317 E**
	180	58	2.1	630 000	1 760 000	1 900	**29417 E**
90	155	39	1.5	350 000	1 080 000	2 200	**29318 E**
	190	60	2.1	695 000	1 950 000	1 800	**29418 E**
100	170	42	1.5	410 000	1 280 000	2 000	**29320 E**
	210	67	3	840 000	2 400 000	1 600	**29420 E**
110	190	48	2	530 000	1 710 000	1 800	**29322 E**
	230	73	3	1 010 000	2 930 000	1 500	**29422 E**
120	210	54	2.1	645 000	2 100 000	1 600	**29324 E**
	250	78	4	1 160 000	3 400 000	1 400	**29424 E**
130	225	58	2.1	740 000	2 450 000	1 500	**29326 E**
	270	85	4	1 330 000	3 900 000	1 200	**29426 E**
140	240	60	2.1	840 000	2 810 000	1 400	**29328 E**
	280	85	4	1 370 000	4 200 000	1 200	**29428 E**
150	250	60	2.1	870 000	2 900 000	1 400	**29330 E**
	300	90	4	1 580 000	4 900 000	1 100	**29430 E**
160	270	67	3	1 010 000	3 400 000	1 300	**29332 E**
	320	95	5	1 740 000	5 400 000	1 100	**29432 E**
170	280	67	3	1 050 000	3 500 000	1 200	**29334 E**
	340	103	5	1 680 000	5 800 000	1 000	**29434**
180	300	73	3	1 230 000	4 200 000	1 100	**29336 E**
	360	109	5	1 870 000	6 500 000	900	**29436**
190	320	78	4	1 370 000	4 700 000	1 100	**29338 E**
	380	115	5	2 100 000	7 450 000	850	**29438**
200	280	48	2	540 000	2 310 000	1 500	**29240**
	340	85	4	1 570 000	5 450 000	1 000	**29340 E**
	400	122	5	2 290 000	8 150 000	800	**29440**

Dimensions (mm)						Spacer Sleeve Dimensions (mm)		Abutment and Fillet Dimensions (mm)				Mass (kg)
d_1	D_1	B, B_1	B_2	C	A	d_{s1} max.	d_{s2} max.	d_a(1) min.	D_a max.	D_b min.	r_a max.	approx.
114.5	89	27	38	20	38	67	67	90	108	133	1.5	2.55
121.5	93	29.5	40.5	22	42	72	72	100	115	143	2	3.2
131.5	102	31	43	24	44	78	78	105	125	153	2	3.9
138	107	33.5	46	25	47	83	83	115	132	163	2	4.65
148	114.5	35	48.5	27	50	89	89	120	140	173	2	5.55
134.5	112	24.5	35.5	19	50	91	91	115	135	153	1.5	2.7
156.5	124	37	51.5	28	54	95	95	130	150	183	2	6.55
139.5	118	24.5	35	19	52	97	97	120	140	158	1.5	2.83
165.5	129.5	39	54.5	29	56	100	100	135	157	193	2	7.55
152	128	26.2	38	20.8	58	107	107	130	150	173	1.5	3.6
185	144	43	59.5	33	62	111	111	150	175	214	2.5	10.3
169.5	142.5	30.3	43.5	24	64	117	117	145	165	193	2	5.25
200	157	47	64.5	36	69	121	129	165	190	234	2.5	13.3
187.5	156.5	34	48.5	27	70	130	130	160	180	214	2	7.3
215	171	50.5	69.5	38	74	132	142	180	205	254	3	16.6
203.5	168.5	37	53.5	28	76	141	143	170	195	229	2	8.95
235	185	54	74.5	42	81	143	153	195	225	275	3	21.1
216.5	179	38.5	54	30	82	148	154	185	205	244	2	10.4
244.5	195.5	54	74.5	42	86	153	162	205	235	285	3	22.2
224	190	38	54.5	29	87	158	163	195	215	254	2	10.8
266	209	58	81	44	92	164	175	220	250	306	3	27.3
243	203	42	60	33	92	169	176	210	235	275	2.5	14.3
278	224.5	60.5	84.5	46	99	175	189	230	265	326	4	32.1
252	214.5	42.2	60.5	32	96	178	188	220	245	285	2.5	14.8
310	243	37	99	50	104	–	–	245	285	–	4	43.5
270	227	46	65.5	36	103	189	195	235	260	306	2.5	19
330	255	39	105	52	110	–	–	260	300	–	4	52
288.5	244	49	69	38	110	200	211	250	275	326	3	23
345	271	41	111	55	117	–	–	275	320	–	4	60
266	236	15	46	24	108	–	–	235	255	–	2	8.55
306.5	257	53.5	75	41	116	211	224	265	295	346	3	28.5
365	280	43	117	59	122	–	–	290	335	–	4	69

Note (1) For heavy load applications, a d_a value should be chosen which is large enough to support the shaft washer rib.

Bore Diameter 220 – 420 mm





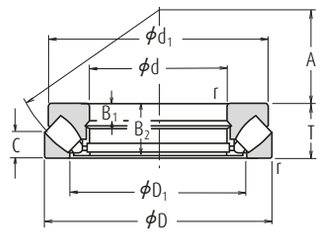
Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})	Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	Oil	
220	300	48	2	560 000	2 500 000	1 400	**29244**
	360	85	4	1 340 000	5 200 000	950	**29344**
	420	122	6	2 350 000	8 650 000	800	**29444**
240	340	60	2.1	800 000	3 450 000	1 200	**29248**
	380	85	4	1 360 000	5 400 000	950	**29348**
	440	122	6	2 420 000	9 100 000	750	**29448**
260	360	60	2.1	855 000	3 850 000	1 200	**29252**
	420	95	5	1 700 000	6 800 000	800	**29352**
	480	132	6	2 820 000	10 700 000	710	**29452**
280	380	60	2.1	885 000	4 100 000	1 100	**29256**
	440	95	5	1 830 000	7 650 000	800	**29356**
	520	145	6	3 400 000	13 100 000	630	**29456**
	520	145	6	3 950 000	14 900 000	630	**29456 EM**
300	420	73	3	1 160 000	5 150 000	950	**29260**
	480	109	5	2 190 000	9 100 000	710	**29360**
	540	145	6	3 500 000	13 700 000	630	**29460**
320	440	73	3	1 190 000	5 450 000	950	**29264**
	500	109	5	2 230 000	9 400 000	670	**29364**
	580	155	7.5	3 650 000	14 600 000	560	**29464**
340	460	73	3	1 230 000	5 750 000	900	**29268**
	540	122	5	2 640 000	11 200 000	630	**29368**
	620	170	7.5	4 400 000	17 400 000	530	**29468**
360	500	85	4	1 550 000	7 300 000	800	**29272**
	560	122	5	2 670 000	11 500 000	600	**29372**
	640	170	7.5	4 200 000	17 200 000	500	**29472**
	640	170	7.5	5 450 000	20 400 000	500	**29472 EM**
380	520	85	4	1 620 000	7 800 000	800	**29276**
	600	132	6	3 300 000	14 500 000	560	**29376**
	670	175	7.5	4 800 000	19 500 000	480	**29476**
400	540	85	4	1 640 000	8 000 000	750	**29280**
	620	132	6	3 250 000	14 500 000	530	**29380**
	710	185	7.5	5 400 000	22 100 000	450	**29480**
420	580	95	5	2 010 000	9 800 000	670	**29284**
	650	140	6	3 500 000	15 700 000	500	**29384**
	730	185	7.5	5 650 000	23 500 000	450	**29484**

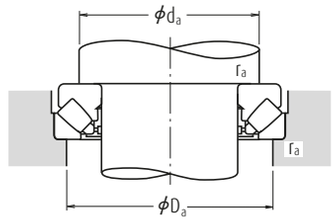
Dimensions (mm)						Abutment and Fillet Dimensions (mm)			Mass (kg)
d_1	D_1	B_1	B_2	C	A	d_a(1) min.	D_a max.	r_a max.	approx.
285	254	15	46	24	117	260	275	2	9.2
335	280	29	81	41	125	285	315	3	33
385	308	43	117	58	132	310	355	5	74
325	283	19	57	30	130	285	305	2	16.5
355	300	29	81	41	135	300	330	3	35.5
405	326	43	117	59	142	330	375	5	79
345	302	19	57	30	139	305	325	2	18
390	329	32	91	45	148	330	365	4	48.5
445	357	48	127	64	154	360	405	5	105
365	323	19	57	30	150	325	345	2	19
410	348	32	91	46	158	350	390	4	52.5
480	384	52	140	68	166	390	440	5	132
480	380	52	140	70	166	410	445	5	134
400	353	21	69	38	162	355	380	2.5	30
450	379	37	105	50	168	380	420	4	74
500	402	52	140	70	175	410	460	5	140
420	372	21	69	38	172	375	400	2.5	32.5
470	399	37	105	53	180	400	440	4	77
555	436	55	149	75	191	435	495	6	175
440	395	21	69	37	183	395	420	2.5	33.5
510	428	41	117	59	192	430	470	4	103
590	462	61	164	82	201	465	530	6	218
480	423	25	81	44	194	420	455	3	51
525	448	41	117	59	202	450	495	4	107
610	480	61	164	82	210	485	550	6	228
580	474	61	164	83	210	495	550	6	220
496	441	27	81	42	202	440	475	3	52
568	477	44	127	63	216	480	525	5	140
640	504	63	168	85	230	510	575	6	254
517	460	27	81	42	212	460	490	3	55
590	494	44	127	64	225	500	550	5	150
680	536	67	178	89	236	540	610	6	306
553	489	30	91	46	225	490	525	4	72
620	520	48	135	68	235	525	575	5	170
700	556	67	178	89	244	560	630	6	323

Note (1) For heavy load applications, a d_a value should be chosen which is large enough to support the shaft washer rib.

Thrust Spherical Roller Bearings

Bore Diameter 440 – 500 mm





Boundary Dimensions (mm)				Basic Load Ratings (N)		Limiting Speeds (min^{-1})	Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	Oil	
440	600	95	5	2 030 000	10 100 000	670	**29288**
	680	145	6	3 750 000	16 700 000	480	**29388**
	780	206	9.5	6 550 000	27 200 000	400	**29488**
	780	206	9.5	8 000 000	31 500 000	400	**29488 EM**
460	620	95	5	2 060 000	10 300 000	670	**29292**
	710	150	6	4 100 000	18 400 000	450	**29392**
	800	206	9.5	6 750 000	28 600 000	380	**29492**
480	650	103	5	2 370 000	12 100 000	600	**29296**
	730	150	6	4 150 000	19 000 000	450	**29396**
	850	224	9.5	7 200 000	31 000 000	360	**29496**
500	670	103	5	2 390 000	12 400 000	600	**292/500**
	750	150	6	4 350 000	20 400 000	450	**293/500**
	870	224	9.5	7 850 000	33 000 000	340	**294/500**

Dimensions (mm)						Abutment and Fillet Dimensions (mm)			Mass (kg)
d_1	D_1	B_1	B_2	C	A	d_a(1) min.	D_a max.	r_a max.	approx.
575	508	30	91	49	235	510	545	4	77
645	548	49	140	70	245	550	600	5	190
745	588	74	199	100	260	595	670	8	407
710	577	74	199	101	257	605	675	8	402
592	530	30	91	46	245	530	570	4	80
666	567	51	144	72	257	575	630	5	210
765	608	74	199	100	272	615	690	8	420
624	556	33	99	55	259	555	595	4	97
690	590	51	144	72	270	595	650	5	215
810	638	81	216	108	280	645	730	8	545
645	574	33	99	55	268	575	615	4	100
715	611	51	144	74	280	615	670	5	220
830	661	81	216	107	290	670	750	8	560

Note (1) For heavy load applications, a d_a value should be chosen which is large enough to support the shaft washer rib.

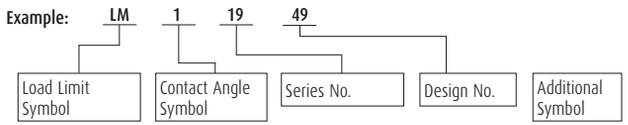
OID MECHANICAL PARTS BEARINGS



Tapered Roller Bearings

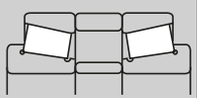
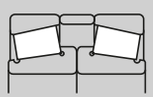
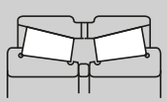
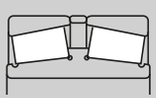
Tapered Roller Bearings

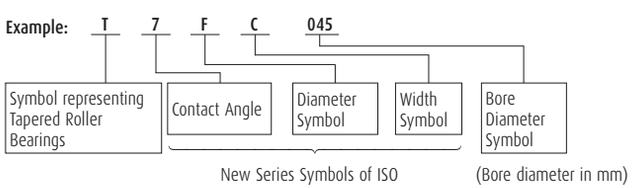
Besides metric design tapered roller bearings, there are also inch design bearings. For the cone assemblies and cups of inch design bearings, except four-row tapered roller bearings, the bearing numbers are approximately formulated as follows:



For tapered roller bearings, besides single-row bearings, there are also various combinations of bearings.
The cages of tapered roller bearings are usually pressed steel.

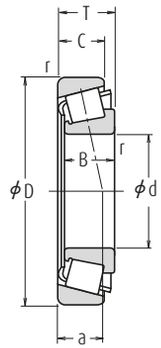
Design and Features of Combinations of Tapered Roller Bearings

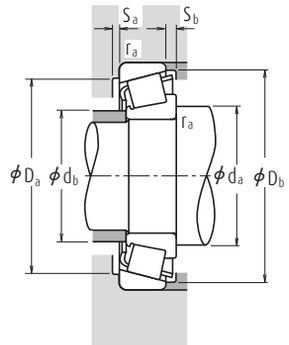
Figure	Arrangement	Examples of Bearing No.	Features
	Back-to-back	HR30210JDB+KLR10	Two standard bearings are combined. The bearing clearance are adjusted by cone spacers or cup spacers. The cones and cups and spacers are marked with serial numbers and mating marks. Components with the same serial number can be assembled referring to the matching symbols.
	Face-to-face	HR30210JDF+KR	
	KBE Type	100KBE31+L	The KBE type is a back-to-back arrangement of bearings with the cup and spacer integrated, and the KH type is a face-to-face arrangement in which the cones are integrated. Since the bearing clearance is adjusted using spacers, it is necessary for components to have the same serial number for assembly with reference to matching symbols.
	KH Type	110KH31+K	



Single-Row Tapered Roller Bearings

Bore Diameter 15 – 28 mm





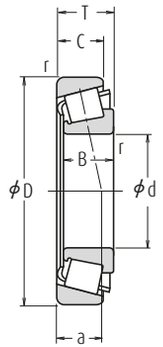
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
15	35	11.75	11	10	0.6	0.6	14 800	13 200	11 000	15 000
	42	14.25	13	11	1	1	23 600	21 100	9 500	13 000
17	40	13.25	12	11	1	1	20 100	19 900	9 500	13 000
	40	17.25	16	14	1	1	27 100	28 000	9 500	13 000
	47	15.25	14	12	1	1	29 200	26 700	8 500	12 000
	47	15.25	14	10.5	1	1	22 000	20 300	8 000	11 000
	47	20.25	19	16	1	1	37 500	36 500	8 500	11 000
20	42	15	15	12	0.6	0.6	24 600	27 400	9 000	12 000
	47	15.25	14	12	1	1	27 900	28 500	8 000	11 000
	47	15.25	14	12	0.3	1	23 900	24 000	8 000	11 000
	47	19.25	18	15	1	1	35 500	37 500	8 500	11 000
	47	19.25	18	15	1	1	31 500	33 500	8 000	11 000
	52	16.25	15	13	1.5	1.5	35 000	33 500	7 500	10 000
	52	16.25	15	12	1.5	1.5	25 300	24 500	7 100	10 000
	52	22.25	21	18	1.5	1.5	45 500	47 500	8 000	11 000
22	44	15	15	11.5	0.6	0.6	25 600	29 400	8 500	11 000
	50	15.25	14	12	1	1	29 200	30 500	7 500	10 000
	50	15.25	14	12	1	1	27 200	29 500	7 500	10 000
	50	19.25	18	15	1	1	36 500	40 500	7 500	11 000
	50	19.25	18	15	1	1	33 500	39 500	7 500	10 000
	56	17.25	16	14	1.5	1.5	37 000	36 500	7 100	9 500
	56	17.25	16	13	1.5	1.5	34 500	34 000	6 700	9 500
25	47	15	15	11.5	0.6	0.6	27 400	33 000	8 000	11 000
	47	17	17	14	0.6	0.6	31 000	38 000	8 000	11 000
	52	16.25	15	13	1	1	32 000	35 000	7 100	10 000
	52	16.25	15	12	1	1	28 100	31 500	9 700	9 500
	52	19.25	18	16	1	1	40 000	45 000	7 100	10 000
	52	19.25	18	15	1	1	35 000	42 000	7 100	9 500
	52	22	22	18	1	1	47 500	56 500	7 500	10 000
	62	18.25	17	15	1.5	1.5	47 500	46 000	6 300	8 500
	62	18.25	17	14	1.5	1.5	42 000	45 000	6 000	8 500
	62	18.25	17	13	1.5	1.5	38 000	40 500	5 600	8 000
	62	18.25	17	13	1.5	1.5	38 000	40 500	5 600	8 000
	62	25.25	24	20	1.5	1.5	62 500	66 000	6 300	8 500
28	52	16	16	12	1	1	32 000	39 000	7 100	9 500
	58	17.25	16	14	1	1	39 500	41 500	6 300	9 000
	58	17.25	16	12	1	1	34 000	38 500	6 300	8 500
	58	20.25	19	16	1	1	47 500	54 000	6 300	9 000
	58	20.25	19	16	1	1	42 000	49 500	6 300	9 000
	68	19.75	18	15	1.5	1.5	55 000	55 500	6 000	8 000
	68	19.75	18	14	1.5	1.5	49 500	50 500	5 600	7 500

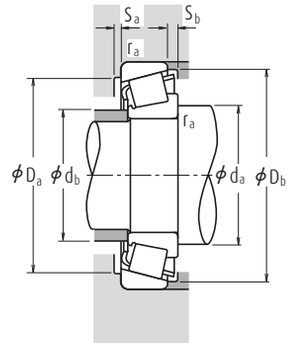
Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
30202	—	23	19	30	30	33	2	1.5	0.6	0.6	8.2	0.32	1.9	1.0	0.053
HR 30302 J	2FB	24	22	36	36	38.5	2	3	1	1	9.5	0.29	2.1	1.2	0.098
HR 30203 J	2DB	26	23	34	34	37.5	2	2	1	1	9.7	0.35	1.7	0.96	0.079
HR 32203 J	2DD	26	22	34	34	37	2	3	1	1	11.2	0.31	1.9	1.1	0.103
HR 30303 J	2FB	26	24	41	40	43	2	3	1	1	10.4	0.29	2.1	1.2	0.134
30303 D	—	29	23	41	34	44	2	4.5	1	1	15.4	0.81	0.74	0.41	0.129
HR 32303 J	2FD	28	23	41	39	43	2	4	1	1	12.5	0.29	2.1	1.2	0.178
HR 32004 XJ	3CC	28	24	37	35	40	3	3	0.6	0.6	10.6	0.37	1.6	0.88	0.097
HR 30204 J	2DB	29	27	41	40	44	2	3	1	1	11.0	0.35	1.7	0.96	0.127
HR 30204 C-A-	—	29	26	41	37	44	2	3	0.3	1	13.0	0.55	1.1	0.60	0.126
HR 32204 J	2DD	29	25	41	38	44.5	3	4	1	1	12.6	0.33	1.8	1.0	0.161
HR 32204 CJ	5DD	29	25	41	36	44	2	4	1	1	14.5	0.52	1.2	0.64	0.166
HR 30304 J	2FB	31	27	44	44	47.5	2	3	1.5	1.5	11.6	0.30	2.0	1.1	0.172
30304 D	—	34	26	43	37	49	2	4	1.5	1.5	16.7	0.81	0.74	0.41	0.168
HR 32304 J	2FD	33	26	43	42	48	3	4	1.5	1.5	13.9	0.30	2.0	1.1	0.241
HR 320/22 XJ	3CC	30	27	39	37	42	3	3.5	0.6	0.6	11.1	0.40	1.5	0.83	0.103
HR 302/22	—	31	29	44	42	47	2	3	1	1	11.6	0.37	1.6	0.90	0.139
HR 302/22 C	—	31	29	44	40	47	2	3	1	1	13.0	0.49	1.2	0.67	0.144
HR 322/22	—	31	28	44	41	47	2	4	1	1	13.5	0.37	1.6	0.89	0.18
HR 322/22 C	—	31	29	44	39	48	2	4	1	1	15.2	0.51	1.2	0.65	0.185
HR 303/22	—	33	30	47	46	50	2	3	1.5	1.5	12.4	0.32	1.9	1.0	0.208
HR 303/22 C	—	33	30	47	44	52.5	3	4	1.5	1.5	15.9	0.59	1.0	0.56	0.207
HR 32005 XJ	4CC	33	30	42	40	45	3	3.5	0.6	0.6	11.8	0.43	1.4	0.77	0.116
HR 33005 J	2CE	33	29	42	41	44	3	3	0.6	0.6	11.0	0.29	2.1	1.1	0.131
HR 30205 J	3CC	34	31	46	44	48.5	2	3	1	1	12.7	0.37	1.6	0.88	0.157
HR 30205 C	—	34	32	46	43	49.5	2	4	1	1	14.4	0.53	1.1	0.62	0.155
HR 32205 J	2CD	34	30	46	44	50	2	3	1	1	13.5	0.36	1.7	0.92	0.189
HR 32205 C	—	34	30	46	40	50	2	4	1	1	15.8	0.53	1.1	0.62	0.19
HR 33205 J	2DE	34	29	46	43	49.5	4	4	1	1	14.1	0.35	1.7	0.94	0.221
HR 30305 J	2FB	36	34	54	54	57	2	3	1.5	1.5	13.2	0.30	2.0	1.1	0.27
HR 30305 C	—	36	35	53	49	58.5	3	4	1.5	1.5	16.4	0.55	1.1	0.60	0.276
HR 30305 DJ	(7FB)	39	34	53	47	59	2	5	1.5	1.5	19.9	0.83	0.73	0.40	0.265
HR 31305 J	7FB	39	33	53	47	59	3	5	1.5	1.5	19.9	0.83	0.73	0.40	0.265
HR 32305 J	2FD	38	32	53	51	57	3	5	1.5	1.5	15.6	0.30	2.0	1.1	0.376
HR 320/28 XJ	4CC	37	33	46	44	50	3	4	1	1	12.8	0.43	1.4	0.77	0.146
HR 302/28	—	37	34	52	50	55	2	3	1	1	13.2	0.35	1.7	0.93	0.203
HR 302/28 C	—	37	34	52	48	54	2	5	1	1	16.9	0.64	0.94	0.52	0.198
HR 322/28	—	37	34	52	49	55	2	4	1	1	14.6	0.37	1.6	0.89	0.243
HR 322/28 CJ	5DD	37	33	52	45	55	2	4	1	1	16.8	0.56	1.1	0.59	0.251
HR 303/28	—	39	37	59	58	61	2	4.5	1.5	1.5	14.5	0.31	1.9	1.1	0.341
HR 303/28 C	—	39	38	59	57	63	3	5.5	1.5	1.5	17.4	0.52	1.2	0.64	0.335

Remark The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix C.

Single-Row Tapered Roller Bearings

Bore Diameter 30 – 35 mm





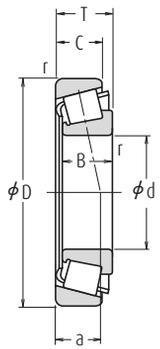
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
30	47	12	12	9	0.3	0.3	17 600	24 400	7 500	10 000
	55	17	17	13	1	1	36 000	44 500	6 700	9 000
	55	20	20	16	1	1	42 000	54 000	6 700	9 000
	62	17.25	16	14	1	1	43 000	47 500	6 000	8 000
	62	17.25	16	12	1	1	35 500	37 000	5 600	7 500
	62	21.25	20	17	1	1	52 000	60 000	6 000	8 500
	62	21.25	20	16	1	1	48 000	56 000	6 000	8 000
	62	25	25	19.5	1	1	66 500	79 500	6 000	8 000
	72	20.75	19	16	1.5	1.5	59 500	60 000	5 300	7 500
	72	20.75	19	14	1.5	1.5	56 500	55 500	5 300	7 100
	72	20.75	19	14	1.5	1.5	49 000	52 500	4 800	6 700
	72	20.75	19	14	1.5	1.5	49 000	52 500	4 800	6 800
	72	28.75	27	23	1.5	1.5	80 000	88 500	5 600	7 500
	72	28.75	27	23	1.5	1.5	76 000	86 500	5 600	7 500
32	58	17	17	13	1	1	37 500	47 000	6 300	8 500
	58	21	20	16	1	1	41 000	50 000	6 300	8 500
	65	18.25	17	15	1	1	48 500	54 000	5 600	8 000
	65	18.25	17	14	1	1	45 500	52 500	5 600	7 500
	65	22.25	21	18	1	1	56 000	65 000	6 000	8 000
	65	22.25	21	17	1	1	49 500	60 000	5 600	7 500
	65	26	26	20.5	1	1	70 000	86 500	5 600	8 000
	75	21.75	20	17	1.5	1.5	56 000	56 000	5 300	7 100
35	55	14	14	11.5	0.6	0.6	27 400	39 000	6 300	8 500
	62	18	18	14	1	1	43 500	55 500	5 600	8 000
	62	21	21	17	1	1	49 000	65 000	5 600	8 000
	72	18.25	17	15	1.5	1.5	54 000	59 500	5 300	7 100
	72	18.25	17	13	1.5	1.5	47 000	54 500	5 000	6 700
	72	24.25	23	19	1.5	1.5	70 500	83 500	5 300	7 100
	72	24.25	23	18	1.5	1.5	60 500	71 500	5 000	7 100
	72	28	28	22	1.5	1.5	86 500	108 000	5 300	7 100
	80	22.75	21	18	2	1.5	76 000	79 000	4 800	6 700
	80	22.75	21	16	2	1.5	68 000	70 500	4 800	6 300
	80	22.75	21	15	2	1.5	62 000	68 000	4 300	6 000
	80	22.75	21	15	2	1.5	62 000	68 000	4 300	6 000
	80	32.75	31	25	2	1.5	99 000	111 000	5 000	6 700

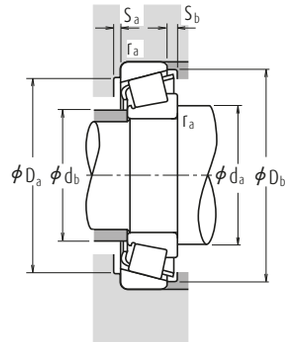
Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32906 J	2BD	34	34	44	42	44	3	3	0.3	0.3	9.2	0.32	1.9	1.0	0.074
HR 32006 XJ	4CC	39	35	49	47	53	3	4	1	1	13.5	0.43	1.4	0.77	0.172
HR 33006 J	2CE	39	35	49	48	52	3	4	1	1	13.1	0.29	2.1	1.1	0.208
HR 30206 J	3DB	39	37	56	52	58	2	3	1	1	13.9	0.37	1.6	0.88	0.238
HR 30206 C	–	39	36	56	49	59	2	5	1	1	17.8	0.68	0.88	0.49	0.221
HR 32206 J	3DC	39	36	56	51	58.5	2	4	1	1	15.4	0.37	1.6	0.88	0.297
HR 32206 C	–	39	35	56	48	59	2	5	1	1	17.8	0.55	1.1	0.60	0.293
HR 33206 J	2DE	39	35	56	52	59.5	5	5.5	1	1	16.1	0.34	1.8	0.97	0.355
HR 30306 J	2FB	41	40	63	62	66	3	4.5	1.5	1.5	15.1	0.32	1.9	1.1	0.403
HR 30306 C	–	41	38	63	59	67	3	6.5	1.5	1.5	18.5	0.55	1.1	0.60	0.383
HR 30306 DJ	(7FB)	44	40	63	55	68	3	6.5	1.5	1.5	23.1	0.83	0.73	0.40	0.393
HR 31306 J	7FB	44	40	63	55	68	3	6.5	1.5	1.5	23.1	0.83	0.73	0.40	0.393
HR 32306 J	2FD	43	38	63	59	66	3	5.5	1.5	1.5	18.0	0.32	1.9	1.1	0.57
HR 32306 CJ	5FD	43	36	63	54	68	3	5.5	1.5	1.5	22.0	0.55	1.1	0.60	0.583
HR 320/32 XJ	4CC	41	37	52	49	55	3	4	1	1	14.2	0.45	1.3	0.73	0.191
330/32	–	41	37	52	50	55	2	4	1	1	13.8	0.31	1.9	1.1	0.225
HR 302/32	–	41	39	59	56	61	3	3	1	1	14.7	0.37	1.6	0.88	0.277
HR 302/32 C	–	41	39	59	54	62	3	4	1	1	16.9	0.55	1.1	0.60	0.273
HR 322/32	–	41	38	59	54	61	3	4	1	1	15.9	0.37	1.6	0.88	0.336
HR 322/32 C	–	41	39	59	51	62	3	5	1	1	20.2	0.59	1.0	0.56	0.335
HR 332/32 J	2DE	41	38	59	55	62	5	5.5	1	1	17.0	0.35	1.7	0.95	0.40
303/32	–	44	42	66	64	68	3	4.5	1.5	1.5	15.9	0.33	1.8	1.0	0.435
HR 32907 J	2BD	43	40	50	50	52.5	3	2.5	0.6	0.6	10.7	0.29	2.1	1.1	0.123
HR 32007 XJ	4CC	44	40	56	54	60	4	4	1	1	15.0	0.45	1.3	0.73	0.229
HR 33007 J	2CE	44	40	56	55	59	4	4	1	1	14.1	0.31	2.0	1.1	0.267
HR 30207 J	3DB	46	43	63	62	67	3	3	1.5	1.5	15.0	0.37	1.6	0.88	0.34
HR 30207 C	–	46	44	63	59	68	3	5	1.5	1.5	19.6	0.66	0.91	0.50	0.331
HR 32207 J	3DC	46	42	63	61	67.5	3	5	1.5	1.5	17.9	0.37	1.6	0.88	0.456
HR 32207 C	–	46	42	63	58	68.5	3	6	1.5	1.5	20.6	0.55	1.1	0.60	0.442
HR 33207 J	2DE	46	41	63	61	68	5	6	1.5	1.5	18.3	0.35	1.7	0.93	0.54
HR 30307 J	2FB	47	45	71	69	74	3	4.5	2	1.5	16.7	0.32	1.9	1.1	0.538
HR 30307 C	–	47	44	71	65	74	3	6.5	2	1.5	20.3	0.55	1.1	0.60	0.518
HR 30307 DJ	7FB	51	44	71	62	77	3	7.5	2	1.5	25.2	0.83	0.73	0.40	0.519
HR 31307 J	7FB	51	44	71	62	77	3	7.5	2	1.5	25.2	0.83	0.73	0.40	0.52
HR 32307 J	2FE	49	43	71	66	74	3	7.5	2	1.5	20.7	0.32	1.9	1.1	0.765

Remark The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix C.

Single-Row Tapered Roller Bearings

Bore Diameter 40 – 50 mm





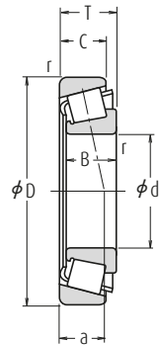
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
40	62	15	15	12	0.6	0.6	34 000	47 000	5 600	7 500
	68	19	19	14.5	1	1	53 000	71 000	5 300	7 100
	68	22	22	18	1	1	59 000	81 500	5 300	7 100
	75	26	26	20.5	1.5	1.5	78 500	101 000	4 800	6 700
	80	19.75	18	16	1.5	1.5	63 500	70 000	4 800	6 300
	80	24.75	23	19	1.5	1.5	77 000	90 500	4 800	6 300
	80	24.75	23	19	1.5	1.5	74 000	90 500	4 500	6 300
	80	32	32	25	1.5	1.5	107 000	137 000	4 800	6 300
	90	25.25	23	20	2	1.5	90 500	101 000	4 300	5 600
	90	25.25	23	18	2	1.5	84 500	93 500	4 300	5 600
	90	25.25	23	17	2	1.5	80 000	89 500	3 800	5 300
	90	25.25	23	17	2	1.5	80 000	89 500	3 800	5 300
	90	35.25	33	27	2	1.5	120 000	145 000	4 300	6 000
45	68	15	15	12	0.6	0.6	34 500	50 500	5 000	6 700
	75	20	20	15.5	1	1	60 000	83 000	4 500	6 300
	75	24	24	19	1	1	69 000	99 000	4 800	6 300
	80	26	26	20.5	1.5	1.5	84 000	113 000	4 500	6 000
	85	20.75	19	16	1.5	1.5	68 500	79 500	4 300	6 000
	85	24.75	23	19	1.5	1.5	83 000	102 000	4 300	6 000
	85	24.75	23	19	1.5	1.5	75 500	95 500	4 300	5 600
	85	32	32	25	1.5	1.5	111 000	147 000	4 300	6 000
	95	29	26.5	20	2.5	2.5	88 500	109 000	3 600	5 000
	95	36	35	30	2.5	2.5	139 000	174 000	4 000	5 300
	100	27.25	25	22	2	1.5	112 000	127 000	3 800	5 300
	100	27.25	25	18	2	1.5	95 500	109 000	3 400	4 800
	100	27.25	25	18	2	1.5	95 500	109 000	3 400	4 800
	100	38.25	36	30	2	1.5	144 000	177 000	3 800	5 300
50	100	36	35	30	2.5	2.5	144 000	185 000	3 800	5 000
	72	15	15	12	0.6	0.6	36 000	54 000	4 500	6 300
	80	20	20	15.5	1	1	61 000	87 000	4 300	6 000
	80	24	24	19	1	1	70 500	104 000	4 300	6 000
	85	26	26	20	1.5	1.5	89 000	126 000	4 300	5 600
	90	21.75	20	17	1.5	1.5	76 000	91 500	4 000	5 300
	90	24.75	23	19	1.5	1.5	87 500	109 000	4 000	5 300
	90	24.75	23	18	1.5	1.5	77 500	102 000	3 800	5 300
	90	32	32	24.5	1.5	1.5	118 000	165 000	4 000	5 300
	105	32	29	22	3	3	109 000	133 000	3 200	4 500
	110	29.25	27	23	2.5	2	130 000	148 000	3 400	4 800
	110	29.25	27	19	2.5	2	114 000	132 000	3 200	4 300
	110	29.25	27	19	2.5	2	114 000	132 000	3 200	4 300
	110	42.25	40	33	2.5	2	176 000	220 000	3 600	4 800
	110	42.25	40	33	2.5	2	164 000	218 000	3 400	4 800

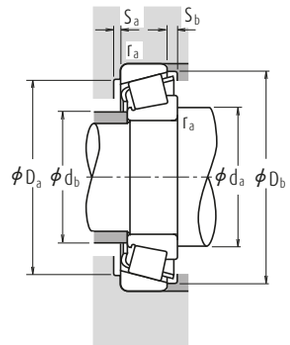
Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32908 J	2BC	48	44	57	57	59	3	3	0.6	0.6	11.5	0.29	2.1	1.1	0.161
HR 32008 XJ	3CD	49	45	62	60	65.5	4	4.5	1	1	15.0	0.38	1.6	0.87	0.28
HR 33008 J	2BE	49	45	62	61	65	4	4	1	1	14.6	0.28	2.1	1.2	0.322
HR 33108 J	2CE	51	46	66	65	71	4	5.5	1.5	1.5	18.0	0.36	1.7	0.93	0.503
HR 30208 J	3DB	51	48	71	69	75	3	3.5	1.5	1.5	16.6	0.37	1.6	0.88	0.437
HR 32208 J	3DC	51	48	71	68	75	3	5.5	1.5	1.5	18.9	0.37	1.6	0.88	0.548
HR 32208 CJ	5DC	51	47	71	65	76	3	5.5	1.5	1.5	21.9	0.55	1.1	0.60	0.558
HR 33208 J	2DE	51	46	71	67	76	5	7	1.5	1.5	20.8	0.36	1.7	0.92	0.744
HR 30308 J	2FB	52	52	81	76	82	3	5	2	1.5	19.5	0.35	1.7	0.96	0.758
HR 30308 C	—	52	50	81	72	84	3	7	2	1.5	22.8	0.53	1.1	0.62	0.735
HR 30308 DJ	7FB	56	50	81	70	87	3	8	2	1.5	28.7	0.83	0.73	0.40	0.728
HR 31308 J	7FB	56	50	81	70	87	3	8	2	1.5	28.7	0.83	0.73	0.40	0.728
HR 32308 J	2FD	54	50	81	73	82	3	8	2	1.5	23.4	0.35	1.7	0.96	1.05
HR 32909 J	2BC	53	50	63	62	64	3	3	0.6	0.6	12.3	0.32	1.9	1.0	0.187
HR 32009 XJ	3CC	54	51	69	67	72	4	4.5	1	1	16.6	0.39	1.5	0.84	0.354
HR 33009 J	2CE	54	51	69	67	71	4	5	1	1	16.3	0.29	2.0	1.1	0.414
HR 33109 J	3CE	56	51	71	69	77	4	5.5	1.5	1.5	19.1	0.38	1.6	0.86	0.552
HR 30209 J	3DB	56	53	76	74	80	3	4.5	1.5	1.5	18.3	0.41	1.5	0.81	0.488
HR 32209 J	3DC	56	53	76	73	81	3	5.5	1.5	1.5	20.1	0.41	1.5	0.81	0.602
HR 32209 CJ	5DC	56	52	76	70	82	3	5.5	1.5	1.5	23.6	0.59	1.0	0.56	0.603
HR 33209 J	3DE	56	51	76	72	81	5	7	1.5	1.5	22.0	0.39	1.6	0.86	0.817
T7 FC045	7FC	60	53	83	71	91	3	9	2	2	32.1	0.87	0.69	0.38	0.918
T2 ED045	2ED	60	54	83	79	89	5	6	2	2	23.5	0.32	1.9	1.02	1.22
HR 30309 J	2FB	57	58	91	86	93	3	5	2	1.5	21.1	0.35	1.7	0.96	1.01
HR 30309 DJ	7FB	61	57	91	79	96	3	9	2	1.5	31.5	0.83	0.73	0.40	0.957
HR 31309 J	7FB	61	57	91	79	96	3	9	2	1.5	31.5	0.83	0.73	0.40	0.947
HR 32309 J	2FD	59	56	91	82	93	3	8	2	1.5	25.0	0.35	1.7	0.96	1.42
T2 ED050	2ED	65	59	88	83	94	6	6	2	2	24.2	0.34	1.8	0.96	1.3
HR 32910 J	2BC	58	54	67	66	69	3	3	0.6	0.6	13.5	0.34	1.8	0.97	0.193
HR 32010 XJ	3CC	59	56	74	71	77	4	4.5	1	1	17.9	0.42	1.4	0.78	0.38
HR 33010 J	2CE	59	55	74	71	76	4	5	1	1	17.4	0.32	1.9	1.0	0.452
HR 33110 J	3CE	61	56	76	74	82	4	6	1.5	1.5	20.3	0.41	1.5	0.8	0.597
HR 30210 J	3DB	61	58	81	79	85	3	4.5	1.5	1.5	19.6	0.42	1.4	0.79	0.557
HR 32210 J	3DC	61	57	81	78	86	3	5.5	1.5	1.5	21.0	0.42	1.4	0.79	0.642
HR 32210 CJ	5DC	61	58	81	76	87	3	6.5	1.5	1.5	24.6	0.59	1.0	0.56	0.655
HR 33210 J	3DE	61	56	81	76	87	5	7.5	1.5	1.5	23.2	0.41	1.5	0.80	0.867
T7 FC050	7FC	74	59	91	78	100	5	10	2.5	2.5	36.4	0.87	0.69	0.38	1.22
HR 30310 J	2FB	65	65	100	95	102	3	6	2	2	23.1	0.35	1.7	0.96	1.28
HR 30310 DJ	7FB	70	62	100	87	105	3	10	2	2	34.3	0.83	0.73	0.40	1.26
HR 31310 J	7FB	70	62	100	87	105	3	10	2	2	34.3	0.83	0.73	0.40	1.26
HR 32310 J	2FD	68	62	100	91	102	3	9	2	2	28.0	0.35	1.7	0.96	1.88
HR 32310 CJ	5FD	68	59	100	82	103	3	9	2	2	32.8	0.55	1.1	0.60	1.93

Remark The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix C.

Single-Row Tapered Roller Bearings

Bore Diameter 55 – 65 mm





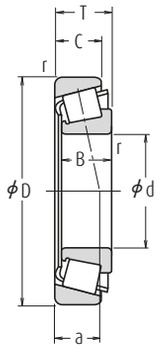
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
55	80	17	17	14	1	1	45 500	74 500	4 300	5 600
	90	23	23	17.5	1.5	1.5	81 500	117 000	3 800	5 300
	90	27	27	21	1.5	1.5	91 500	138 000	3 800	5 300
	95	30	30	23	1.5	1.5	112 000	158 000	3 800	5 000
	100	22.75	21	18	2	1.5	94 500	113 000	3 600	5 000
	100	26.75	25	21	2	1.5	110 000	137 000	3 600	5 000
	100	35	35	27	2	1.5	141 000	193 000	3 600	5 000
	115	34	31	23.5	3	3	126 000	164 000	3 000	4 300
	120	31.5	29	25	2.5	2	150 000	171 000	3 200	4 300
	120	31.5	29	21	2.5	2	131 000	153 000	2 800	4 000
	120	31.5	29	21	2.5	2	131 000	153 000	2 800	4 000
	120	45.5	43	35	2.5	2	204 000	258 000	3 200	4 300
	120	45.5	43	35	2.5	2	195 000	262 000	3 200	4 300
60	85	17	17	14	1	1	49 000	84 500	3 800	5 300
	95	23	23	17.5	1.5	1.5	85 500	127 000	3 600	5 000
	95	27	27	21	1.5	1.5	96 000	150 000	3 600	5 000
	100	30	30	23	1.5	1.5	115 000	166 000	3 400	4 800
	110	23.75	22	19	2	1.5	104 000	123 000	3 400	4 500
	110	29.75	28	24	2	1.5	131 000	167 000	3 400	4 500
	110	38	38	29	2	1.5	166 000	231 000	3 400	4 500
	125	37	33.5	26	3	3	151 000	197 000	2 800	3 800
	130	33.5	31	26	3	2.5	174 000	201 000	3 000	4 000
	130	33.5	31	22	3	2.5	151 000	177 000	2 600	3 800
	130	33.5	31	22	3	2.5	151 000	177 000	2 600	3 800
	130	48.5	46	37	3	2.5	233 000	295 000	3 000	4 000
	130	48.5	46	35	3	2.5	196 000	249 000	2 800	3 800
65	90	17	17	14	1	1	49 000	86 500	3 600	5 000
	100	23	23	17.5	1.5	1.5	86 500	132 000	3 400	4 500
	100	27	27	21	1.5	1.5	97 500	156 000	3 400	4 500
	110	34	34	26.5	1.5	1.5	148 000	218 000	3 200	4 300
	120	24.75	23	20	2	1.5	122 000	151 000	3 000	4 000
	120	32.75	31	27	2	1.5	157 000	202 000	3 000	4 000
	120	41	41	32	2	1.5	202 000	282 000	3 000	4 000
	140	36	33	28	3	2.5	200 000	233 000	2 600	3 600
	140	36	33	23	3	2.5	173 000	205 000	2 400	3 400
	140	36	33	23	3	2.5	173 000	205 000	2 400	3 400
	140	51	48	39	3	2.5	267 000	340 000	2 800	3 800

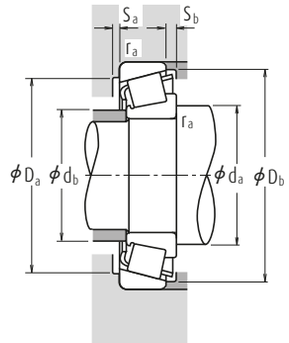
Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_b min.	S_a min.	S_b min.		r_a max.		a	e	Y_1	Y_0	approx.
HR 32911 J	2BC	64	60	74	73	76	4	3	1	1	14.6	0.31	1.9	1.1	0.282
HR 32011 XJ	3CC	66	62	81	80	86	4	5.5	1.5	1.5	19.7	0.41	1.5	0.81	0.568
HR 33011 J	2CE	66	62	81	80	86	5	6	1.5	1.5	19.2	0.31	1.9	1.1	0.657
HR 33111 J	3CE	66	62	86	82	91	5	7	1.5	1.5	22.4	0.37	1.6	0.88	0.877
HR 30211 J	3DB	67	64	91	89	94	4	4.5	2	1.5	20.9	0.41	1.5	0.81	0.736
HR 32211 J	3DC	67	63	91	87	95	4	5.5	2	1.5	22.7	0.41	1.5	0.81	0.859
HR 33211 J	3DE	67	62	91	86	96	6	8	2	1.5	25.2	0.40	1.5	0.83	1.18
T7 FC055	7FC	73	66	101	86	109	4	10.5	2.5	2.5	39.0	0.87	0.69	0.38	1.58
HR 30311 J	2FB	70	71	110	104	111	4	6.5	2	2	24.6	0.35	1.7	0.96	1.63
HR 30311 DJ	7FB	75	67	110	94	114	4	10.5	2	2	37.0	0.83	0.73	0.40	1.58
HR 31311 J	7FB	75	67	110	94	114	4	10.5	2	2	37.0	0.83	0.73	0.40	1.58
HR 32311 J	2FD	73	67	110	99	111	4	10.5	2	2	29.9	0.35	1.7	0.96	2.39
HR 32311 CJ	5FD	73	65	110	91	112	4	10.5	2	2	35.8	0.55	1.1	0.60	2.47
HR 32912 J	2BC	69	65	79	78	81	4	3	1	1	15.5	0.33	1.8	1.0	0.306
HR 32012 XJ	4CC	71	66	86	85	91	4	5.5	1.5	1.5	20.9	0.43	1.4	0.77	0.608
HR 33012 J	2CE	71	66	86	85	90	5	6	1.5	1.5	20.0	0.33	1.8	1.0	0.713
HR 33112 J	3CE	71	68	91	88	96	5	7	1.5	1.5	23.6	0.40	1.5	0.83	0.91
HR 30212 J	3EB	72	69	101	96	103	4	4.5	2	1.5	22.0	0.41	1.5	0.81	0.930
HR 32212 J	3EC	72	68	101	95	104	4	5.5	2	1.5	24.1	0.41	1.5	0.81	1.18
HR 33212 J	3EE	72	68	101	94	105	6	9	2	1.5	27.6	0.40	1.5	0.82	1.56
T7 FC060	7FC	78	72	111	94	119	4	11	2.5	2.5	41.4	0.82	0.73	0.40	2.03
HR 30312 J	2FB	78	77	118	112	120	4	7.5	2.5	2	26.0	0.35	1.7	0.96	2.03
HR 30312 DJ	7FB	84	74	118	103	125	4	11.5	2.5	2	40.3	0.83	0.73	0.40	1.98
HR 31312 J	7FB	84	74	118	103	125	4	11.5	2.5	2	40.3	0.83	0.73	0.40	1.98
HR 32312 J	2FD	81	74	118	107	120	4	11.5	2.5	2	31.4	0.35	1.7	0.96	2.96
32312 C	–	81	74	116	102	125	4	13.5	2.5	2	39.9	0.58	1.0	0.57	2.86
HR 32913 J	2BC	74	70	84	82	86	4	3	1	1	16.8	0.35	1.7	0.93	0.323
HR 32013 XJ	4CC	76	71	91	90	97	4	5.5	1.5	1.5	22.4	0.46	1.3	0.72	0.646
HR 33013 J	2CE	76	71	91	90	96	5	6	1.5	1.5	21.1	0.35	1.7	0.95	0.76
HR 33113 J	3DE	76	73	101	96	106	6	7.5	1.5	1.5	26.0	0.39	1.5	0.85	1.32
HR 30213 J	3EB	77	78	111	106	113	4	4.5	2	1.5	23.8	0.41	1.5	0.81	1.18
HR 32213 J	3EC	77	75	111	104	115	4	5.5	2	1.5	27.1	0.41	1.5	0.81	1.55
HR 33213 J	3EE	77	74	111	102	115	6	9	2	1.5	29.2	0.39	1.5	0.85	2.04
HR 30313 J	2GB	83	83	128	121	130	4	8	2.5	2	27.9	0.35	1.7	0.96	2.51
HR 30313 DJ	7GB	89	80	128	111	133	4	13	2.5	2	43.2	0.83	0.73	0.40	2.43
HR 31313 J	7GB	89	80	128	111	133	4	13	2.5	2	43.2	0.83	0.73	0.40	2.43
HR 32313 J	2GD	86	80	128	116	130	4	12	2.5	2	34.0	0.35	1.7	0.96	3.6

Remark The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix C.

Single-Row Tapered Roller Bearings

Bore Diameter 70 – 80 mm



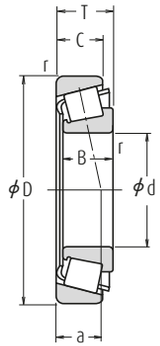


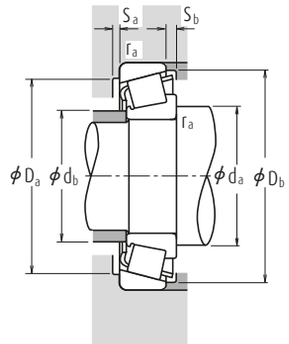
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
70	100	20	20	16	1	1	70 000	113 000	3 200	4 500
	110	25	25	19	1.5	1.5	104 000	158 000	3 200	4 300
	110	31	31	25.5	1.5	1.5	127 000	204 000	3 000	4 300
	120	37	37	29	2	1.5	177 000	262 000	3 000	4 000
	125	26.25	24	21	2	1.5	132 000	163 000	2 800	4 000
	125	33.25	31	27	2	1.5	157 000	205 000	2 800	4 000
	125	41	41	32	2	1.5	209 000	299 000	2 800	4 000
	140	39	35.5	27	3	3	177 000	229 000	2 400	3 400
	150	38	35	30	3	2.5	227 000	268 000	2 400	3 400
	150	38	35	25	3	2.5	192 000	229 000	2 200	3 200
	150	38	35	25	3	2.5	192 000	229 000	2 200	3 200
	150	54	51	42	3	2.5	300 000	390 000	2 600	3 400
	150	54	51	42	3	2.5	280 000	390 000	2 400	3 400
75	105	20	20	16	1	1	72 500	120 000	3 200	4 300
	115	25	25	19	1.5	1.5	109 000	171 000	3 000	4 000
	115	31	31	25.5	1.5	1.5	133 000	220 000	3 000	4 000
	125	37	37	29	2	2	182 000	275 000	2 800	3 800
	130	27.25	25	22	2	1.5	143 000	182 000	2 800	3 800
	130	33.25	31	27	2	1.5	165 000	219 000	2 800	3 800
	130	41	41	31	2	1.5	215 000	315 000	2 800	3 800
	160	40	37	31	3	2.5	253 000	300 000	2 400	3 200
	160	40	37	26	3	2.5	211 000	251 000	2 200	3 000
	160	40	37	26	3	2.5	211 000	251 000	2 200	3 000
	160	58	55	45	3	2.5	340 000	445 000	2 400	3 200
	160	58	55	43	3	2.5	310 000	420 000	2 200	3 200
80	110	20	20	16	1	1	75 000	128 000	3 000	4 000
	125	29	29	22	1.5	1.5	140 000	222 000	2 800	3 600
	125	36	36	29.5	1.5	1.5	172 000	282 000	2 800	3 600
	130	37	37	29	2	1.5	186 000	289 000	2 600	3 600
	140	28.25	26	22	2.5	2	157 000	195 000	2 600	3 400
	140	28.25	26	20	2.5	2	147 000	190 000	2 400	3 400
	140	35.25	33	28	2.5	2	192 000	254 000	2 600	3 400
	140	46	46	35	2.5	2	256 000	385 000	2 600	3 400
	170	42.5	39	33	3	2.5	276 000	330 000	2 200	3 000
	170	42.5	39	27	3	2.5	235 000	283 000	2 000	2 800
	170	42.5	39	27	3	2.5	235 000	283 000	2 000	2 800
	170	61.5	58	48	3	2.5	385 000	505 000	2 200	3 000
	170	61.5	58	48	3	2.5	365 000	530 000	2 200	3 000

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32914 J	2BC	79	76	94	93	96	4	4	1	1	17.6	0.32	1.9	1.1	0.494
HR 32014 XJ	4CC	81	77	101	98	105	5	6	1.5	1.5	23.7	0.43	1.4	0.76	0.869
HR 33014 J	2CE	81	78	101	100	105	5	5.5	1.5	1.5	22.2	0.28	2.1	1.2	1.11
HR 33114 J	3DE	82	79	111	104	115	6	8	2	1.5	27.9	0.38	1.6	0.87	1.71
HR 30214 J	3EB	82	81	116	110	118	4	5	2	1.5	25.6	0.42	1.4	0.79	1.3
HR 32214 J	3EC	82	80	116	108	119	4	6	2	1.5	28.6	0.42	1.4	0.79	1.66
HR 33214 J	3EE	82	78	116	107	120	7	9	2	1.5	30.4	0.41	1.5	0.81	2.15
T7 FC070	7FC	88	79	126	106	133	5	12	2.5	2.5	46.4	0.87	0.69	0.38	2.55
HR 30314 J	2GB	88	89	138	132	140	4	8	2.5	2	29.7	0.35	1.7	0.96	3.03
HR 30314 DJ	7GB	94	85	138	118	142	4	13	2.5	2	45.8	0.83	0.73	0.40	2.94
HR 31314 J	7GB	94	85	138	118	142	4	13	2.5	2	45.8	0.83	0.73	0.40	2.94
HR 32314 J	2GD	91	86	138	124	140	4	12	2.5	2	36.1	0.35	1.7	0.96	4.35
HR 32314 CJ	5GD	91	84	138	115	141	4	12	2.5	2	43.3	0.55	1.1	0.60	4.47
HR 32915 J	2BC	84	81	99	98	101	4	4	1	1	18.7	0.33	1.8	0.99	0.53
HR 32015 XJ	4CC	86	82	106	103	110	5	6	1.5	1.5	25.1	0.46	1.3	0.72	0.925
HR 33015 J	2CE	86	83	106	104	110	6	5.5	1.5	1.5	23.0	0.30	2.0	1.1	1.18
HR 33115 J	3DE	87	83	115	109	120	6	8	2	2	29.2	0.40	1.5	0.83	1.8
HR 30215 J	4DB	87	85	121	115	124	4	5	2	1.5	27.0	0.44	1.4	0.76	1.43
HR 32215 J	4DC	87	84	121	113	125	4	6	2	1.5	29.8	0.44	1.4	0.76	1.72
HR 33215 J	3EE	87	83	121	111	125	7	10	2	1.5	31.6	0.43	1.4	0.77	2.25
HR 30315 J	2GB	93	95	148	141	149	4	9	2.5	2	31.8	0.35	1.7	0.96	3.63
HR 30315 DJ	7GB	99	91	148	129	152	6	14	2.5	2	48.8	0.83	0.73	0.40	3.47
HR 31315 J	7GB	99	91	148	129	152	6	14	2.5	2	48.8	0.83	0.73	0.40	3.47
HR 32315 J	2GD	96	91	148	134	149	4	13	2.5	2	38.9	0.35	1.7	0.96	5.31
32315 CA	—	96	90	148	124	153	4	15	2.5	2	47.7	0.58	1.0	0.57	5.3
HR 32916 J	2BC	89	85	104	102	106	4	4	1	1	19.8	0.35	1.7	0.94	0.56
HR 32016 XJ	3CC	91	89	116	112	120	6	7	1.5	1.5	26.9	0.42	1.4	0.78	1.32
HR 33016 J	2CE	91	88	116	112	119	6	6.5	1.5	1.5	25.5	0.28	2.2	1.2	1.66
HR 33116 J	3DE	82	88	121	113	126	6	8	2	1.5	30.4	0.42	1.4	0.79	1.88
HR 30216 J	3EB	95	91	130	124	132	4	6	2	2	28.1	0.42	1.4	0.79	1.68
30216 CA	—	95	92	130	122	133	4	8	2	2	33.8	0.58	1.0	0.57	1.66
HR 32216 J	3EC	95	90	130	122	134	4	7	2	2	30.6	0.42	1.4	0.79	2.13
HR 33216 J	3EE	95	89	130	119	135	7	11	2	2	34.8	0.43	1.4	0.78	2.93
HR 30316 J	2GB	98	102	158	150	159	4	9.5	2.5	2	34.0	0.35	1.7	0.96	4.27
HR 30316 DJ	7GB	104	97	158	136	159	6	15.5	2.5	2	51.8	0.83	0.73	0.40	4.07
HR 31316 J	7GB	104	97	158	136	159	6	15.5	2.5	2	51.8	0.83	0.73	0.40	4.07
HR 32316 J	2GD	101	98	158	143	159	4	13.5	2.5	2	41.4	0.35	1.7	0.96	6.35
HR 32316 CJ	5GD	101	95	158	132	160	4	13.5	2.5	2	49.3	0.55	1.1	0.60	6.59

Remark The suffix CA represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix CA.

Bore Diameter 85 – 100 mm



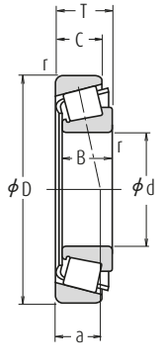


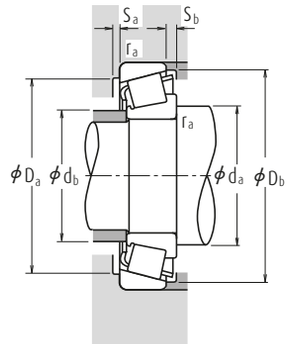
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
85	120	23	23	18	1.5	1.5	93 500	157 000	2 800	3 800
	130	29	29	22	1.5	1.5	143 000	231 000	2 600	3 600
	130	36	36	29.5	1.5	1.5	180 000	305 000	2 600	3 600
	140	41	41	32	2.5	2	230 000	365 000	2 400	3 400
	150	30.5	28	24	2.5	2	184 000	233 000	2 400	3 200
	150	30.5	28	22	2.5	2	171 000	226 000	2 200	3 200
	150	38.5	36	30	2.5	2	210 000	277 000	2 200	3 200
	150	49	49	37	2.5	2	281 000	415 000	2 400	3 200
	180	44.5	41	34	4	3	310 000	375 000	2 000	2 800
	180	44.5	41	28	4	3	261 000	315 000	1 900	2 600
	180	44.5	41	28	4	3	261 000	315 000	1 900	2 600
	180	63.5	60	49	4	3	410 000	535 000	2 000	2 800
90	125	23	23	18	1.5	1.5	97 000	167 000	2 600	3 600
	140	32	32	24	2	1.5	170 000	273 000	2 400	3 200
	140	39	39	32.5	2	1.5	220 000	360 000	2 400	3 200
	150	45	45	35	2.5	2	259 000	405 000	2 400	3 200
	160	32.5	30	26	2.5	2	201 000	256 000	2 200	3 000
	160	42.5	40	34	2.5	2	256 000	350 000	2 200	3 000
	190	46.5	43	36	4	3	345 000	425 000	1 900	2 600
	190	46.5	43	30	4	3	264 000	315 000	1 800	2 400
	190	46.5	43	30	4	3	264 000	315 000	1 800	2 400
	190	67.5	64	53	4	3	450 000	590 000	2 000	2 600
95	130	23	23	18	1.5	1.5	98 000	172 000	2 400	3 400
	145	32	32	24	2	1.5	173 000	283 000	2 400	3 200
	145	39	39	32.5	2	1.5	231 000	390 000	2 400	3 200
	160	46	46	38	3	3	283 000	445 000	2 200	3 000
	170	34.5	32	27	3	2.5	223 000	286 000	2 200	2 800
	170	45.5	43	37	3	2.5	289 000	400 000	2 200	2 800
	200	49.5	45	38	4	3	370 000	455 000	1 900	2 600
	200	49.5	45	36	4	3	350 000	435 000	1 800	2 400
	200	49.5	45	32	4	3	310 000	375 000	1 700	2 400
	200	49.5	45	32	4	3	310 000	375 000	1 700	2 400
	200	71.5	67	55	4	3	525 000	710 000	1 900	2 600
100	140	25	25	20	1.5	1.5	117 000	205 000	2 200	3 200
	145	24	22.5	17.5	3	3	113 000	163 000	2 200	3 000
	150	32	32	24	2	1.5	176 000	294 000	2 200	3 000
	150	39	39	32.5	2	1.5	235 000	405 000	2 200	3 000
	165	52	52	40	2.5	2	315 000	515 000	2 000	2 800
	180	37	34	29	3	2.5	255 000	330 000	2 000	2 600
	180	49	46	39	3	2.5	325 000	450 000	2 000	2 600
	180	63	63	48	3	2.5	410 000	635 000	2 000	2 600
	215	51.5	47	39	4	3	425 000	525 000	1 700	2 400
	215	56.5	51	35	4	3	385 000	505 000	1 500	2 200
	215	77.5	73	60	4	3	565 000	755 000	1 700	2 400

Remark The suffix CA represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult OID when using bearings with suffix CA.

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_b min.	S_a min.	S_b min.		r_a max.		a	e	Y_1	Y_0	approx.
HR 32917 J	2BC	96	92	111	111	115	5	5	1.5	1.5	20.9	0.33	1.8	1.0	0.8
HR 32017 XJ	4CC	96	94	121	116	125	6	7	1.5	1.5	28.2	0.44	1.4	0.75	1.38
HR 33017 J	2CE	96	94	121	117	125	6	6.5	1.5	1.5	26.5	0.29	2.1	1.1	1.75
HR 33117 J	3DE	100	94	130	122	135	7	9	2	2	32.7	0.41	1.5	0.81	2.51
HR 30217 J	3EB	100	97	140	133	141	5	6.5	2	2	30.3	0.42	1.4	0.79	2.12
30217 CA	–	100	98	140	131	142	5	8.5	2	2	36.2	0.58	1.0	0.57	2.07
HR 32217 J	3EC	100	96	140	131	142	5	8.5	2	2	33.9	0.42	1.4	0.79	2.64
HR 33217 J	3EE	100	95	140	129	144	7	12	2	2	37.3	0.42	1.4	0.79	3.57
HR 30317 J	2GB	106	108	166	157	167	5	10.5	3	2.5	35.8	0.35	1.7	0.96	5.08
HR 30317 DJ	7GB	113	103	166	144	169	6	16.5	3	2.5	55.4	0.83	0.73	0.40	4.88
HR 31317 J	7GB	113	103	166	144	169	6	16.5	3	2.5	55.4	0.83	0.73	0.40	4.88
HR 32317 J	2GD	110	104	166	151	167	5	14.5	3	2.5	43.6	0.35	1.7	0.96	7.31
HR 32918 J	2BC	101	97	116	116	120	5	5	1.5	1.5	22.0	0.34	1.8	0.96	0.838
HR 32018 XJ	3CC	102	99	131	124	134	6	8	2	1.5	29.7	0.42	1.4	0.78	1.78
HR 33018 J	2CE	102	99	131	129	135	7	6.5	2	1.5	27.9	0.27	2.2	1.2	2.21
HR 33118 J	3DE	105	100	140	132	144	7	10	2	2	35.2	0.40	1.5	0.83	3.14
HR 30218 J	3FB	105	103	150	141	150	5	6.5	2	2	31.7	0.42	1.4	0.79	2.6
HR 32218 J	3FC	105	102	150	139	152	5	8.5	2	2	36.2	0.42	1.4	0.79	3.41
HR 30318 J	2GB	111	114	176	176	176	5	10.5	3	2.5	37.3	0.35	1.7	0.96	5.91
HR 30318 DJ	7GB	118	110	176	152	179	6	16.5	3	2.5	58.7	0.83	0.73	0.40	5.52
HR 31318 J	7GB	118	110	176	152	179	6	16.5	3	2.5	58.7	0.83	0.73	0.40	5.52
HR 32318 J	2GD	115	109	176	158	177	5	14.5	3	2.5	46.5	0.35	1.7	0.96	8.6
HR 32919 J	2BC	106	102	121	121	125	5	5	1.5	1.5	23.2	0.36	1.7	0.92	0.877
HR 32019 XJ	4CC	107	104	136	131	140	6	8	2	1.5	31.2	0.44	1.4	0.75	1.88
HR 33019 J	2CE	107	103	136	133	139	7	6.5	2	1.5	28.6	0.28	2.2	1.2	2.3
T2 ED095	2ED	113	108	146	141	152	6	8	2.5	2.5	34.5	0.34	1.8	0.97	3.74
HR 30219 J	3FB	113	110	158	150	159	5	7.5	2.5	2	33.7	0.42	1.4	0.79	3.13
HR 32219 J	3FC	113	108	158	147	161	5	8.5	2.5	2	39.3	0.42	1.4	0.79	4.22
HR 30319 J	2GB	116	119	186	172	184	5	11.5	3	2.5	38.6	0.35	1.7	0.96	6.92
30319 CA	–	116	119	186	168	188	5	13.5	3	2.5	48.6	0.54	1.1	0.61	6.71
HR 30319 DJ	7GB	123	115	186	158	187	6	17.5	3	2.5	61.9	0.83	0.73	0.40	6.64
HR 31319 J	7GB	123	115	186	158	187	6	17.5	3	2.5	61.9	0.83	0.73	0.40	6.64
HR 32319 J	2GD	120	115	186	167	186	5	16.5	3	2.5	48.6	0.35	1.7	0.96	10.4
HR 32920 J	2CC	111	109	132	132	134	5	5	1.5	1.5	24.2	0.33	1.8	1.0	1.18
T4 CB100	4CB	118	108	135	135	142	6	6.5	2.5	2.5	30.1	0.47	1.3	0.70	1.18
HR 32020 XJ	4CC	112	109	141	136	144	6	8	2	1.5	32.5	0.46	1.3	0.72	1.95
HR 33020 J	2CE	112	107	141	137	143	7	6.5	2	1.5	29.3	0.29	2.1	1.2	2.38
HR 33120 J	3EE	115	110	155	144	159	8	12	2	2	40.5	0.41	1.5	0.81	4.32
HR 30220 J	3FB	118	116	168	158	168	5	8	2.5	2	36.1	0.42	1.4	0.79	3.78
HR 32220 J	3FC	118	115	168	155	171	5	10	2.5	2	41.5	0.42	1.4	0.79	5.05
HR 33220 J	3FE	118	113	168	152	172	10	15	2.5	2	46.0	0.40	1.5	0.82	6.76
HR 30320 J	2GB	121	128	201	185	197	5	12.5	3	2.5	41.4	0.35	1.7	0.96	8.41
HR 31320 J	7GB	136	125	201	169	202	7	21.5	3	2.5	67.7	0.83	0.73	0.40	9.02
HR 32320 J	2GD	125	125	201	178	200	5	17.5	3	2.5	53.2	0.35	1.7	0.96	12.7

Bore Diameter 105 – 130 mm



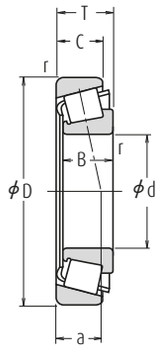


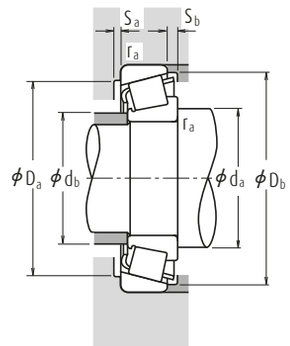
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
105	145	25	25	20	1.5	1.5	119 000	212 000	2 200	3 000
	160	35	35	26	2.5	2	204 000	340 000	2 000	2 800
	160	43	43	34	2.5	2	256 000	435 000	2 000	2 800
	190	39	36	30	3	2.5	280 000	365 000	1 900	2 600
	190	53	50	43	3	2.5	360 000	510 000	1 900	2 600
	225	53.5	49	41	4	3	455 000	565 000	1 600	2 200
	225	58	53	36	4	3	415 000	540 000	1 500	2 000
	225	81.5	77	63	4	3	670 000	925 000	1 700	2 200
110	150	25	25	20	1.5	1.5	123 000	224 000	2 200	2 800
	170	38	38	29	2.5	2	236 000	390 000	2 000	2 600
	170	47	47	37	2.5	2	294 000	515 000	2 000	2 600
	180	56	56	43	2.5	2	365 000	610 000	1 900	2 600
	200	41	38	32	3	2.5	315 000	420 000	1 800	2 400
	200	56	53	46	3	2.5	400 000	565 000	1 800	2 400
	240	54.5	50	42	4	3	485 000	595 000	1 500	2 000
	240	63	57	38	4	3	470 000	605 000	1 400	1 900
	240	84.5	80	65	4	3	675 000	910 000	1 500	2 000
120	165	29	29	23	1.5	1.5	161 000	291 000	1 900	2 600
	170	27	25	19.5	3	3	153 000	243 000	1 800	2 600
	180	38	38	29	2.5	2	242 000	405 000	1 800	2 400
	180	48	48	38	2.5	2	300 000	540 000	1 800	2 600
	200	62	62	48	2.5	2	460 000	755 000	1 700	2 400
	215	43.5	40	34	3	2.5	335 000	450 000	1 600	2 200
	215	61.5	58	50	3	2.5	440 000	635 000	1 600	2 200
	260	59.5	55	46	4	3	535 000	655 000	1 400	1 900
	260	68	62	42	4	3	560 000	730 000	1 300	1 800
	260	90.5	86	69	4	3	770 000	1 060 000	1 400	1 900
130	180	32	30	26	2	1.5	167 000	281 000	1 800	2 400
	180	32	32	25	2	1.5	200 000	365 000	1 800	2 400
	185	29	27	21	3	3	183 000	296 000	1 700	2 400
	200	45	45	34	2.5	2	320 000	535 000	1 600	2 200
	200	55	55	43	2.5	2	395 000	715 000	1 700	2 200
	230	43.75	40	34	4	3	375 000	505 000	1 500	2 000
	230	67.75	64	54	4	3	530 000	790 000	1 500	2 000
	280	63.75	58	49	5	4	545 000	675 000	1 300	1 800
	280	63.75	58	49	5	4	650 000	820 000	1 300	1 800
	280	72	66	44	5	4	625 000	820 000	1 200	1 700
	280	98.75	93	78	5	4	830 000	1 150 000	1 300	1 800

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32921 J	2CC	116	114	137	137	140	5	5	1.5	1.5	25.3	0.34	1.8	0.96	1.23
HR 32021 XJ	4DC	120	115	150	144	154	6	9	2	2	34.3	0.44	1.4	0.74	2.48
HR 33021 J	2DE	120	115	150	146	153	7	9	2	2	30.9	0.28	2.1	1.2	3.03
HR 30221 J	3FB	123	123	178	166	177	6	9	2.5	2	38.1	0.42	1.4	0.79	4.51
HR 32221 J	3FC	123	120	178	162	180	5	10	2.5	2	44.8	0.42	1.4	0.79	6.25
HR 30321 J	2GB	126	133	211	195	206	6	12.5	3	2.5	43.3	0.35	1.7	0.96	9.52
HR 31321 J	7GB	141	130	211	177	211	7	22	3	2.5	70.2	0.83	0.73	0.40	10
HR 32321 J	2GD	130	129	211	186	209	6	18.5	3	2.5	55.2	0.35	1.7	0.96	14.9
HR 32922 J	2CC	121	119	142	142	145	5	5	1.5	1.5	26.5	0.36	1.7	0.93	1.29
HR 32022 XJ	4DC	125	121	160	153	163	7	9	2	2	35.9	0.43	1.4	0.77	3.09
HR 33022 J	2DE	125	121	160	153	161	7	10	2	2	33.7	0.29	2.1	1.2	3.84
HR 33122 J	3EE	125	121	170	156	174	9	13	2	2	44.1	0.42	1.4	0.79	5.54
HR 30222 J	3FB	128	129	188	175	187	6	9	2.5	2	40.2	0.42	1.4	0.79	5.28
HR 32222 J	3FC	128	127	188	171	190	5	10	2.5	2	47.2	0.42	1.4	0.79	7.35
HR 30322 J	2GB	131	143	226	208	220	6	12.5	3	2.5	45.1	0.35	1.7	0.96	11
HR 31322 J	7GB	146	136	226	191	224	7	25	3	2.5	74.8	0.83	0.73	0.40	12.3
HR 32322 J	2GD	135	139	226	201	222	6	19.5	3	2.5	58.6	0.35	1.7	0.96	17.1
HR 32924 J	2CC	131	129	156	155	160	6	6	1.5	1.5	29.2	0.35	1.7	0.95	1.8
T4 CB120	4CB	138	129	158	158	164	7	7.5	2.5	2.5	35.0	0.47	1.3	0.70	1.78
HR 32024 XJ	4DC	135	131	170	162	173	7	9	2	2	39.7	0.46	1.3	0.72	3.27
HR 33024 J	2DE	135	130	168	161	171	6	10	2	2	36.0	0.31	2.0	1.1	4.2
HR 33124 J	3FE	135	133	190	173	192	9	14	2	2	47.9	0.40	1.5	0.83	7.67
HR 30224 J	4FB	138	141	203	190	201	6	9.5	2.5	2	44.4	0.44	1.4	0.76	6.28
HR 32224 J	4FD	138	137	203	181	204	6	11.5	2.5	2	52.1	0.44	1.4	0.76	9.0
HR 30324 J	2GB	141	154	246	223	237	6	13.5	3	2.5	50.0	0.35	1.7	0.96	13.9
HR 31324 J	7GB	156	148	246	206	244	9	26	3	2.5	81.7	0.83	0.73	0.40	15.6
HR 32324 J	2GD	145	149	246	216	239	6	21.5	3	2.5	62.5	0.35	1.7	0.96	21.8
32926	–	142	141	171	168	175	6	6	2	1.5	34.7	0.36	1.7	0.92	2.25
HR 32926 J	2CC	142	140	170	168	173	6	7	2	1.5	31.4	0.34	1.8	0.97	2.46
T4 CB130	4CB	148	141	171	171	179	8	8	2.5	2.5	37.5	0.47	1.3	0.70	2.32
HR 32026 XJ	4EC	145	144	190	179	192	8	11	2	2	43.9	0.43	1.4	0.76	5.06
HR 33026 J	2EE	145	144	188	179	192	8	12	2	2	42.4	0.34	1.8	0.97	6.25
HR 30226 J	4FB	151	151	216	205	217	7	9.5	3	2.5	45.9	0.44	1.4	0.76	7.25
HR 32226 J	4FD	151	147	216	196	219	7	13.5	3	2.5	57.0	0.44	1.4	0.76	11.3
30326	–	157	168	262	239	255	8	14.5	4	3	53.9	0.36	1.7	0.92	16.6
HR 30326 J	2GB	157	166	262	241	255	8	14.5	4	3	52.8	0.35	1.7	0.96	17.2
HR 31326 J	7GB	174	159	262	220	261	9	28	4	3	87.1	0.83	0.73	0.40	18.8
32326	–	162	165	262	233	263	8	20.5	4	3	69.2	0.36	1.7	0.92	26.6

Single-Row Tapered Roller Bearings

Bore Diameter 140 – 170 mm



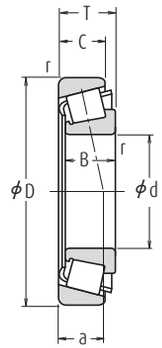


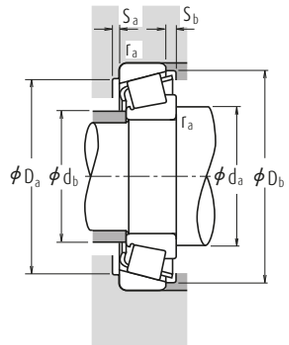
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
140	190	32	32	25	2	1.5	206 000	390 000	1 700	2 200
	210	45	45	34	2.5	2	325 000	555 000	1 600	2 200
	210	56	56	44	2.5	2	410 000	770 000	1 600	2 200
	250	45.75	42	36	4	3	390 000	515 000	1 400	1 900
	250	71.75	68	58	4	3	610 000	915 000	1 400	1 900
	300	67.75	62	53	5	4	740 000	945 000	1 200	1 700
	300	77	70	47	5	4	695 000	955 000	1 100	1 500
	300	107.75	102	85	5	4	985 000	1 440 000	1 200	1 600
150	210	38	36	31	2.5	2	247 000	440 000	1 500	2 000
	210	38	38	30	2.5	2	281 000	520 000	1 500	2 000
	225	48	48	36	3	2.5	375 000	650 000	1 400	2 000
	225	59	59	46	3	2.5	435 000	805 000	1 400	2 000
	270	49	45	38	4	3	485 000	665 000	1 300	1 800
	270	77	73	60	4	3	705 000	1 080 000	1 300	1 800
	320	72	65	55	5	4	690 000	860 000	1 100	1 500
	320	72	65	55	5	4	825 000	1 060 000	1 100	1 600
	320	82	75	50	5	4	790 000	1 100 000	1 000	1 400
	320	114	108	90	5	4	1 120 000	1 700 000	1 100	1 500
160	220	38	38	30	2.5	2	296 000	570 000	1 400	1 900
	240	51	51	38	3	2.5	425 000	750 000	1 300	1 800
	290	52	48	40	4	3	530 000	730 000	1 200	1 600
	290	84	80	67	4	3	795 000	1 220 000	1 200	1 600
	340	75	68	58	5	4	765 000	960 000	1 000	1 400
	340	75	68	58	5	4	870 000	1 110 000	1 100	1 400
	340	75	68	48	5	4	675 000	875 000	950	1 300
	340	121	114	95	5	4	1 210 000	1 770 000	1 000	1 400
170	230	38	36	31	2.5	2.5	258 000	485 000	1 300	1 800
	230	38	38	30	2.5	2	294 000	560 000	1 400	1 800
	260	57	57	43	3	2.5	505 000	890 000	1 200	1 700
	310	57	52	43	5	4	630 000	885 000	1 100	1 500
	310	91	86	71	5	4	930 000	1 450 000	1 100	1 500
	360	80	72	62	5	4	845 000	1 080 000	950	1 300
	360	80	72	62	5	4	960 000	1 230 000	1 000	1 300
	360	80	72	50	5	4	760 000	1 040 000	900	1 200
	360	127	120	100	5	4	1 370 000	2 050 000	1 000	1 300

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32928 J	2CC	152	150	180	178	184	6	7	2	1.5	33.6	0.36	1.7	0.92	2.64
HR 32028 XJ	4DC	155	152	200	189	202	8	11	2	2	46.6	0.46	1.3	0.72	5.32
HR 33028 J	2DE	155	153	198	189	202	7	12	2	2	45.5	0.36	1.7	0.92	6.74
HR 30228 J	4FB	161	164	236	221	234	7	9.5	3	2.5	48.9	0.44	1.4	0.76	8.74
HR 32228 J	4FD	161	159	236	213	238	9	13.5	3	2.5	60.5	0.44	1.4	0.76	14.3
HR 30328 J	2GB	167	177	282	256	273	9	14.5	4	3	55.7	0.35	1.7	0.96	21.1
HR 31328 J	7GB	184	174	282	236	280	9	30	4	3	92.9	0.83	0.73	0.40	28.5
32328	—	172	177	282	246	281	9	22.5	4	3	76.4	0.37	1.6	0.88	33.9
32930	—	165	162	200	195	201	7	7	2	2	36.7	0.33	1.8	1.0	3.8
HR 32930 J	2DC	165	163	198	196	202	7	8	2	2	36.5	0.33	1.8	1.0	4.05
HR 32030 XJ	4EC	168	164	213	202	216	8	12	2.5	2	49.8	0.46	1.3	0.72	6.6
HR 33030 J	2EE	168	165	213	203	217	8	13	2.5	2	48.7	0.36	1.7	0.90	8.07
HR 30230 J	2GB	171	175	256	236	250	7	11	3	2.5	51.3	0.44	1.4	0.76	11.2
HR 32230 J	4GD	171	171	256	228	254	8	17	3	2.5	64.7	0.44	1.4	0.76	17.8
30330	—	177	193	302	275	292	8	17	4	3	61.4	0.36	1.7	0.92	24.2
HR 30330 J	2GB	177	190	302	276	292	8	17	4	3	60.0	0.35	1.7	0.96	25
HR 31330 J	7GB	194	187	302	253	300	9	32	4	3	99.3	0.83	0.73	0.40	28.5
32330	—	182	191	302	262	297	8	24	4	3	81.5	0.37	1.6	0.88	41.4
HR 32932 J	2DC	175	173	208	206	212	7	8	2	2	38.7	0.35	1.7	0.95	4.32
HR 32032 XJ	4EC	178	175	228	216	231	8	13	2.5	2	53.0	0.46	1.3	0.72	7.93
HR 30232 J	4GB	181	189	276	253	269	8	12	3	2.5	55.0	0.44	1.4	0.76	13.7
HR 32232 J	4GD	181	184	276	243	274	10	17	3	2.5	70.5	0.44	1.4	0.76	22.7
30332	—	187	205	322	293	311	10	17	4	3	64.6	0.36	1.7	0.92	28.4
HR 30332 J	2GB	187	201	322	293	310	10	17	4	3	62.9	0.35	1.7	0.96	29.2
30332 D	—	196	198	322	270	313	9	27	4	3	99.4	0.81	0.74	0.41	27.5
32332	—	192	202	322	281	319	10	26	4	3	87.1	0.37	1.6	0.88	48.3
32934	—	185	183	220	216	223	7	7	2	2	41.6	0.36	1.7	0.90	4.3
HR 32934 J	3DC	185	180	218	215	222	7	8	2	2	41.7	0.38	1.6	0.86	4.44
HR 32034 XJ	4EC	188	187	248	232	249	10	14	2.5	2	56.6	0.44	1.4	0.74	10.6
HR 30234 J	4GB	197	202	292	273	288	8	14	4	3	59.4	0.44	1.4	0.76	17.1
HR 32234 J	4GD	197	197	292	262	294	10	20	4	3	76.4	0.44	1.4	0.76	28
30334	—	197	221	342	312	332	10	18	4	3	70.1	0.37	1.6	0.90	33.5
HR 30334 J	2GB	197	214	342	310	329	10	18	4	3	67.3	0.35	1.7	0.96	34.5
30334 D	—	206	215	342	288	332	10	30	4	3	107.3	0.81	0.74	0.41	33.4
32334	—	202	213	342	297	337	10	27	4	3	91.3	0.37	1.6	0.88	57

Single-Row Tapered Roller Bearings

Bore Diameter 180 – 240 mm



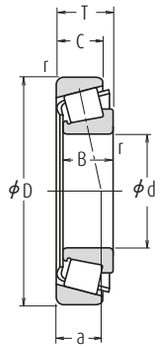


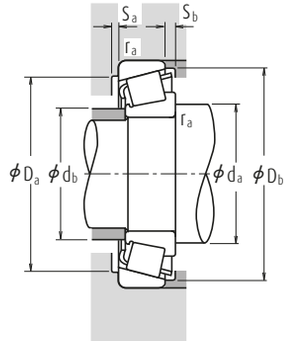
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
180	250	45	45	34	2,5	2	350 000	685 000	1 300	1 700
	280	64	64	48	3	2,5	640 000	1 130 000	1 200	1 600
	320	57	52	43	5	4	650 000	930 000	1 100	1 400
	320	91	86	71	5	4	960 000	1 540 000	1 100	1 400
	380	83	75	64	5	4	935 000	1 230 000	900	1 300
	380	83	75	53	5	4	820 000	1 120 000	850	1 200
	380	134	126	106	5	4	1 520 000	2 290 000	950	1 300
190	260	45	45	34	2,5	2	365 000	715 000	1 200	1 600
	290	64	64	48	3	2,5	650 000	1 170 000	1 100	1 500
	340	60	55	46	5	4	715 000	1 020 000	1 000	1 300
	340	97	92	75	5	4	1 110 000	1 770 000	1 000	1 400
	400	86	78	65	6	5	1 010 000	1 340 000	850	1 200
	400	140	132	109	6	5	1 660 000	2 580 000	850	1 200
200	280	51	48	41	3	2,5	410 000	780 000	1 100	1 500
	280	51	51	39	3	2,5	480 000	935 000	1 100	1 500
	310	70	70	53	3	2,5	760 000	1 370 000	1 000	1 400
	360	64	58	48	5	4	795 000	1 120 000	950	1 300
	360	104	98	82	5	4	1 210 000	1 920 000	950	1 300
	420	89	80	67	6	5	1 030 000	1 390 000	850	1 200
	420	89	80	56	6	5	965 000	1 330 000	750	1 000
	420	146	138	115	6	5	1 820 000	2 870 000	800	1 100
220	300	51	51	39	3	2,5	490 000	990 000	1 000	1 400
	340	76	76	57	4	3	885 000	1 610 000	950	1 300
	400	72	65	54	5	4	810 000	1 150 000	850	1 100
	400	114	108	90	5	4	1 340 000	2 210 000	850	1 100
	460	97	88	73	6	5	1 430 000	1 990 000	750	1 000
	460	154	145	122	6	5	2 020 000	3 200 000	750	1 000
240	320	51	51	39	3	2,5	500 000	1 040 000	950	1 300
	360	76	76	57	4	3	920 000	1 730 000	850	1 200
	440	79	72	60	5	4	990 000	1 400 000	750	1 000
	440	127	120	100	5	4	1 630 000	2 730 000	750	1 000
	500	105	95	80	6	5	1 660 000	2 340 000	670	950
	500	165	155	132	6	5	2 520 000	4 100 000	670	900

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32936 J	4DC	195	192	240	227	241	8	11	2	2	53.9	0.48	1.3	0.69	6.56
HR 32036 XJ	3FD	198	199	268	248	267	10	16	2.5	2	60.4	0.42	1.4	0.78	14.3
HR 30236 J	4GB	207	210	302	281	297	9	14	4	3	61.8	0.45	1.3	0.73	17.8
HR 32236 J	4GD	207	205	302	270	303	10	20	4	3	78.9	0.45	1.3	0.73	29.8
30336	–	207	233	362	324	345	10	19	4	3	72.5	0.36	1.7	0.92	39.3
30336 D	–	216	229	362	304	352	10	30	4	3	113.1	0.81	0.74	0.41	38.5
32336	–	212	225	362	310	353	10	28	4	3	96.6	0.37	1.6	0.88	66.8
HR 32938 J	4DC	205	201	250	237	251	8	11	2	2	55.3	0.48	1.3	0.69	6.83
HR 32038 XJ	4FD	208	209	278	258	279	10	16	2.5	2	63.4	0.44	1.4	0.75	14.9
HR 30238 J	4GB	217	223	322	302	318	9	14	4	3	65.6	0.44	1.4	0.76	21.4
HR 32238 J	4GD	217	216	322	290	323	10	22	4	3	80.5	0.44	1.4	0.76	35.2
30338	–	223	248	378	346	366	11	21	5	4	76.1	0.36	1.7	0.92	46
32338	–	229	243	378	332	375	11	31	5	4	102.7	0.37	1.6	0.88	78.9
32940	–	218	217	268	256	269	9	10	2.5	2	53.4	0.37	1.6	0.88	9.26
HR 32940 J	3EC	218	216	268	258	271	9	12	2.5	2	54.2	0.39	1.5	0.84	9.65
HR 32040 XJ	4FD	218	221	298	277	297	11	17	2.5	2	67.4	0.43	1.4	0.77	18.9
HR 30240 J	4GB	227	236	342	318	336	10	16	4	3	69.1	0.44	1.4	0.76	25.5
HR 32240 J	3GD	227	230	342	305	340	11	22	4	3	85.1	0.41	1.5	0.81	42.6
30340	–	233	253	398	346	368	11	22	5	4	81.4	0.37	1.6	0.88	52.3
30340 D	–	244	253	398	336	385	11	33	5	4	122.9	0.81	0.74	0.41	49.6
32340	–	239	253	398	346	392	11	31	5	4	106.7	0.37	1.6	0.88	90.9
HR 32944 J	3EC	238	235	288	278	293	9	12	2.5	2	59.2	0.43	1.4	0.78	10.3
HR 32044 XJ	4FD	241	244	326	303	326	12	19	3	2.5	73.6	0.43	1.4	0.77	24.4
30244	–	247	267	382	350	367	11	18	4	3	74.7	0.40	1.5	0.82	33.6
32244	–	247	260	382	340	377	12	24	4	3	93.0	0.40	1.5	0.82	57.4
30344	–	253	283	438	390	414	12	24	5	4	85.4	0.36	1.7	0.92	72.4
32344	–	259	274	438	372	421	12	32	5	4	114.9	0.37	1.6	0.88	114
HR 32948 J	4EC	258	255	308	297	314	9	12	2.5	2	65.1	0.46	1.3	0.72	11.1
HR 32048 XJ	4FD	261	262	346	321	346	12	19	3	2.5	79.1	0.46	1.3	0.72	26.2
30248	–	267	288	422	384	408	11	19	4	3	85.1	0.44	1.4	0.74	45.2
32248	–	267	285	422	374	416	12	27	4	3	102.5	0.40	1.5	0.82	78
30348	–	273	308	478	422	447	12	25	5	4	92.8	0.36	1.7	0.92	92.6
32348	–	279	301	478	410	464	12	33	5	4	123.2	0.37	1.6	0.88	145

Single-Row Tapered Roller Bearings

Bore Diameter 260 – 440 mm



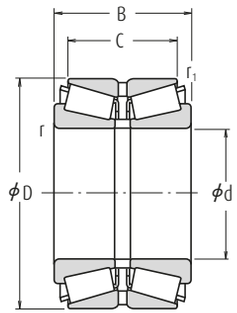


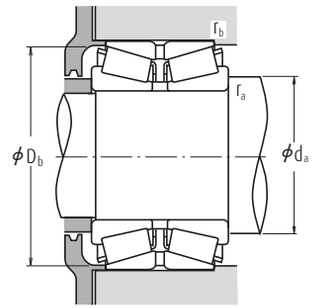
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
260	360	63.5	63.5	48	3	2.5	730 000	1 450 000	850	1 100
	400	87	87	65	5	4	1 160 000	2 160 000	800	1 100
	480	89	80	67	6	5	1 190 000	1 700 000	670	900
	480	137	130	106	6	5	1 900 000	3 300 000	670	950
	540	113	102	85	6	6	1 870 000	2 640 000	630	850
	540	176	165	136	6	6	2 910 000	4 800 000	630	850
280	380	63.5	63.5	48	3	2.5	765 000	1 580 000	800	1 100
	420	87	87	65	5	4	1 180 000	2 240 000	710	1 000
	500	89	80	67	6	5	1 240 000	1 900 000	630	850
	500	137	130	106	6	5	1 950 000	3 450 000	630	850
	580	187	175	145	6	6	3 300 000	5 400 000	560	800
300	420	76	72	62	4	3	895 000	1 820 000	710	950
	420	76	76	57	4	3	1 010 000	2 100 000	710	950
	460	100	100	74	5	4	1 440 000	2 700 000	670	900
	540	96	85	71	6	5	1 440 000	2 100 000	600	800
	540	149	140	115	6	5	2 220 000	3 700 000	600	800
320	440	76	72	63	4	3	900 000	1 880 000	970	900
	440	76	76	57	4	3	1 040 000	2 220 000	670	900
	480	100	100	74	5	4	1 510 000	2 910 000	630	850
	580	104	92	75	6	5	1 640 000	2 420 000	530	750
	580	159	150	125	6	5	2 860 000	5 050 000	530	750
	670	210	200	170	7.5	7.5	4 200 000	7 100 000	480	670
340	460	76	72	63	4	3	910 000	1 940 000	630	850
	460	76	76	57	4	3	1 050 000	2 220 000	630	850
	520	112	106	92	6	5	1 650 000	3 400 000	560	750
360	480	76	72	62	4	3	945 000	2 100 000	600	800
	480	76	76	57	4	3	1 080 000	2 340 000	560	800
	540	112	106	92	6	5	1 680 000	3 500 000	530	750
380	520	87	82	71	5	4	1 210 000	2 550 000	560	750
400	540	87	82	71	5	4	1 250 000	2 700 000	530	710
	600	125	118	100	6	5	1 960 000	4 050 000	480	670
420	560	87	82	72	5	4	1 300 000	2 810 000	500	670
	620	125	118	100	6	5	2 000 000	4 200 000	450	630
440	650	130	122	104	6	6	2 230 000	4 600 000	430	600

Bearing Numbers	ISO355 Dimension Series	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
									Cone	Cup					
	approx.	d_a min.	d_b max.	D_a max.	D_a min.	D_b min.	S_a min.	S_b min.	r_a max.		a	e	Y_1	Y_0	approx.
HR 32952 J	3EC	278	278	348	333	347	11	15.5	2.5	2	69.8	0.41	1.5	0.81	18.6
HR 32052 XJ	4FC	287	287	382	357	383	14	22	4	3	86.3	0.43	1.4	0.76	38.5
30252	–	293	316	458	421	447	12	22	5	4	94.6	0.44	1.4	0.74	60.7
32252	–	293	305	458	394	446	14	31	5	4	116.0	0.45	1.3	0.73	103
30352	–	293	336	512	460	487	16	28	5	5	101.6	0.36	1.7	0.92	114
32352	–	293	328	512	441	495	13	40	5	5	130.5	0.37	1.6	0.88	188
HR 32956 J	4EC	298	297	368	352	368	12	15.5	2.5	2	75.3	0.43	1.4	0.76	20
HR 32056 XJ	4FC	307	305	402	374	402	14	22	4	3	91.6	0.46	1.3	0.72	40.6
30256	–	313	339	478	436	462	12	22	5	4	98.5	0.44	1.4	0.74	66.3
32256	–	313	325	478	412	467	14	31	5	4	123.1	0.47	1.3	0.70	109
32356	–	319	353	552	475	532	14	42	5	5	139.6	0.37	1.6	0.89	224
32960	–	321	326	406	386	405	13	14	3	2.5	79.3	0.37	1.6	0.88	30.5
HR 32960 J	3FD	321	324	406	387	405	13	19	3	2.5	79.9	0.39	1.5	0.84	31.4
HR 32060 XJ	4GD	327	330	442	408	439	15	26	4	3	98.4	0.43	1.4	0.76	56.6
30260	–	333	355	518	470	499	14	25	5	4	105.1	0.44	1.4	0.74	80.6
32260	–	333	352	518	458	514	15	34	5	4	131.7	0.46	1.3	0.72	132
32964	–	341	345	426	404	425	13	13	3	2.5	84.3	0.39	1.5	0.84	32
HR 32964 J	3FD	341	344	426	406	426	13	19	3	2.5	85.0	0.42	1.4	0.79	33.3
HR 32064 XJ	4GD	347	350	462	430	461	15	26	4	3	104.5	0.46	1.3	0.72	60
30264	–	353	381	558	503	533	14	29	5	4	113.7	0.44	1.4	0.74	99.3
32264	–	353	383	558	487	550	15	34	5	4	141.7	0.46	1.3	0.72	175
32364	–	383	412	634	547	616	14	42	6	6	157.5	0.37	1.6	0.88	343
32968	–	361	364	446	426	446	13	13	3	2.5	89.2	0.41	1.5	0.80	33.6
HR 32968 J	4FD	361	362	446	427	446	13	19	3	2.5	91.0	0.44	1.4	0.75	34.3
32068	–	373	386	498	464	496	3.5	22	5	4	104.5	0.37	1.6	0.89	83.7
32972	–	381	386	466	445	465	14	14	3	2.5	91.4	0.40	1.5	0.82	35.8
HR 32972 J	4FD	381	381	466	445	466	13	19	3	2.5	96.8	0.46	1.3	0.72	36.1
32072	–	393	402	518	480	514	5.5	22	5	4	108.6	0.38	1.6	0.86	86.5
32976	–	407	406	502	478	501	16	16	4	3	95.2	0.39	1.6	0.86	49.5
32980	–	427	428	522	499	524	16	16	4	3	100.8	0.40	1.5	0.82	52.7
32080	–	433	443	578	533	565	5	25	5	4	115.3	0.36	1.7	0.92	116
32984	–	447	448	542	521	544	3.5	15	4	3	106.1	0.41	1.5	0.81	54.8
32084	–	453	463	598	552	586	6.5	25	5	4	120.0	0.37	1.6	0.88	121
32088	–	473	487	622	582	616	5	26	5	5	126.3	0.36	1.7	0.92	136

Double-Row Tapered Roller Bearings

Bore Diameter 40 – 90 mm





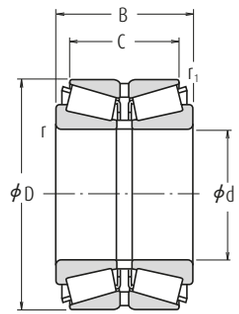
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B_2	C	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil
40	80	45	37.5	1.5	0.6	109 000	140 000	3 700	5 100
45	85	47	37.5	1.5	0.6	117 000	159 000	3 400	4 700
	85	55	43.5	1.5	0.6	143 000	204 000	3 400	4 700
50	90	48	38.5	1.5	0.6	131 000	183 000	3 200	4 400
	90	49	39.5	1.5	0.6	131 000	183 000	3 200	4 400
	90	55	43.5	1.5	0.6	150 000	218 000	3 200	4 400
	110	64	51.5	2.5	0.6	224 000	297 000	2 700	3 700
55	100	51	41.5	2	0.6	162 000	226 000	2 900	3 900
	100	52	42.5	2	0.6	162 000	226 000	2 900	3 900
	100	60	48.5	2	0.6	188 000	274 000	2 900	3 900
	120	70	57	2.5	0.6	256 000	342 000	2 500	3 400
60	110	53	43.5	2	0.6	178 000	246 000	2 700	3 600
	110	66	54.5	2	0.6	225 000	335 000	2 700	3 600
	130	74	59	3	1	298 000	405 000	2 300	3 200
65	120	56	46.5	2	0.6	210 000	300 000	2 400	3 200
	120	57	47.5	2	0.6	210 000	300 000	2 400	3 200
	120	73	61.5	2	0.6	269 000	405 000	2 400	3 300
65	140	79	63	3	1	340 000	465 000	2 100	2 900
70	125	57	46.5	2	0.6	227 000	325 000	2 300	3 100
	125	59	48.5	2	0.6	227 000	325 000	2 300	3 100
	125	74	61.5	2	0.6	270 000	410 000	2 300	3 100
	150	83	67	3	1	390 000	535 000	2 000	2 700
75	130	62	51.5	2	0.6	245 000	365 000	2 200	3 000
	130	74	61.5	2	0.6	283 000	440 000	2 200	3 000
	160	87	69	3	1	435 000	600 000	1 900	2 500
80	140	61	49	2.5	0.6	269 000	390 000	2 000	2 800
	140	64	51.5	2.5	0.6	269 000	390 000	2 000	2 800
	140	78	63.5	2.5	0.6	330 000	505 000	2 000	2 800
	170	92	73	3	1	475 000	655 000	1 700	2 400
85	150	70	57	2.5	0.6	315 000	465 000	1 900	2 600
	150	86	69	2.5	0.6	360 000	555 000	1 900	2 600
	180	98	77	4	1	530 000	745 000	1 600	2 200
90	160	71	58	2.5	0.6	345 000	510 000	1 800	2 400
	160	74	61	2.5	0.6	345 000	510 000	1 800	2 400
	160	94	77	2.5	0.6	440 000	700 000	1 800	2 400

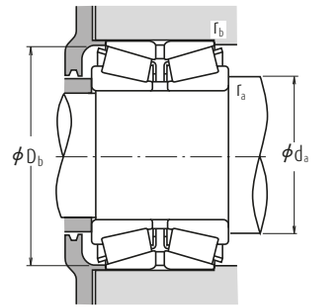
Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min.	D_b min.	r_a max.	r_b max.	e	Y_2	Y_3	Y_0	approx.
HR 40 KBE 42+L	51	75	1.5	0.6	0.37	2.7	1.8	1.8	0.97
HR 45 KBE 42+L	56	81	1.5	0.6	0.40	2.5	1.7	1.6	1.08
HR 45 KBE 52X+L	56	81	1.5	0.6	0.40	2.5	1.7	1.6	1.31
HR 50 KBE 042+L	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.20
HR 50 KBE 42+L	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.22
HR 50 KBE 52X+L	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.39
HR 50 KBE 043+L	65	104	2	0.6	0.35	2.9	2.0	1.9	2.77
HR 55 KBE 042+L	67	96	2	0.6	0.40	2.5	1.7	1.6	1.59
HR 55 KBE 1003+L	67	96	2	0.6	0.40	2.5	1.7	1.6	1.63
HR 55 KBE 52X+L	67	97	2	0.6	0.40	2.5	1.7	1.6	1.88
HR 55 KBE 43+L	70	113	2	0.6	0.35	2.9	2.0	1.9	3.52
HR 60 KBE 042+L	72	105	2	0.6	0.40	2.5	1.7	1.6	2.03
HR 60 KBE 52X+L	72	106	2	0.6	0.40	2.5	1.7	1.6	2.52
HR 60 KBE 43+L	78	122	2.5	1	0.35	2.9	2.0	1.9	4.40
HR 65 KBE 42+L	77	115	2	0.6	0.40	2.5	1.7	1.6	2.58
HR 65 KBE 1202+L	77	115	2	0.6	0.40	2.5	1.7	1.6	2.61
HR 65 KBE 52X+L	77	117	2	0.6	0.40	2.5	1.7	1.6	3.35
HR 65 KBE 43+L	83	132	2.5	1	0.35	2.9	2.0	1.9	5.42
HR 70 KBE 042+L	82	120	2	0.6	0.42	2.4	1.6	1.6	2.79
HR 70 KBE 42+L	82	120	2	0.6	0.42	2.4	1.6	1.6	2.85
HR 70 KBE 52X+L	82	121	2	0.6	0.42	2.4	1.6	1.6	3.58
HR 70 KBE 43+L	88	142	2.5	1	0.35	2.9	2.0	1.9	6.45
HR 75 KBE 42+L	87	126	2	0.6	0.44	2.3	1.6	1.5	3.15
HR 75 KBE 52X+L	87	127	2	0.6	0.44	2.3	1.6	1.5	3.73
HR 75 KBE 043+L	93	151	2.5	1	0.35	2.9	2.0	1.9	7.66
HR 80 KBE 042+L	95	134	2	0.6	0.42	2.4	1.6	1.6	3.70
HR 80 KBE 42+L	95	134	2	0.6	0.42	2.4	1.6	1.6	3.70
HR 80 KBE 52X+L	95	136	2	0.6	0.42	2.4	1.6	1.6	4.59
HR 80 KBE 043+L	98	161	2.5	1	0.35	2.9	2.0	1.9	9.02
HR 85 KBE 42+L	100	143	2	0.6	0.42	2.4	1.6	1.6	4.69
HR 85 KBE 52X+L	100	144	2	0.6	0.42	2.4	1.6	1.6	5.70
HR 85 KBE 043+L	106	169	3	1	0.35	2.9	2.0	1.9	10.8
HR 90 KBE 042+L	105	152	2	0.6	0.42	2.4	1.6	1.6	5.53
HR 90 KBE 42+L	105	152	2	0.6	0.42	2.4	1.6	1.6	5.71
HR 90 KBE 52X+L	105	154	2	0.6	0.42	2.4	1.6	1.6	7.26

Remark For other double-row tapered roller bearings not listed above, please contact OID.

Double-Row Tapered Roller Bearings

Bore Diameter 90 – 120 mm





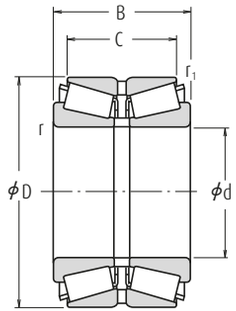
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B_2	C	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil
90	190	102	81	4	1	595 000	845 000	1 600	2 100
	190	144	115	4	1	770 000	1 180 000	1 600	2 200
95	170	78	63	3	1	385 000	570 000	1 700	2 300
	170	100	83	3	1	495 000	800 000	1 700	2 300
	200	108	85	4	1	640 000	910 000	1 500	2 000
100	165	52	46	2.5	0.6	222 000	340 000	1 700	2 300
	180	81	64	3	1	435 000	665 000	1 600	2 200
	180	81	65	3	1	435 000	665 000	1 600	2 200
	180	82	66	3	1	435 000	665 000	1 600	2 200
	180	83	67	3	1	435 000	665 000	1 600	2 200
	180	105	85	3	1	555 000	905 000	1 600	2 200
	180	107	87	3	1	555 000	905 000	1 600	2 200
	180	110	90	3	1	555 000	905 000	1 600	2 200
	215	112	87	4	1	725 000	1 050 000	1 400	1 900
105	190	88	70	3	1	480 000	735 000	1 500	2 000
	190	117	96	3	1	620 000	1 020 000	1 500	2 000
	190	115	95	3	1	620 000	1 020 000	1 500	2 000
	225	116	91	4	1	780 000	1 130 000	1 300	1 800
110	180	56	50	2.5	0.6	264 000	400 000	1 500	2 000
	180	70	56	2.5	0.6	340 000	555 000	1 500	2 000
	180	125	100	2.5	0.6	550 000	1 060 000	1 500	2 100
	200	90	72	3	1	540 000	840 000	1 400	1 900
	200	92	74	3	1	540 000	840 000	1 400	1 900
	200	120	100	3	1	685 000	1 130 000	1 400	1 900
	200	121	101	3	1	685 000	1 130 000	1 400	1 900
	240	118	93	4	1.5	830 000	1 190 000	1 200	1 700
120	180	46	41	2.5	0.6	184 000	296 000	1 500	2 000
	180	58	46	2.5	0.6	260 000	450 000	1 500	2 000
	200	62	55	2.5	0.6	310 000	500 000	1 400	1 800
	200	78	62	2.5	0.6	415 000	690 000	1 400	1 900
	200	100	84	2.5	0.6	515 000	885 000	1 400	1 800
	215	97	78	3	1	575 000	900 000	1 300	1 800
	215	132	109	3	1	750 000	1 270 000	1 300	1 800
	260	128	101	4	1	915 000	1 310 000	1 100	1 500
	260	188	145	4	1	1 320 000	2 110 000	1 100	1 500

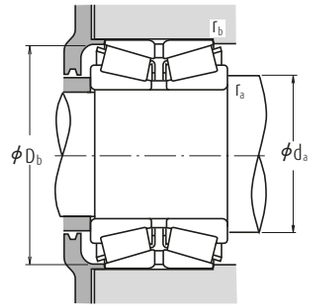
Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min.	D_b min.	r_a max.	r_b max.	e	Y_2	Y_3	Y_0	approx.
HR 90 KBE 043+L	111	178	3	1	0.35	2.9	2.0	1.9	12.7
HR 90 KBE 1901+L	111	179	3	1	0.35	2.9	2.0	1.9	17.9
HR 95 KBE 42+L	113	161	2.5	1	0.42	2.4	1.6	1.6	6.75
HR 95 KBE 52+L	113	163	2.5	1	0.42	2.4	1.6	1.6	8.60
HR 95 KBE 43+L	116	187	3	1	0.35	2.9	2.0	1.9	14.7
100 KBE 31+L	115	156	2	0.6	0.33	3.0	2.0	2.0	4.04
HR100 KBE 1805+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.16
HR100 KBE 042+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.13
HR100 KBE 1801+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.22
HR100 KBE 42+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.7
HR100 KBE 1802+L	118	173	2.5	1	0.42	2.4	1.6	1.6	10.6
HR100 KBE 52X+L	118	173	2.5	1	0.42	2.4	1.6	1.6	10.7
HR100 KBE 1804+L	118	173	2.5	1	0.42	2.4	1.6	1.6	11
HR100 KBE 043+L	121	200	3	1	0.35	2.9	2.0	1.9	18.1
HR105 KBE 42X+L	123	179	2.5	1	0.42	2.4	1.6	1.6	9.76
HR105 KBE 1902+L	123	182	2.5	1	0.42	2.4	1.6	1.6	13.4
HR105 KBE 52+L	123	182	2.5	1	0.42	2.4	1.6	1.6	13.1
HR105 KBE 043+L	126	209	3	1	0.35	2.9	2.0	1.9	20.4
110 KBE 31+L	125	172	2	0.6	0.39	2.6	1.7	1.7	5.11
110 KBE 031+L	125	172	2	0.6	0.39	2.6	1.7	1.7	6.33
110 KBE 1802+L	125	172	2	0.6	0.26	3.8	2.6	2.5	11.4
HR110 KBE 42+L	128	190	2.5	1	0.42	2.4	1.6	1.6	11.2
HR110 KBE 42X+L	128	190	2.5	1	0.42	2.4	1.6	1.6	11.5
HR110 KBE 2001+L	128	193	2.5	1	0.42	2.4	1.6	1.6	15.4
HR110 KBE 52X+L	128	193	2.5	1	0.42	2.4	1.6	1.6	15.2
HR110 KBE 043+L	131	223	3	1.5	0.35	2.9	2.0	1.9	23.6
120 KBE 30+L	135	172	2	0.6	0.40	2.5	1.7	1.6	3.75
120 KBE 030+L	135	172	2	0.6	0.39	2.6	1.7	1.7	4.64
120 KBE 31+L	135	190	2	0.6	0.39	2.6	1.7	1.7	7.35
120 KBE 031+L	135	190	2	0.6	0.39	2.6	1.7	1.7	8.97
120 KBE 2001+L	135	193	2	0.6	0.37	2.7	1.8	1.8	11.3
HR120 KBE 42X+L	138	204	2.5	1	0.44	2.3	1.6	1.5	13.7
HR120 KBE 52X+L	138	207	2.5	1	0.44	2.3	1.6	1.5	18.8
HR120 KBE 43+L	141	240	3	1	0.35	2.9	2.0	1.9	29.4
HR120 KBE 2601+L	141	242	3	1	0.35	2.9	2.0	1.9	44.6

Remark For other double-row tapered roller bearings not listed above, please contact OID.

Double-Row Tapered Roller Bearings

Bore Diameter 125 – 150 mm



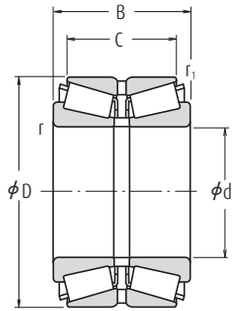


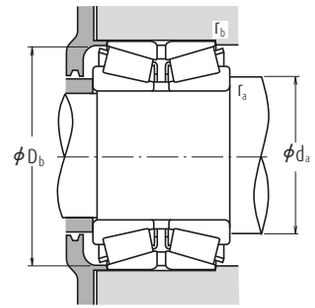
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B_2	C	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil
125	210	110	88	4	1	560 000	1 030 000	1 300	1 800
130	230	98	78.5	4	1	640 000	1 010 000	1 200	1 600
	230	100	80.5	4	1	640 000	1 010 000	1 200	1 600
	280	137	107.5	5	1.5	940 000	1 350 000	1 000	1 400
	230	145	115	4	1	905 000	1 580 000	1 200	1 700
	230	145	117.5	4	1	905 000	1 580 000	1 200	1 700
	230	150	120	4	1	905 000	1 580 000	1 200	1 700
140	210	53	47	2.5	0.6	280 000	495 000	1 200	1 700
	210	66	53	2.5	1	305 000	530 000	1 200	1 700
	210	106	94	2.5	0.6	555 000	1 200 000	1 300	1 700
	225	68	61	3	1	400 000	630 000	1 200	1 600
	225	84	68	3	1	490 000	850 000	1 200	1 600
	225	85	68	3	1	490 000	850 000	1 200	1 600
	230	120	94	3	1	685 000	1 270 000	1 200	1 600
	230	140	110	3	1	820 000	1 550 000	1 200	1 600
	240	132	106	4	1.5	685 000	1 360 000	1 100	1 500
	250	102	82.5	4	1	670 000	1 030 000	1 100	1 500
	250	153	125.5	4	1	1 040 000	1 830 000	1 100	1 500
	300	145	115.5	5	1.5	1 030 000	1 480 000	1 000	1 300
150	225	56	50	3	1	300 000	545 000	1 200	1 600
	225	70	56	3	1	395 000	685 000	1 200	1 600
	250	80	71	3	1	510 000	810 000	1 100	1 400
	250	100	80	3	1	630 000	1 090 000	1 100	1 400
	250	115	95	3	1	745 000	1 320 000	1 100	1 500
	260	150	115	4	1	815 000	1 520 000	1 100	1 400
	270	109	87	4	1	830 000	1 330 000	1 000	1 400
	270	164	130	4	1	1 210 000	2 150 000	1 000	1 400
	270	174	140	4	1	1 210 000	2 150 000	1 000	1 400
	320	154	120	5	1.5	1 420 000	2 130 000	900	1 200

Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min.	D_b min.	r_a max.	r_b max.	e	Y_2	Y_3	Y_0	approx.
125 KBE 2101+L	146	201	3	1	0.43	2.3	1.6	1.5	14.5
HR130 KBE 42+L	151	220	3	1	0.44	2.3	1.6	1.5	15.8
HR130 KBE 2301+L	151	220	3	1	0.44	2.3	1.6	1.5	15.9
130 KBE 43+L	157	258	4	1.5	0.36	2.8	1.9	1.8	35
HR130 KBE 2302+L	151	221	3	1	0.44	2.3	1.6	1.5	24.1
HR130 KBE 52+L	151	222	3	1	0.44	2.3	1.6	1.5	23.8
HR130 KBE 2303+L	151	221	3	1	0.44	2.3	1.6	1.5	24.2
140 KBE 30+L	155	202	2	0.6	0.39	2.6	1.7	1.7	6.02
140 KBE 030+L	155	202	2	1	0.40	2.5	1.7	1.6	7.02
140 KBE 2101+L	155	202	2	0.6	0.33	3.0	2.0	2.0	12.3
140 KBE 31+L	158	216	2.5	1	0.39	2.6	1.7	1.7	9.31
140 KBE 031+L	158	215	2.5	1	0.39	2.6	1.7	1.7	11.6
140 KBE 2201+L	158	215	2.5	1	0.39	2.6	1.7	1.7	11.7
140 KBE 2301+L	158	220	2.5	1	0.33	3.0	2.0	2.0	17.6
140 KBE 2302+L	158	221	2.5	1	0.35	2.9	2.0	1.9	20.7
140 KBE 2401+L	161	227	3	1.5	0.44	2.3	1.5	1.5	22.7
HR140 KBE 42+L	161	237	3	1	0.44	2.3	1.6	1.5	18.9
HR140 KBE 52X+L	161	241	3	1	0.44	2.3	1.6	1.5	29.6
140 KBE 43+L	167	275	4	1.5	0.36	2.8	1.9	1.8	42.6
150 KBE 30+L	168	213	2.5	1	0.35	2.9	2.0	1.9	7.41
150 KBE 030+L	168	215	2.5	1	0.35	2.9	2.0	1.9	8.70
150 KBE 31+L	168	240	2.5	1	0.40	2.5	1.7	1.6	14.2
150 KBE 031+L	168	238	2.5	1	0.39	2.6	1.7	1.7	17.8
150 KBE 2502+L	168	238	2.5	1	0.37	2.7	1.8	1.8	20.9
150 KBE 2601+L	171	242	3	1	0.43	2.3	1.6	1.5	30.0
HR150 KBE 42+L	171	253	3	1	0.44	2.3	1.6	1.5	24.3
HR150 KBE 52X+L	171	257	3	1	0.44	2.3	1.6	1.5	37.3
HR150 KBE 2701+L	171	257	3	1	0.44	2.3	1.6	1.5	39.7
HR150 KBE 43+L	177	295	4	1.5	0.35	2.9	2.0	1.9	53.4

Remark For other double-row tapered roller bearings not listed above, please contact OID.

Bore Diameter 160 – 200 mm





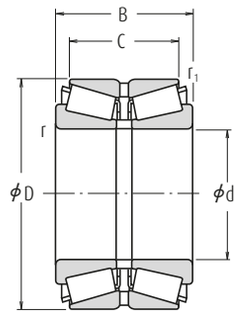
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B_2	C	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil
160	240	60	53	3	1	355 000	580 000	1 100	1 500
	240	75	60	3	1	395 000	710 000	1 100	1 500
	240	110	90	3	1	650 000	1 290 000	1 100	1 500
	270	86	76	3	1	540 000	885 000	1 000	1 300
	270	108	86	3	1	775 000	1 380 000	1 000	1 300
	270	140	120	3	1	990 000	1 880 000	1 000	1 300
	280	150	125	4	1	1 100 000	2 020 000	1 000	1 300
	290	115	91	4	1	800 000	1 220 000	900	1 300
	290	178	144	4	1	1 360 000	2 440 000	1 000	1 300
	340	160	126	5	1.5	1 310 000	1 920 000	800	1 100
165	290	150	125	4	1	1 140 000	2 130 000	900	1 300
170	250	85	65	3	1	435 000	845 000	1 000	1 400
	260	67	60	3	1	400 000	700 000	1 000	1 300
	260	84	67	3	1	575 000	1 030 000	1 000	1 300
	280	88	78	3	1	630 000	1 040 000	900	1 300
	280	110	88	3	1	820 000	1 450 000	900	1 300
	280	150	130	3	1	1 110 000	2 160 000	1 000	1 300
	310	192	152	5	1.5	1 590 000	2 910 000	900	1 200
180	280	74	66	3	1	455 000	810 000	900	1 300
	280	93	74	3	1	655 000	1 220 000	900	1 200
	300	96	85	4	1.5	725 000	1 210 000	900	1 200
	300	120	96	4	1.5	940 000	1 690 000	900	1 200
	320	127	99	5	1.5	895 000	1 390 000	800	1 200
	320	192	152	5	1.5	1 640 000	3 050 000	900	1 200
	340	180	140	5	1.5	1 410 000	2 510 000	800	1 100
190	290	75	67	3	1	490 000	845 000	900	1 200
	290	94	75	3	1	670 000	1 230 000	900	1 200
	320	104	92	4	1.5	800 000	1 380 000	800	1 100
	320	130	104	4	1.5	1 070 000	1 960 000	800	1 100
	340	133	105	5	1.5	990 000	1 580 000	800	1 100
	340	204	160	5	1.5	1 910 000	3 550 000	800	1 100
200	310	152	123	3	1	1 300 000	2 740 000	800	1 100
	320	146	110	5	1.5	990 000	2 120 000	800	1 100
	330	180	140	5	1.5	1 390 000	2 730 000	800	1 100
	340	112	100	4	1.5	940 000	1 670 000	800	1 000
	340	140	112	4	1.5	1 260 000	2 250 000	800	1 000
	360	142	110	5	1.5	1 100 000	1 780 000	700	1 000
	360	218	174	5	1.5	2 070 000	3 850 000	800	1 000

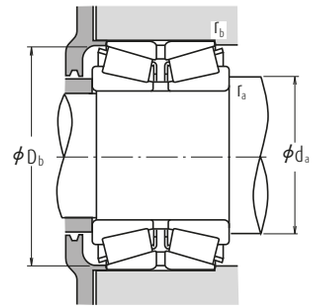
Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min.	D_b min.	r_a max.	r_b max.	e	Y_2	Y_3	Y_0	approx.
160 KBE 30+L	178	231	2.5	1	0.37	2.7	1.8	1.8	8.56
160 KBE 030+L	178	230	2.5	1	0.40	2.5	1.7	1.6	10.5
160 KBE 2401+L	178	232	2.5	1	0.38	2.6	1.8	1.7	16.2
160 KBE 31+L	178	255	2.5	1	0.40	2.5	1.7	1.6	18.6
160 KBE 031+L	178	256	2.5	1	0.39	2.6	1.7	1.7	23.1
160 KBE 2701+L	178	261	2.5	1	0.39	2.6	1.7	1.7	30.6
160 KBE 2801+L	181	266	3	1	0.32	3.2	2.1	2.1	35.9
160 KBE 42+L	181	275	3	1	0.43	2.3	1.6	1.5	28.2
HR160 KBE 52X+L	181	277	3	1	0.44	2.3	1.6	1.5	47.3
160 KBE 43+L	187	314	4	1.5	0.36	2.8	1.9	1.8	60.4
165 KBE 2901+L	186	272	3	1	0.33	3.1	2.1	2.0	39.5
170 KBE 2501+L	188	241	2.5	1	0.44	2.3	1.5	1.5	12.3
170 KBE 30+L	188	248	2.5	1	0.40	2.5	1.7	1.6	11.8
170 KBE 030+L	188	249	2.5	1	0.39	2.6	1.7	1.7	14.4
170 KBE 31+L	188	266	2.5	1	0.39	2.6	1.7	1.7	19.7
170 KBE 031+L	188	268	2.5	1	0.39	2.6	1.7	1.7	24.2
170 KBE 2802+L	188	269	2.5	1	0.39	2.6	1.7	1.7	34.6
HR170 KBE 52X+L	197	297	4	1.5	0.44	2.3	1.6	1.5	57.3
180 KBE 30+L	198	265	2.5	1	0.40	2.5	1.7	1.6	15.4
180 KBE 030+L	198	265	2.5	1	0.35	2.9	2.0	1.9	14.4
180 KBE 31+L	201	284	3	1.5	0.39	2.6	1.7	1.7	24.8
180 KBE 031+L	201	287	3	1.5	0.39	2.6	1.7	1.7	31.1
180 KBE 42+L	207	300	4	1.5	0.44	2.3	1.5	1.5	36.5
HR180 KBE 52X+L	207	308	4	1.5	0.45	2.2	1.5	1.5	59.2
180 KBE 3401+L	207	305	4	1.5	0.43	2.3	1.6	1.5	68.1
190 KBE 30+L	208	279	2.5	1	0.39	2.6	1.7	1.7	16.2
190 KBE 030+L	208	279	2.5	1	0.40	2.5	1.7	1.6	20.1
190 KBE 31+L	211	301	3	1.5	0.40	2.5	1.7	1.6	30.9
190 KBE 031+L	211	302	3	1.5	0.39	2.6	1.7	1.7	39.0
190 KBE 42+L	217	320	4	1.5	0.40	2.5	1.7	1.6	43.9
HR190 KBE 52X+L	217	327	4	1.5	0.44	2.3	1.6	1.5	70.8
HR200 KBE 3101+L	218	301	2.5	1	0.43	2.3	1.6	1.5	40.1
200 KBE 3201+L	227	301	4	1.5	0.52	1.9	1.3	1.3	41.6
200 KBE 3301+L	227	316	4	1.5	0.42	2.4	1.6	1.6	54.4
200 KBE 31+L	221	321	3	1.5	0.40	2.5	1.7	1.6	38.8
200 KBE 031+L	221	324	3	1.5	0.39	2.6	1.7	1.7	47.0
200 KBE 42+L	227	338	4	1.5	0.40	2.5	1.7	1.6	52.6
HR200 KBE 52+L	227	344	4	1.5	0.41	2.5	1.7	1.6	88.3

Remark For other double-row tapered roller bearings not listed above, please contact OID.

Double-Row Tapered Roller Bearings

Bore Diameter 206 – 260 mm





Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B_2	C	r min.	r_1 min.	C_r	C_{0r}	Grease	Oil
206	283	102	83	4	1.5	580 000	1 430 000	900	1 200
210	355	116	103	4	1.5	905 000	1 520 000	700	1 000
220	300	110	88	3	1	730 000	1 710 000	800	1 100
	340	90	80	4	1.5	695 000	1 280 000	700	1 000
	340	113	90	4	1.5	920 000	1 830 000	700	1 000
	370	120	107	5	1.5	1 110 000	1 940 000	700	1 000
	370	150	120	5	1.5	1 460 000	2 760 000	700	1 000
	400	158	122	5	1.5	1 390 000	2 300 000	600	900
240	360	92	82	4	1.5	780 000	1 490 000	700	900
	360	115	92	4	1.5	1 020 000	2 040 000	700	900
	400	128	114	5	1.5	1 180 000	2 190 000	600	900
	400	160	128	5	1.5	1 620 000	3 050 000	600	900
	400	209	168	5	1.5	2 220 000	4 450 000	600	900
250	380	98	87	4	1	795 000	1 460 000	600	900
260	400	104	92	5	1.5	895 000	1 670 000	600	800
	400	130	104	5	1.5	1 210 000	2 460 000	600	800
	440	144	128	5	1.5	1 540 000	2 760 000	600	800
	440	172	145	5	1.5	1 870 000	3 500 000	600	800
	440	180	144	5	1.5	2 110 000	4 150 000	600	800

Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min.	D_b min.	r_a max.	r_b max.	e	Y_2	Y_3	Y_0	approx.
206 KBE 2801+L	227	275	3	1.5	0.51	2.0	1.3	1.3	18.1
210 KBE 31+L	231	338	3	1.5	0.46	2.2	1.5	1.4	41.7
220 KBE 3001+L	238	292	2.5	1	0.37	2.7	1.8	1.8	21.2
220 KBE 30+L	241	324	3	1.5	0.40	2.5	1.7	1.6	27.9
220 KBE 030+L	241	327	3	1.5	0.40	2.5	1.7	1.6	34.7
220 KBE 31+L	247	345	4	1.5	0.39	2.6	1.7	1.7	48.3
220 KBE 031+L	247	349	4	1.5	0.39	2.6	1.7	1.7	60.2
220 KBE 42+L	247	371	4	1.5	0.40	2.5	1.7	1.6	74.2
240 KBE 30+L	261	344	3	1.5	0.39	2.6	1.7	1.7	30.1
240 KBE 030+L	261	344	3	1.5	0.35	2.9	2.0	1.9	37.3
240 KBE 31+L	267	380	4	1.5	0.43	2.3	1.6	1.5	60.0
240 KBE 031+L	267	378	4	1.5	0.39	2.6	1.7	1.7	73.6
240 KBE 4003+L	267	384	4	1.5	0.33	3.0	2.0	2.0	96.4
250 KBE 3801+L	271	365	3	1	0.40	2.5	1.7	1.6	35.5
260 KBE 30+L	287	379	4	1.5	0.40	2.5	1.7	1.6	43.4
260 KBE 030+L	287	382	4	1.5	0.40	2.5	1.7	1.6	54.1
260 KBE 31+L	287	416	4	1.5	0.39	2.6	1.7	1.7	82.5
260 KBE 4401+L	287	414	4	1.5	0.38	2.6	1.8	1.7	98.1
260 KBE 031+L	287	416	4	1.5	0.39	2.6	1.7	1.7	104.0

Remark For other double-row tapered roller bearings not listed above, please contact OID.

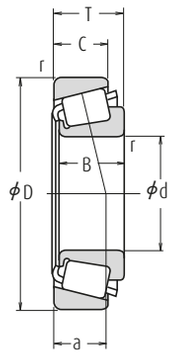
OID MECHANICAL PARTS BEARINGS

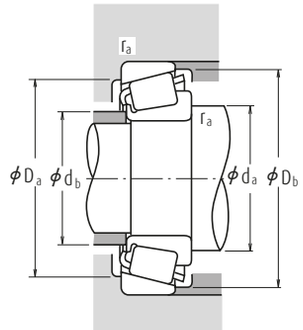


Tapered Roller Bearings (Inch Series)

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 12.000 – 22.225 mm





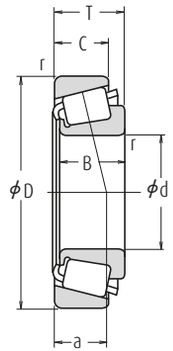
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
12.000	31.991	10.008	10.785	7.938	0.8	1.3	10 300	8 900	13 000	18 000
12.700	34.988	10.998	10.988	8.730	1.3	1.3	11 700	10 900	12 000	16 000
15.000	34.988	10.998	10.988	8.730	0.8	1.3	11 700	10 900	12 000	16 000
15.875	34.988	10.998	10.998	8.712	1.3	1.3	13 800	13 400	11 000	15 000
	39.992	12.014	11.153	9.525	1.3	1.3	14 900	15 700	9 500	13 000
	41.275	14.288	14.681	11.112	1.3	2.0	21 300	19 900	10 000	13 000
	42.862	14.288	14.288	9.525	1.5	1.5	17 300	17 200	8 500	12 000
	42.862	16.670	16.670	13.495	1.5	1.5	26 900	26 300	9 500	13 000
	44.450	15.494	14.381	11.430	1.5	1.5	23 800	23 900	8 500	11 000
	49.225	19.845	21.539	14.288	0.8	1.3	37 500	37 000	8 500	11 000
16.000	47.000	21.000	21.000	16.000	1.0	2.0	35 000	36 500	9 000	12 000
16.993	39.992	12.014	11.153	9.525	0.8	1.3	14 900	15 700	9 500	13 000
17.455	36.525	11.112	11.112	7.938	1.5	1.5	11 600	11 000	10 000	14 000
17.462	39.878	13.843	14.605	10.668	1.3	1.3	22 500	22 500	10 000	13 000
	47.000	14.381	14.381	11.112	0.8	1.3	23 800	23 900	8 500	11 000
19.050	39.992	12.014	11.153	9.525	1.0	1.3	14 900	15 700	9 500	13 000
	45.237	15.494	16.637	12.065	1.3	1.3	28 500	28 900	9 000	12 000
	47.000	14.381	14.381	11.112	1.3	1.3	23 800	23 900	8 500	11 000
	49.225	18.034	19.050	14.288	1.3	1.3	37 500	37 000	8 500	11 000
	49.225	19.845	21.539	14.288	1.2	1.3	37 500	37 000	8 500	11 000
	49.225	21.209	19.050	17.462	1.3	1.5	37 500	37 000	8 500	11 000
	49.225	23.020	21.539	17.462	C1.5	3.5	37 500	37 000	8 500	11 000
	53.975	22.225	21.839	15.875	1.5	2.3	40 500	39 500	7 500	10 000
19.990	47.000	14.381	14.381	11.112	1.5	1.3	23 800	23 900	8 500	11 000
20.000	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	7 500	10 000
20.625	49.225	23.020	21.539	17.462	1.5	1.5	37 500	37 000	8 500	11 000
20.638	49.225	19.845	19.845	15.875	1.5	1.5	36 000	37 000	8 000	11 000
21.430	50.005	17.526	18.288	13.970	1.3	1.3	38 500	40 000	8 000	11 000
22.000	45.237	15.494	16.637	12.065	1.3	1.3	29 200	33 500	8 500	11 000
	45.975	15.494	16.637	12.065	1.3	1.3	29 200	33 500	8 500	11 000
22.225	50.005	13.495	14.260	9.525	1.3	1.0	26 000	27 900	7 500	10 000
	50.005	17.526	18.288	13.970	1.3	1.3	38 500	40 000	8 000	11 000
	52.388	19.368	20.168	14.288	1.5	1.5	40 500	43 000	7 500	10 000
	53.975	19.368	20.168	14.288	1.5	1.5	40 500	43 000	7 500	10 000
	56.896	19.368	19.837	15.875	1.3	1.3	38 000	40 500	7 100	9 500
	57.150	22.225	22.225	17.462	0.8	1.5	48 000	50 000	7 100	9 500

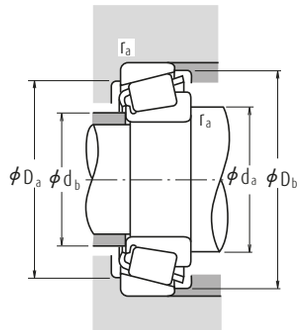
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
***A 2047**	**A 2126**	16.5	15.5	26	29	0.8	1.3	6.8	0.41	1.5	0.81	0.023	0.017
A 4050	**A 4138**	18.5	17	29	32	1.3	1.3	8.2	0.45	1.3	0.73	0.033	0.022
***A 4059**	**A 4138**	19.5	19	29	32	0.8	1.3	8.2	0.45	1.3	0.73	0.029	0.022
L 21549	**L 21511**	21.5	19.5	29	32.5	1.3	1.3	7.7	0.32	1.9	1.0	0.031	0.018
A 6062	**A 6157**	22	20.5	34	37	1.3	1.3	10.3	0.53	1.1	0.63	0.044	0.031
03062	**03162**	21.5	20	34	37.5	1.3	2	9.1	0.31	1.9	1.1	0.061	0.035
11590	**11520**	24.5	22.5	34.5	39.5	1.5	1.5	13.0	0.70	0.85	0.47	0.061	0.040
17580	**17520**	23	21	36.5	39	1.5	1.5	10.6	0.33	1.8	1.0	0.075	0.048
05062	**05175**	23.5	21	38	42	1.5	1.5	11.2	0.36	1.7	0.93	0.081	0.039
09062	**09195**	22	21.5	42	44.5	0.8	1.3	10.7	0.27	2.3	1.2	0.139	0.065
***HM 81649**	****HM 81610**	27.5	23	37.5	43	1	2	14.9	0.55	1.1	0.60	0.115	0.082
A 6067	**A 6157**	22	21	34	37	0.8	1.3	10.3	0.53	1.1	0.63	0.042	0.031
A 5069	**A 5144**	23.5	21.5	30	33.5	1.5	1.5	8.9	0.49	1.2	0.68	0.030	0.020
† LM 11749	**† LM 11710**	23	21.5	34	37	1.3	1.3	8.7	0.29	2.1	1.2	0.055	0.028
05068	**05185**	23	22.5	40.5	42.5	0.8	1.3	10.1	0.36	1.7	0.93	0.082	0.047
A 6075	**A 6157**	24	23	34	37	1	1.3	10.3	0.53	1.1	0.63	0.037	0.031
† LM 11949	**† LM 11910**	25	23.5	39.5	41.5	1.3	1.3	9.5	0.30	2.0	1.1	0.081	0.044
05075	**05185**	25	23.5	40.5	42.5	1.3	1.3	10.1	0.36	1.7	0.93	0.077	0.047
09067	**09195**	25.5	24	42	44.5	1.3	1.3	10.7	0.27	2.3	1.2	0.115	0.065
09078	**09195**	25.5	24	42	44.5	1.2	1.3	10.7	0.27	2.3	1.2	0.124	0.065
09067	**09196**	25.5	24	41.5	44.5	1.3	1.5	13.8	0.27	2.3	1.2	0.115	0.085
09074	**09194**	26	24	39	44.5	1.5	3.5	13.8	0.27	2.3	1.2	0.124	0.082
21075	**21212**	31.5	26	43	50	1.5	2.3	16.3	0.59	1.0	0.56	0.156	0.097
05079	**05185**	26.5	24	40.5	42.5	1.5	1.3	10.1	0.36	1.7	0.93	0.073	0.047
07079	**07204**	27.5	27	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.105	0.061
09081	**09196**	27.5	25.5	41.5	44.5	1.5	1.5	13.8	0.27	2.3	1.2	0.115	0.085
12580	**12520**	28.5	26	42.5	45.5	1.5	1.5	12.9	0.32	1.9	1.0	0.114	0.067
† M 12649	**† M 12610**	27.5	25.5	44	46	1.3	1.3	10.9	0.28	2.2	1.2	0.115	0.059
***† LM 12749**	**† LM 12710**	27.5	26	39.5	42.5	1.3	1.3	10.0	0.31	2.0	1.1	0.078	0.038
***† LM 12749**	**† LM 12711**	27.5	26	40	42.5	1.3	1.3	10.0	0.31	2.0	1.1	0.078	0.043
07087	**07196**	28.5	27	44.5	47	1.3	1	10.6	0.40	1.5	0.82	0.097	0.035
† M 12648	**† M 12610**	28.5	26.5	44	46	1.3	1.3	10.9	0.28	2.2	1.2	0.111	0.059
1380	**1328**	29.5	27	45	48.5	1.5	1.5	11.3	0.29	2.1	1.1	0.137	0.067
1380	**1329**	29.5	27	46	49	1.5	1.5	11.3	0.29	2.1	1.1	0.137	0.082
1755	**1729**	29	27.5	49	51	1.3	1.3	12.2	0.31	2.0	1.1	0.152	0.102
1280	**1220**	29.5	29	49	52	0.8	1.5	15.1	0.35	1.7	0.95	0.183	0.106

Notes
- * The maximum bore diameter is listed and its tolerance is negative
- ** The maximum outside diameter is listed and its tolerance is negative
- † The tolerances for the bore diameter and overall bearing width differ from the standard
- *† The tolerance for the bore diameter is 0 to −20 µm, and for overall bearing width is +356 to 0 µm.

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 22.606 – 28.575 mm





Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
22.606	47.000	15.500	15.500	12.000	1.5	1.0	26 300	30 000	8 000	11 000
23.812	50.292	14.224	14.732	10.668	1.5	1.3	27 600	32 000	7 100	10 000
	56.896	19.368	19.837	15.875	0.8	1.3	38 000	40 500	7 100	9 500
24.000	55.000	25.000	25.000	21.000	2.0	2.0	49 500	55 000	7 100	9 500
24.981	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	7 500	10 000
	52.001	15.011	14.260	12.700	1.5	2.0	26 000	27 900	7 500	10 000
	62.000	16.002	16.566	14.288	1.5	1.5	37 000	39 500	6 300	8 500
25.000	50.005	13.495	14.260	9.525	1.5	1.0	26 000	27 900	7 500	10 000
	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	7 500	10 000
25.400	50.005	13.495	14.260	9.525	3.3	1.0	26 000	27 900	7 500	10 000
	50.005	13.495	14.260	9.525	1.0	1.0	26 000	27 900	7 500	10 000
	50.292	14.224	14.732	10.668	1.3	1.3	27 600	32 000	7 100	10 000
	57.150	17.462	17.462	13.495	1.3	1.5	39 500	45 500	6 700	9 000
	57.150	19.431	19.431	14.732	1.5	1.5	42 500	49 000	6 700	9 000
	59.530	23.368	23.114	18.288	0.8	1.5	50 000	58 000	6 300	9 000
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
	63.500	20.638	20.638	15.875	3.5	1.5	46 000	53 000	6 000	8 000
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 600	8 000
	65.088	22.225	21.463	15.875	1.5	1.5	45 000	47 500	5 600	8 000
	68.262	22.225	22.225	17.462	0.8	1.5	55 000	64 000	5 600	7 500
	72.233	25.400	25.400	19.842	0.8	2.3	63 500	83 500	5 000	7 100
	72.626	24.608	24.257	17.462	2.3	1.5	60 000	58 000	5 600	7 500
26.988	50.292	14.224	14.732	10.668	3.5	1.3	27 600	32 000	7 100	10 000
	57.150	19.845	19.355	15.875	3.3	1.5	40 000	44 500	6 700	9 000
	60.325	19.842	17.462	15.875	3.5	1.5	39 500	45 500	6 700	9 000
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
28.575	57.150	19.845	19.355	15.875	3.5	1.5	40 000	44 500	6 700	9 000
	59.131	15.875	16.764	11.811	spec.	1.3	34 500	41 500	6 300	8 500
	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	6 000	8 000
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 600	8 000
	68.262	22.225	22.225	17.462	0.8	1.5	55 000	64 000	5 600	7 500
	72.626	24.608	24.257	17.462	4.8	1.5	60 000	58 000	5 600	7 500
	72.626	24.608	24.257	17.462	1.5	1.5	60 000	58 000	5 600	7 500
	73.025	22.225	22.225	17.462	0.8	3.3	54 500	64 500	5 300	7 100

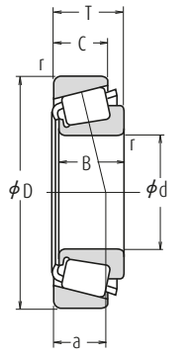
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
LM 72849	**LM 72810**	29	27	40.5	44.5	1.5	1	12.2	0.47	1.3	0.70	0.086	0.046
† L 44640	**† L 44610**	30.5	28.5	44.5	47	1.5	1.3	10.9	0.37	1.6	0.88	0.097	0.039
1779	**1729**	29.5	28.5	49	51	0.8	1.3	12.2	0.31	2.0	1.1	0.143	0.102
▲ JHM 33449	**▲ JHM 33410**	35	30	47	52	2	2	15.8	0.35	1.7	0.93	0.181	0.107
07098	**07204**	31	29	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.085	0.061
07098	**07205**	31	29	44.5	48	1.5	2	12.1	0.40	1.5	0.82	0.085	0.061
17098	**17244**	33	30.5	54	57	1.5	1.5	12.8	0.38	1.6	0.86	0.165	0.091
07097	**07196**	31	29	44.5	47	1.5	1	10.6	0.40	1.5	0.82	0.085	0.035
07097	**07204**	31	29	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.085	0.061
07100 SA	**07196**	35	29.5	44.5	47	3.3	1	10.6	0.40	1.5	0.82	0.082	0.035
07100	**07196**	30.5	29.5	44.5	47	1	1	10.6	0.40	1.5	0.82	0.084	0.035
† L 44643	**† L 44610**	31.5	29.5	44.5	47	1.3	1.3	10.9	0.37	1.6	0.88	0.090	0.039
15578	**15520**	32.5	30.5	51	53	1.3	1.5	12.4	0.35	1.7	0.95	0.151	0.070
M 84548	**M 84510**	36	33	48.5	54	1.5	1.5	16.1	0.55	1.1	0.60	0.156	0.089
M 84249	**M 84210**	36	32.5	49.5	56	0.8	1.5	18.3	0.55	1.1	0.60	0.194	0.13
15101	**15245**	32.5	31.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.222	0.081
15100	**15250 X**	38	31.5	55	59	3.5	1.5	14.9	0.35	1.7	0.94	0.22	0.113
M 86643	**M 86610**	38	36.5	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.246	0.128
23100	**23256**	39	34.5	53	61	1.5	1.5	20.0	0.73	0.82	0.45	0.214	0.142
02473	**02420**	34.5	33.5	59	63	0.8	1.5	16.9	0.42	1.4	0.79	0.28	0.152
HM 88630	**HM 88610**	39.5	39.5	60	69	0.8	2.3	20.7	0.55	1.1	0.60	0.398	0.188
41100	**41286**	41	36.5	61	68	2.3	1.5	20.7	0.60	1.0	0.55	0.32	0.177
† L 44649	**† L 44610**	37.5	31	44.5	47	3.5	1.3	10.9	0.37	1.6	0.88	0.081	0.039
1997 X	**1922**	37.5	31.5	51	53.5	3.3	1.5	13.9	0.33	1.8	1.0	0.152	0.077
15580	**15523**	38.5	32	51	54	3.5	1.5	14.7	0.35	1.7	0.95	0.141	0.123
15106	**15245**	33.5	33	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.211	0.081
1988	**1922**	39.5	33.5	51	53.5	3.5	1.5	13.9	0.33	1.8	1.0	0.141	0.077
† LM 67043	**† LM 67010**	40	33.5	52	56	3.5	1.3	12.6	0.41	1.5	0.80	0.147	0.062
15112	**15245**	40	34	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.199	0.081
15113	**15245**	34.5	34	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.20	0.081
M 86647	**M 86610**	40	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.223	0.128
02474	**02420**	36.5	36	59	63	0.8	1.5	16.9	0.42	1.4	0.79	0.257	0.152
41125	**41286**	48	36.5	61	68	4.8	1.5	20.7	0.60	1.0	0.55	0.292	0.177
41126	**41286**	41.5	36.5	61	68	1.5	1.5	20.7	0.60	1.0	0.55	0.295	0.177
02872	**02820**	37.5	37	62	68	0.8	3.3	18.3	0.45	1.3	0.73	0.321	0.16

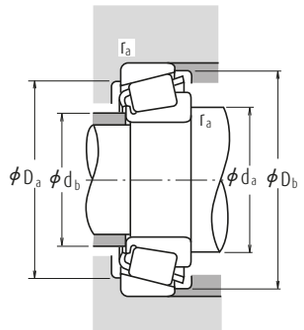
Notes † The tolerances for the bore diameter and overall bearing width differ from the standard

▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 29.000 – 32.000 mm





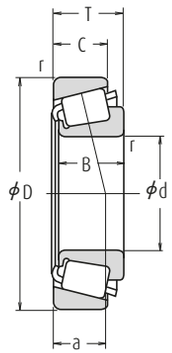
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
29.000	50.292	14.224	14.732	10.668	3.5	1.3	26 800	34 000	7 100	9 500
29.367	66.421	23.812	25.433	19.050	3.5	1.3	65 000	73 000	6 000	8 000
30.000	62.000	16.002	16.566	14.288	1.5	1.5	37 000	39 500	6 300	8 500
	62.000	19.050	20.638	14.288	1.3	1.3	46 000	53 000	6 000	8 000
	63.500	20.638	20.638	15.875	1.3	1.3	46 000	53 000	6 000	8 000
	72.000	19.000	18.923	15.875	1.5	1.5	52 000	56 000	5 600	7 500
30.112	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
30.162	58.738	14.684	15.080	10.716	3.5	1.0	28 800	33 500	6 000	8 000
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 600	8 000
	68.262	22.225	22.225	17.462	2.3	1.5	55 500	70 500	5 300	7 500
	69.850	23.812	25.357	19.050	2.3	1.3	71 000	84 000	5 600	7 500
	69.850	23.812	25.357	19.050	0.8	1.3	71 000	84 000	5 600	7 500
	76.200	24.608	24.074	16.670	1.5	C3.3	67 500	69 500	5 000	6 700
30.213	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	6 000	8 000
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
	62.000	19.050	20.638	14.288	1.5	1.3	46 000	53 000	6 000	8 000
30.955	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 600	8 000
31.750	58.738	14.684	15.080	10.716	1.0	1.0	28 800	33 500	6 000	8 000
	59.131	15.875	16.764	11.811	spec.	1.3	34 500	41 500	6 300	8 500
	62.000	18.161	19.050	14.288	spec.	1.3	46 000	53 000	6 000	8 000
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	6 000	8 000
	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	6 000	8 000
	63.500	20.638	20.638	15.875	0.8	1.3	46 000	53 000	6 000	8 000
	68.262	22.225	22.225	17.462	3.5	1.5	55 000	64 000	5 600	7 500
	68.262	22.225	22.225	17.462	1.5	1.5	55 500	70 500	5 300	7 500
	69.012	19.845	19.583	15.875	3.5	1.3	47 000	56 000	5 600	7 500
	69.012	26.982	26.721	15.875	4.3	3.3	47 000	56 000	5 600	7 500
	69.850	23.812	25.357	19.050	0.8	1.3	71 000	84 000	5 600	7 500
	69.850	23.812	25.357	19.050	3.5	1.3	71 000	84 000	5 600	7 500
	72.626	30.162	29.997	23.812	0.8	3.3	79 500	90 000	5 300	7 500
	73.025	29.370	27.783	23.020	1.3	3.3	74 000	100 000	5 000	7 100
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	4 500	6 300
32.000	72.233	25.400	25.400	19.842	3.3	2.3	63 500	83 500	5 000	7 100

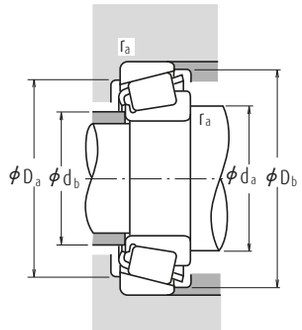
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone r_a max.	Cup r_a max.					approx.	
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
† L 45449	† L 45410	39.5	33	44.5	48	3.5	1.3	10.8	0.37	1.6	0.89	0.079	0.036
2690	**2631**	41	35	58	60	3.5	1.3	14.3	0.25	2.4	1.3	0.242	0.165
* 17118	17244	37	34.5	54	57	1.5	1.5	12.8	0.38	1.6	0.86	0.136	0.091
* 15117	15245	36.5	35	55	58	1.3	1.3	13.3	0.35	1.7	0.94	0.189	0.081
* 15117	15250	36.5	35	56	59	1.3	1.3	14.9	0.35	1.7	0.94	0.189	0.113
* 26118	26283	38	36	62	65	1.5	1.5	14.8	0.36	1.7	0.92	0.225	0.163
15116	15245	36	35.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.189	0.081
08118	08231	41.5	35	52	55	3.5	1	13.3	0.47	1.3	0.70	0.12	0.057
M 86649	M 86610	41	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.211	0.128
M 88043	M 88010	43.5	39.5	58	65	2.3	1.5	19.1	0.55	1.1	0.60	0.263	0.146
2558	2523	40	36.5	61	64	2.3	1.3	14.5	0.27	2.2	1.2	0.297	0.169
2559	2523	37	36.5	61	64	0.8	1.3	14.5	0.27	2.2	1.2	0.298	0.169
43118	43300	45	42	64	73	1.5	3.3	22.9	0.67	0.90	0.49	0.383	0.146
15118	15245	41.5	35.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.186	0.081
15120	15245	36	35.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.188	0.081
15119	15245	37.5	35.5	55	58	1.5	1.3	13.3	0.35	1.7	0.94	0.188	0.081
M 86648 A	M 86610	42	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.205	0.128
08125	08231	37.5	36	52	55	1	1	13.3	0.47	1.3	0.70	0.113	0.057
† LM 67048	† LM 67010	42.5	36	52	56	3.5	1.3	12.6	0.41	1.5	0.80	0.127	0.062
15123	15245	42.5	36.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.165	0.081
15126	15245	37	36.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.176	0.081
15125	15245	42.5	36.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.174	0.081
15126	15250	37	36.5	56	59	0.8	1.3	14.9	0.35	1.7	0.94	0.176	0.113
02475	02420	44.5	38.5	59	63	3.5	1.5	16.9	0.42	1.4	0.79	0.229	0.152
M 88046	M 88010	43	40.5	58	65	1.5	1.5	19.1	0.55	1.1	0.60	0.25	0.146
14125 A	14276	44	37.5	60	63	3.5	1.3	15.3	0.38	1.6	0.86	0.219	0.135
14123 A	14274	41.5	37.5	59	63	4.3	3.3	15.1	0.38	1.6	0.87	0.289	0.132
2580	2523	38.5	37.5	61	64	0.8	1.3	14.5	0.27	2.2	1.2	0.282	0.169
2582	2523	44	37.5	61	64	3.5	1.3	14.5	0.27	2.2	1.2	0.28	0.169
3188	3120	39.5	39.5	61	67	0.8	3.3	19.6	0.33	1.8	0.99	0.368	0.225
HM 88542	HM 88510	45.5	42.5	59	70	1.3	3.3	23.5	0.55	1.1	0.60	0.379	0.242
346	332	40	39.5	73	75	0.8	1.3	14.6	0.27	2.2	1.2	0.419	0.146
*HM 88638	HM 88610	48.5	42.5	60	69	3.3	2.3	20.7	0.55	1.1	0.60	0.337	0.188

Notes * The maximum bore diameter is listed and its tolerance is negative
† The tolerances for the bore diameter and overall bearing width differ from the standard

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 33.338 – 35.000 mm





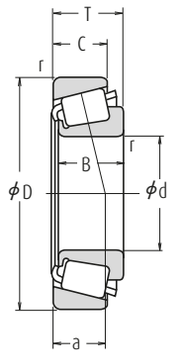
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
33.338	66.675	20.638	20.638	15.875	3.5	1.5	46 000	53 500	5 600	7 500
	68.262	22.225	22.225	17.462	0.8	1.5	55 500	70 500	5 300	7 500
	69.012	19.845	19.583	15.875	3.5	3.3	47 000	56 000	5 600	7 500
	69.012	19.845	19.583	15.875	0.8	1.3	47 000	56 000	5 600	7 500
	69.850	23.812	25.357	19.050	3.5	1.3	71 000	84 000	5 600	7 500
	72.000	19.000	18.923	15.875	3.5	1.5	52 000	56 000	5 600	7 500
	72.626	30.162	29.997	23.812	0.8	3.3	79 500	90 000	5 300	7 500
	73.025	29.370	27.783	23.020	0.8	3.3	74 000	100 000	5 000	7 100
	76.200	29.370	28.575	23.020	3.8	0.8	78 500	106 000	4 800	6 700
	76.200	29.370	28.575	23.020	0.8	3.3	78 500	106 000	4 800	6 700
	79.375	25.400	24.074	17.462	3.5	1.5	67 500	69 500	5 000	6 700
34.925	65.088	18.034	18.288	13.970	spec.	1.3	47 500	57 500	5 600	7 500
	65.088	20.320	18.288	16.256	spec.	1.3	47 500	57 500	5 600	7 500
	66.675	20.638	20.638	16.670	3.5	2.3	53 000	62 500	5 600	7 500
	69.012	19.845	19.583	15.875	3.5	1.3	47 000	56 000	5 600	7 500
	69.012	19.845	19.583	15.875	1.5	1.3	47 000	56 000	5 600	7 500
	72.233	25.400	25.400	19.842	2.3	2.3	63 500	83 500	5 000	7 100
	73.025	22.225	22.225	17.462	0.8	3.3	54 500	64 500	5 300	7 100
	73.025	22.225	23.812	17.462	3.5	3.3	63 500	77 000	5 300	7 100
	73.025	23.812	24.608	19.050	1.5	0.8	71 000	86 000	5 300	7 100
	73.025	23.812	24.608	19.050	3.5	2.3	71 000	86 000	5 300	7 100
	76.200	29.370	28.575	23.020	0.8	0.8	78 500	106 000	4 800	6 700
	76.200	29.370	28.575	23.020	3.5	0.8	78 500	106 000	4 800	6 700
	76.200	29.370	28.575	23.020	3.5	3.3	78 500	106 000	4 800	6 700
	76.200	29.370	28.575	23.812	1.5	3.3	80 500	96 500	5 000	6 700
	79.375	29.370	29.771	23.812	3.5	3.3	88 000	106 000	4 800	6 700
34.976	68.262	15.875	16.520	11.908	1.5	1.5	45 000	53 500	5 300	7 100
	72.085	22.385	19.583	18.415	1.3	2.3	47 000	56 000	5 600	7 500
	80.000	21.006	20.940	15.875	1.5	1.5	56 500	64 500	5 000	6 700
35.000	59.131	15.875	16.764	11.938	spec.	1.3	35 000	47 000	6 000	8 000
	59.975	15.875	16.764	11.938	spec.	1.3	35 000	47 000	6 000	8 000
	62.000	16.700	17.000	13.600	spec.	1.0	38 000	50 000	5 600	8 000
	62.000	16.700	17.000	13.600	spec.	1.5	38 000	50 000	5 600	8 000
	65.987	20.638	20.638	16.670	3.5	2.3	53 000	62 500	5 600	7 500
	73.025	26.988	26.975	22.225	3.5	0.8	75 500	88 500	5 300	7 500

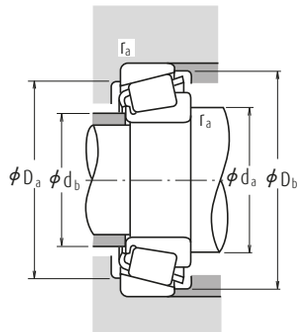
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone	Cup						
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
1680	**1620**	44.5	38.5	58	61	3.5	1.5	15.2	0.37	1.6	0.89	0.196	0.121
M 88048	**M 88010**	42.5	41	58	65	0.8	1.5	19.0	0.55	1.1	0.60	0.236	0.146
14130	**14274**	45	38.5	59	63	3.5	3.3	15.3	0.38	1.6	0.86	0.207	0.132
14131	**14276**	39.5	38.5	60	63	0.8	1.3	15.3	0.38	1.6	0.86	0.209	0.135
2585	**2523**	45	39	61	64	3.5	1.3	14.5	0.27	2.2	1.2	0.263	0.169
26131	**26283**	44.5	38.5	62	65	3.5	1.5	14.7	0.36	1.7	0.92	0.20	0.163
3197	**3120**	41.5	40.5	61	67	0.8	3.3	19.6	0.33	1.8	0.99	0.348	0.225
HM 88547	**HM 88510**	45.5	42.5	59	70	0.8	3.3	23.5	0.55	1.1	0.60	0.362	0.242
HM 89444	**HM 89411**	53	44.5	65	73	3.8	0.8	23.6	0.55	1.1	0.60	0.419	0.261
HM 89443	**HM 89410**	46.5	44.5	62	73	0.8	3.3	23.6	0.55	1.1	0.60	0.421	0.257
43131	**43312**	51	42	67	74	3.5	1.5	23.7	0.67	0.90	0.49	0.348	0.22
† LM 48548	**† LM 48510**	46	40	58	61	3.5	1.3	14.1	0.38	1.6	0.88	0.172	0.087
† LM 48548	**† LM 48511**	46	40	58	61	3.5	1.3	16.4	0.38	1.6	0.88	0.172	0.108
M 38549	**M 38510**	46.5	40	58	62	3.5	2.3	15.2	0.35	1.7	0.94	0.194	0.112
14138 A	**14276**	46	40	60	63	3.5	1.3	15.3	0.38	1.6	0.86	0.194	0.135
14137 A	**14276**	42	40	60	63	1.5	1.3	15.1	0.38	1.6	0.86	0.196	0.135
HM 88649	**HM 88610**	48.5	42.5	60	69	2.3	2.3	20.7	0.55	1.1	0.60	0.307	0.188
02878	**02820**	42.5	42	62	68	0.8	3.3	18.3	0.45	1.3	0.73	0.266	0.16
2877	**2820**	47	41.5	63	68	3.5	3.3	16.1	0.37	1.6	0.90	0.291	0.15
25877	**25821**	43	40.5	65	68	1.5	0.8	15.7	0.29	2.1	1.1	0.306	0.167
25878	**25820**	47	40.5	64	68	3.5	2.3	15.7	0.29	2.1	1.1	0.304	0.165
HM 89446 A	**HM 89411**	47.5	44.5	65	73	0.8	0.8	23.6	0.55	1.1	0.60	0.403	0.261
HM 89446	**HM 89411**	53	44.5	65	73	3.5	0.8	23.6	0.55	1.1	0.60	0.40	0.261
HM 89446	**HM 89410**	53	44.5	62	73	3.5	3.3	23.6	0.55	1.1	0.60	0.40	0.257
31594	**31520**	46	43.5	64	72	1.5	3.3	21.6	0.40	1.5	0.82	0.404	0.235
3478	**3420**	50	43.5	67	74	3.5	3.3	20.0	0.37	1.6	0.90	0.448	0.259
19138	**19268**	42.5	40.5	61	65	1.5	1.5	14.5	0.44	1.4	0.74	0.196	0.073
14139	**14283**	41.5	40	60	65	1.3	2.3	17.7	0.38	1.6	0.87	0.198	0.21
28138	**28315**	43.5	41	69	73	1.5	1.5	16.0	0.40	1.5	0.82	0.308	0.199
***† L 68149**	**† L 68110**	45.5	39	52	56	3.5	1.3	13.2	0.42	1.4	0.79	0.117	0.056
***† L 68149**	**† L 68111**	45.5	39	53	56	3.5	1.3	13.2	0.42	1.4	0.79	0.117	0.064
*** LM 78349**	**** LM 78310**	46	40	55	59	3.5	1	14.4	0.44	1.4	0.74	0.137	0.074
*** LM 78349**	**** LM 78310 A**	46	40	54	59	3.5	1.5	14.4	0.44	1.4	0.74	0.138	0.073
M 38547	**M 38511**	46	39.5	59	61	3.5	2.3	15.2	0.35	1.7	0.94	0.193	0.103
23691	**23621**	49	42	63	68	3.5	0.8	18.1	0.37	1.6	0.89	0.309	0.212

Notes
* The maximum bore diameter is listed and its tolerance is negative
** The maximum outside diameter is listed and its tolerance is negative
† The tolerances for the bore diameter and overall bearing width differ from the standard
*† The tolerance for the bore diameter is 0 to −20 µm, and for overall bearing width is +356 to 0 µm.

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 35.717 – 41.275 mm





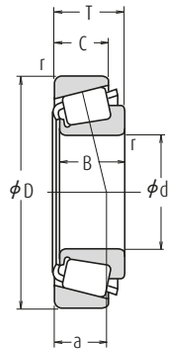
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
35.717	72.233	25.400	25.400	19.842	3.5	2.3	63 500	83 500	5 000	7 100
36.487	73.025	23.812	24.608	19.050	1.5	0.8	71 000	86 000	5 300	7 100
36.512	76.200	29.370	28.575	23.020	3.5	3.3	78 500	106 000	4 800	6 700
	79.375	29.370	29.771	23.812	0.8	3.3	88 000	106 000	4 800	6 700
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	4 000	5 600
	93.662	31.750	31.750	26.195	1.5	3.3	110 000	142 000	4 000	5 600
38.000	63.000	17.000	17.000	13.500	spec.	1.3	38 500	52 000	5 600	7 500
38.100	63.500	12.700	11.908	9.525	1.5	0.8	24 100	30 500	5 300	7 100
	65.088	18.034	18.288	13.970	2.3	1.3	42 500	55 000	5 300	7 500
	65.088	18.034	18.288	13.970	spec.	1.3	42 500	55 000	5 300	7 500
	65.088	19.812	18.288	15.748	2.3	1.3	42 500	55 000	5 300	7 500
	68.262	15.875	16.520	11.908	1.5	1.5	45 000	53 500	5 300	7 100
	69.012	19.050	19.050	15.083	2.0	2.3	49 000	61 000	5 300	7 100
	69.012	19.050	19.050	15.083	3.5	0.8	49 000	61 000	5 300	7 100
	72.238	20.638	20.638	15.875	3.5	1.3	48 500	59 500	5 300	7 100
	73.025	23.812	25.654	19.050	3.5	0.8	73 500	91 000	5 000	6 700
	76.200	23.812	25.654	19.050	3.5	3.3	73 500	91 000	5 000	6 700
	76.200	23.812	25.654	19.050	3.5	0.8	73 500	91 000	5 000	6 700
	79.375	29.370	29.771	23.812	3.5	3.3	88 000	106 000	4 800	6 700
	80.035	24.608	23.698	18.512	0.8	1.5	69 000	84 500	4 500	6 300
	82.550	29.370	28.575	23.020	0.8	3.3	87 000	117 000	4 500	6 000
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	4 000	5 600
	88.501	26.988	29.083	22.225	3.5	1.5	96 500	109 000	4 500	6 000
	95.250	30.958	28.301	20.638	1.5	0.8	87 500	97 000	3 600	5 300
39.688	73.025	25.654	22.098	21.336	0.8	2.3	62 500	80 000	5 000	6 700
	76.200	23.812	25.654	19.050	3.5	3.3	73 500	91 000	5 000	6 700
	80.167	29.370	30.391	23.812	0.8	3.3	92 500	108 000	4 800	6 300
40.000	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	4 500	6 300
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	4 500	6 300
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	4 000	5 600
41.000	68.000	17.500	18.000	13.500	spec.	1.5	43 500	58 000	5 300	7 100
41.275	73.025	16.667	17.462	12.700	3.5	1.5	44 500	54 000	4 800	6 700
	73.431	19.558	19.812	14.732	3.5	0.8	54 500	67 000	4 800	6 700
	73.431	21.430	19.812	16.604	3.5	0.8	54 500	67 000	4 800	6 700

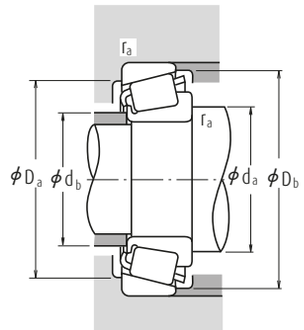
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone	Cup						
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
HM 88648	**HM 88610**	52	43	60	69	3.5	2.3	20.7	0.55	1.1	0.60	0.298	0.188
25880	**25821**	44	42	65	68	1.5	0.8	15.7	0.29	2.1	1.1	0.291	0.167
HM 89449	**HM 89410**	54	44.5	62	73	3.5	3.3	23.6	0.55	1.1	0.60	0.38	0.257
3479	**3420**	45.5	44.5	67	74	0.8	3.3	20.0	0.37	1.6	0.90	0.429	0.259
44143	**44348**	54	50	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.502	0.245
46143	**46368**	48.5	46.5	79	87	1.5	3.3	24.0	0.40	1.5	0.82	0.765	0.405
▲ JL 69349	**▲ JL 69310**	49	42.5	56	60	3.5	1.3	14.6	0.42	1.4	0.79	0.132	0.071
13889	**13830**	45	42.5	59	60	1.5	0.8	11.9	0.35	1.7	0.95	0.109	0.046
LM 29749	**LM 29710**	46	42.5	59	62	2.3	1.3	13.7	0.33	1.8	0.99	0.16	0.079
LM 29748	**LM 29710**	49	42.5	59	62	3.5	1.3	13.7	0.33	1.8	0.99	0.158	0.079
LM 29749	**LM 29711**	46	42.5	58	62	2.3	1.3	15.5	0.33	1.8	0.99	0.16	0.094
19150	**19268**	45	43	61	65	1.5	1.5	14.5	0.44	1.4	0.74	0.173	0.073
13687	**13621**	46.5	43	61	65	2	2.3	15.8	0.40	1.5	0.82	0.193	0.104
13685	**13620**	49.5	43	62	65	3.5	0.8	15.8	0.40	1.5	0.82	0.191	0.105
16150	**16284**	49.5	43	63	67	3.5	1.3	16.0	0.40	1.5	0.82	0.212	0.146
2788	**2735 X**	50	43.5	66	69	3.5	0.8	15.9	0.30	2.0	1.1	0.312	0.135
2788	**2720**	50	43.5	66	70	3.5	3.3	15.9	0.30	2.0	1.1	0.312	0.187
2788	**2729**	50	43.5	68	70	3.5	0.8	15.9	0.30	2.0	1.1	0.312	0.191
3490	**3420**	52	45.5	67	74	3.5	3.3	20.0	0.37	1.6	0.90	0.404	0.259
27880	**27820**	48	47	68	75	0.8	1.5	21.5	0.56	1.1	0.59	0.362	0.209
HM 801346	**HM 801310**	51	49	68	78	0.8	3.3	24.2	0.55	1.1	0.60	0.483	0.282
44150	**44348**	55	51	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.484	0.245
418	**414**	51	44.5	77	80	3.5	1.5	17.1	0.26	2.3	1.3	0.50	0.329
53150	**53375**	55	53	81	89	1.5	0.8	30.7	0.74	0.81	0.45	0.665	0.365
M 201047	**M 201011**	45.5	48	64	69	0.8	2.3	19.7	0.33	1.8	0.99	0.266	0.169
2789	**2720**	52	45	66	70	3.5	3.3	15.9	0.30	2.0	1.1	0.292	0.187
3386	**3320**	46.5	45.5	70	75	0.8	3.3	18.4	0.27	2.2	1.2	0.442	0.217
344	**332**	52	45.5	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.338	0.146
344 A	**332**	46	45.5	73	75	0.8	1.3	14.5	0.27	2.2	1.2	0.339	0.146
44157	**44348**	56	51	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.463	0.245
*** LM 300849**	**** LM 300811**	52	45	61	65	3.5	1.5	13.9	0.35	1.7	0.95	0.16	0.082
18590	**18520**	53	46	66	69	3.5	1.5	14.0	0.35	1.7	0.94	0.199	0.086
LM 501349	**LM 501310**	53	46.5	67	70	3.5	0.8	16.3	0.40	1.5	0.83	0.226	0.108
LM 501349	**LM 501314**	53	46.5	66	70	3.5	0.8	18.2	0.40	1.5	0.83	0.226	0.129

Notes
* The maximum bore diameter is listed and its tolerance is negative
** The maximum outside diameter is listed and its tolerance is negative
▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 41.275 – 44.450 mm





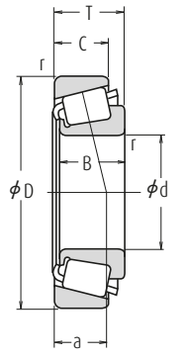
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
41.275	76.200	18.009	17.384	14.288	1.5	1.5	42 500	51 000	4 500	6 300
	76.200	22.225	23.020	17.462	3.5	0.8	66 000	82 000	4 800	6 700
	76.200	25.400	23.020	20.638	3.5	2.3	66 000	82 000	4 800	6 700
	79.375	23.812	25.400	19.050	3.5	0.8	77 000	98 500	4 800	6 300
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	4 500	6 300
	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	4 500	6 300
	80.167	25.400	25.400	20.638	3.5	3.3	77 000	98 500	4 800	6 300
	82.550	26.543	25.654	20.193	3.5	3.3	78 500	102 000	4 300	6 000
	85.725	30.162	30.162	23.812	3.5	3.3	91 000	115 000	4 300	6 000
	87.312	30.162	30.886	23.812	0.8	3.3	96 000	120 000	4 300	6 000
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	4 000	5 600
	88.900	30.162	29.370	23.020	3.5	3.3	96 500	129 000	4 000	5 600
	88.900	30.162	29.370	23.020	0.8	3.3	96 500	129 000	4 000	5 600
	90.488	39.688	40.386	33.338	3.5	3.3	139 000	180 000	4 300	5 600
	93.662	31.750	31.750	26.195	0.8	3.3	110 000	142 000	4 000	5 600
	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	3 800	5 300
	98.425	30.958	28.301	20.638	1.5	0.8	87 500	97 000	3 600	5 300
42.862	76.992	17.462	17.145	11.908	1.5	1.5	44 000	54 000	4 500	6 000
	82.550	19.842	19.837	15.080	2.3	1.5	58 500	69 000	4 500	6 300
	82.931	23.812	25.400	19.050	2.3	0.8	76 500	99 000	4 500	6 000
	82.931	26.988	25.400	22.225	2.3	2.3	76 500	99 000	4 500	6 000
42.875	76.200	25.400	25.400	20.638	3.5	1.5	77 000	98 500	4 800	6 300
	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	4 500	6 300
	82.931	26.988	25.400	22.225	3.5	2.3	76 500	99 000	4 500	6 000
	83.058	23.812	25.400	19.050	3.5	3.3	76 500	99 000	4 500	6 000
43.000	74.988	19.368	19.837	14.288	1.5	1.3	52 500	68 000	4 800	6 300
44.450	80.962	19.050	17.462	14.288	0.3	1.5	45 000	57 000	4 300	6 000
	82.931	23.812	25.400	19.050	3.5	0.8	76 500	99 000	4 500	6 000
	83.058	23.812	25.400	19.050	3.5	3.3	76 500	99 000	4 500	6 000
	87.312	30.162	30.886	23.812	3.5	3.3	96 000	120 000	4 300	6 000
	88.900	30.162	29.370	23.020	3.5	3.3	96 500	129 000	4 000	5 600
	93.264	30.162	30.302	23.812	3.5	3.2	103 000	136 000	3 800	5 300
	93.662	31.750	31.750	25.400	0.8	3.3	120 000	147 000	4 000	5 600
	93.662	31.750	31.750	25.400	3.5	3.3	120 000	147 000	4 000	5 600
	93.662	31.750	31.750	26.195	3.5	3.3	110 000	142 000	4 000	5 600
	95.250	27.783	29.901	22.225	3.5	2.3	106 000	126 000	4 300	5 600

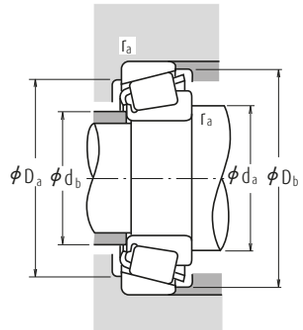
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone r_a max.	Cup r_a max.						
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
11162	**11300**	49	46.5	67	71	1.5	1.5	17.4	0.49	1.2	0.68	0.212	0.129
24780	**24720**	53	47.5	68	72	3.5	0.8	17.0	0.39	1.5	0.84	0.279	0.15
24780	**24721**	54	47	66	72	3.5	2.3	20.2	0.39	1.5	0.84	0.279	0.189
26882	**26822**	54	47	71	74	3.5	0.8	16.4	0.32	1.9	1.0	0.349	0.186
336	**332**	47	46	73	75	0.8	1.3	14.5	0.27	2.2	1.2	0.325	0.146
342	**332**	53	46	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.323	0.146
26882	**26820**	54	47	69	74	3.5	3.3	18.0	0.32	1.9	1.0	0.349	0.219
M 802048	**M 802011**	57	51	70	79	3.5	3.3	22.9	0.55	1.1	0.60	0.406	0.23
3877	**3820**	57	50	73	81	3.5	3.3	21.8	0.40	1.5	0.82	0.506	0.285
3576	**3525**	49	48	75	81	0.8	3.3	19.5	0.31	2.0	1.1	0.532	0.304
44162	**44348**	57	51	75	84	2.3	1.5	28.0	0.78	0.77	0.42	0.447	0.245
HM 803146	**HM 803110**	60	53	74	85	3.5	3.3	25.6	0.55	1.1	0.60	0.579	0.322
HM 803145	**HM 803110**	54	53	74	85	0.8	3.3	25.6	0.55	1.1	0.60	0.582	0.322
4388	**4335**	57	51	77	85	3.5	3.3	24.6	0.28	2.1	1.2	0.789	0.459
46162	**46368**	52	51	79	87	0.8	3.3	24.0	0.40	1.5	0.82	0.695	0.405
HM 804840	**HM 804810**	61	54	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.726	0.354
53162	**53387**	57	53	82	91	1.5	0.8	30.7	0.74	0.81	0.45	0.618	0.442
12168	**12303**	51	48.5	68	73	1.5	1.5	17.7	0.51	1.2	0.65	0.228	0.098
22168	**22325**	52	48.5	73	76	2.3	1.5	17.6	0.43	1.4	0.77	0.283	0.176
25578	**25520**	53	49.5	74	77	2.3	0.8	17.6	0.33	1.8	0.99	0.383	0.203
25578	**25523**	53	49.5	72	77	2.3	2.3	20.8	0.33	1.8	0.99	0.383	0.248
26884	**26823**	55	48.5	69	73	3.5	1.5	18.0	0.32	1.9	1.0	0.337	0.136
342 S	**332**	54	47.5	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.305	0.146
25577	**25523**	55	49	72	77	3.5	2.3	20.8	0.33	1.8	0.99	0.381	0.248
25577	**25521**	55	49	72	77	3.5	3.3	17.6	0.33	1.8	0.99	0.381	0.201
*** 16986**	**16929**	51	48.5	67	71	1.5	1.3	17.2	0.44	1.4	0.74	0.24	0.106
13175	**13318**	50	50	72	76	0.3	1.5	20.1	0.53	1.1	0.63	0.252	0.144
25580	**25520**	57	50	74	77	3.5	0.8	17.6	0.33	1.8	0.99	0.359	0.203
25580	**25521**	56	51	72	78	3.5	3.3	17.6	0.33	1.8	0.99	0.359	0.201
3578	**3525**	57	51	75	81	3.5	3.3	19.5	0.31	2.0	1.1	0.477	0.304
HM 803149	**HM 803110**	62	53	74	85	3.5	3.3	25.6	0.55	1.1	0.60	0.528	0.322
3782	**3720**	58	52	82	88	3.5	3.2	22.4	0.34	1.8	0.97	0.678	0.292
49176	**49368**	54	53	82	87	0.8	3.3	21.6	0.36	1.7	0.92	0.648	0.371
49175	**49368**	59	53	82	87	3.5	3.3	21.6	0.36	1.7	0.92	0.645	0.371
46176	**46368**	60	54	79	87	3.5	3.3	24.0	0.40	1.5	0.82	0.635	0.405
438	**432**	57	51	83	87	3.5	2.3	18.6	0.28	2.1	1.2	0.555	0.384

Note * The maximum bore diameter is listed and its tolerance is negative

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 44.450 – 47.625 mm





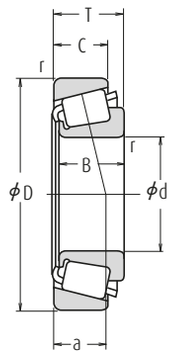
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
44.450	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	3 800	5 300
	95.250	30.958	28.301	20.638	3.5	0.8	87 500	97 000	3 600	5 300
	95.250	30.958	28.301	20.638	1.3	0.8	87 500	97 000	3 600	5 300
	95.250	30.958	28.301	20.638	2.0	0.8	87 500	97 000	3 600	5 300
	95.250	30.958	28.301	22.225	1.3	0.8	100 000	122 000	3 600	5 000
	95.250	30.958	28.575	22.225	3.5	0.8	100 000	122 000	3 600	5 000
	98.425	30.958	28.301	20.638	3.5	0.8	87 500	97 000	3 600	5 300
	103.188	43.658	44.475	36.512	1.3	3.3	178 000	238 000	3 800	5 000
	104.775	36.512	36.512	28.575	3.5	3.3	139 000	192 000	3 400	4 800
	107.950	27.783	29.317	22.225	3.5	0.8	116 000	149 000	3 400	4 800
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	3 200	4 300
	114.300	44.450	44.450	34.925	3.5	3.3	172 000	205 000	3 600	4 800
44.983	82.931	23.812	25.400	19.050	1.5	0.8	76 500	99 000	4 500	6 000
45.000	93.264	20.638	22.225	15.082	0.8	1.3	77 000	93 000	3 800	5 300
45.230	79.985	19.842	20.638	15.080	2.0	1.3	62 000	78 500	4 500	6 000
45.242	73.431	19.558	19.812	15.748	3.5	0.8	53 500	75 000	4 800	6 300
	77.788	19.842	19.842	15.080	3.5	0.8	56 000	71 000	4 500	6 300
	77.788	21.430	19.842	16.667	3.5	0.8	56 000	71 000	4 500	6 300
45.618	82.931	23.812	25.400	19.050	3.5	0.8	76 500	99 000	4 500	6 000
	82.931	26.988	25.400	22.225	3.5	2.3	76 500	99 000	4 500	6 000
46.000	75.000	18.000	18.000	14.000	2.3	1.5	51 000	71 500	4 500	6 300
46.038	79.375	17.462	17.462	13.495	2.8	1.5	46 000	57 000	4 500	6 000
	80.962	19.050	17.462	14.288	0.8	1.5	45 000	57 000	4 300	6 000
	85.000	20.638	21.692	17.462	2.3	1.3	71 500	81 500	4 300	6 000
	85.000	25.400	25.608	20.638	3.5	1.3	79 500	105 000	4 300	6 000
	95.250	27.783	29.901	22.225	3.5	0.8	106 000	126 000	4 300	5 600
47.625	88.900	20.638	22.225	16.513	3.5	1.3	73 000	85 000	4 000	5 600
	88.900	25.400	25.400	19.050	3.5	3.3	86 000	107 000	4 000	5 600
	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	3 800	5 300
	101.600	34.925	36.068	26.988	3.5	3.3	137 000	169 000	3 800	5 000
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	3 200	4 300
	112.712	30.162	26.909	20.638	3.5	3.3	92 500	110 000	3 200	4 300
	117.475	33.338	31.750	23.812	3.5	3.3	137 000	156 000	3 200	4 300
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	3 000	4 000

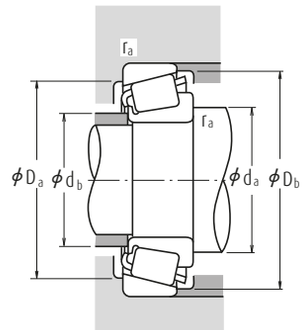
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone r_a max.	Cup r_a max.						
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
HM 804843	**HM 804810**	63	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.677	0.354
53177	**53375**	63	53	81	89	3.5	0.8	30.7	0.74	0.81	0.45	0.572	0.365
53176	**53375**	59	53	81	89	1.3	0.8	30.7	0.74	0.81	0.45	0.574	0.365
53178	**53375**	60	53	81	89	2	0.8	30.7	0.74	0.81	0.45	0.574	0.365
HM 903247	**HM 903210**	61	54	81	91	1.3	0.8	31.5	0.74	0.81	0.45	0.651	0.389
HM 903249	**HM 903210**	65	54	81	91	3.5	0.8	31.5	0.74	0.81	0.45	0.635	0.389
53177	**53387**	63	53	82	91	3.5	0.8	30.7	0.74	0.81	0.45	0.568	0.442
5356	**5335**	58	56	89	97	1.3	3.3	27.0	0.30	2.0	1.1	1.23	0.637
HM 807040	**HM 807010**	66	59	89	100	3.5	3.3	29.7	0.49	1.2	0.68	1.14	0.502
460	**453 A**	60	54	97	100	3.5	0.8	20.7	0.34	1.8	0.98	0.93	0.42
55175	**55437**	67	60	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.867	0.514
65385	**65320**	65	59	97	107	3.5	3.3	32.2	0.43	1.4	0.77	1.39	0.894
25584	**25520**	53	51	74	77	1.5	0.8	17.6	0.33	1.8	0.99	0.354	0.203
376	**374**	54	54	85	88	0.8	1.3	17.1	0.34	1.8	0.97	0.492	0.174
17887	**17831**	57	52	68	74	2	1.3	15.9	0.37	1.6	0.90	0.274	0.136
LM 102949	**LM 102910**	56	50	68	70	3.5	0.8	14.6	0.31	2.0	1.1	0.213	0.102
LM 603049	**LM 603011**	57	50	71	74	3.5	0.8	17.2	0.43	1.4	0.77	0.249	0.119
LM 603049	**LM 603012**	57	50	70	74	3.5	0.8	18.8	0.43	1.4	0.77	0.249	0.137
25590	**25520**	58	51	74	77	3.5	0.8	17.6	0.33	1.8	0.99	0.343	0.203
25590	**25523**	58	51	72	77	3.5	2.3	20.8	0.33	1.8	0.99	0.343	0.248
*** LM 503349**	**** LM 503310**	55	51	67	71	2.3	1.5	15.9	0.40	1.5	0.82	0.209	0.096
18690	**18620**	56	51	71	74	2.8	1.5	15.5	0.37	1.6	0.88	0.211	0.126
13181	**13318**	52	52	72	76	0.8	1.5	20.1	0.53	1.1	0.63	0.236	0.144
359 S	**354 A**	55	51	77	80	2.3	1.3	15.4	0.31	2.0	1.1	0.343	0.162
2984	**2924**	58	52	76	80	3.5	1.3	19.0	0.35	1.7	0.95	0.397	0.223
436	**432 A**	59	52	84	87	3.5	0.8	18.6	0.28	2.1	1.2	0.536	0.381
369 A	**362 A**	60	53	81	84	3.5	1.3	16.6	0.32	1.9	1.0	0.381	0.166
M 804049	**M 804010**	63	56	77	85	3.5	3.3	23.8	0.55	1.1	0.60	0.455	0.218
HM 804846	**HM 804810**	66	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.626	0.354
528	**522**	62	55	89	95	3.5	3.3	22.1	0.29	2.1	1.2	0.894	0.416
55187	**55437**	69	62	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.817	0.514
55187	**55443**	69	62	92	106	3.5	3.3	37.3	0.88	0.68	0.37	0.816	0.554
66187	**66462**	66	62	100	111	3.5	3.3	32.1	0.63	0.96	0.53	1.19	0.552
72187	**72487**	72	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.29	0.79

Notes * The maximum bore diameter is listed and its tolerance is negative
** The maximum outside diameter is listed and its tolerance is negative

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 48.412 – 52.388 mm





Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
48.412	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	3 800	5 300
	95.250	30.162	29.370	23.020	2.3	3.3	106 000	143 000	3 800	5 300
49.212	104.775	36.512	36.512	28.575	3.5	0.8	139 000	192 000	3 400	4 800
	114.300	44.450	44.450	36.068	3.5	3.3	196 000	243 000	3 400	4 800
50.000	82.000	21.500	21.500	17.000	3.0	0.5	71 000	96 000	4 300	5 600
	82.550	21.590	22.225	16.510	0.5	1.3	71 000	96 000	4 300	5 600
	88.900	20.638	22.225	16.513	2.3	1.3	73 000	85 000	4 000	5 600
	90.000	28.000	28.000	23.000	3.0	2.5	104 000	136 000	4 000	5 600
	105.000	37.000	36.000	29.000	3.0	2.5	139 000	192 000	3 400	4 800
50.800	80.962	18.258	18.258	14.288	1.5	1.5	53 000	81 000	4 300	5 600
	82.550	23.622	22.225	18.542	3.5	0.8	71 000	96 000	4 300	5 600
	82.931	21.590	22.225	16.510	3.5	1.3	71 000	96 000	4 300	5 600
	85.000	17.462	17.462	13.495	3.5	1.5	48 500	63 000	4 300	5 600
	85.725	19.050	18.263	12.700	1.5	1.5	42 500	54 000	4 000	5 300
	88.900	20.638	22.225	16.513	3.5	1.3	73 000	85 000	4 000	5 600
	88.900	20.638	22.225	16.513	1.5	1.3	73 000	85 000	4 000	5 600
	92.075	24.608	25.400	19.845	3.5	0.8	84 500	117 000	4 000	5 300
	93.264	30.162	30.302	23.812	0.8	0.8	103 000	136 000	3 800	5 300
	93.264	30.162	30.302	23.812	3.5	0.8	103 000	136 000	3 800	5 300
	95.250	27.783	28.575	22.225	3.5	2.3	110 000	144 000	3 800	5 300
	101.600	31.750	31.750	25.400	3.5	3.3	118 000	150 000	3 600	5 000
	101.600	34.925	36.068	26.988	0.8	3.3	137 000	169 000	3 800	5 000
	101.600	34.925	36.068	26.988	3.5	3.3	137 000	169 000	3 800	5 000
	104.775	36.512	36.512	28.575	3.5	0.8	139 000	192 000	3 400	4 800
	104.775	36.512	36.512	28.575	3.5	3.3	139 000	192 000	3 400	4 800
	108.966	34.925	36.512	26.988	3.5	3.3	145 000	181 000	3 600	4 800
	111.125	30.162	26.909	20.638	3.5	3.3	113 000	152 000	3 000	4 300
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	3 200	4 300
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	2 800	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	3 000	4 000
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	3 000	4 000
	127.000	50.800	52.388	41.275	3.5	3.3	236 000	300 000	3 200	4 300
52.388	92.075	24.608	25.400	19.845	3.5	0.8	84 500	117 000	4 000	5 300
	100.000	25.000	22.225	21.824	2.3	2.0	77 000	93 000	3 800	5 300
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	3 200	4 300

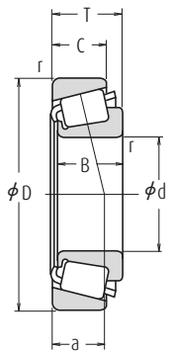
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
HM 804849	**HM 804810**	66	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.61	0.354
HM 804848	**HM 804810**	63	57	81	91	2.3	3.3	26.1	0.55	1.1	0.60	0.614	0.354
HM 807044	**HM 807011**	69	63	91	100	3.5	0.8	29.7	0.49	1.2	0.68	1.03	0.508
HH 506348	**HH 506310**	71	61	97	107	3.5	3.3	30.8	0.40	1.5	0.82	1.43	0.837
▲JLM 104948	**▲JLM 104910**	60	55	76	78	3	0.5	16.1	0.31	2.0	1.1	0.306	0.129
*** LM 104947 A**	**LM 104911**	55	55	75	78	0.5	1.3	15.7	0.31	2.0	1.1	0.316	0.133
366	**362 A**	59	55	81	84	2.3	1.3	16.6	0.32	1.9	1.0	0.351	0.166
▲JM 205149	**▲JM 205110**	62	57	80	85	3	2.5	19.9	0.33	1.8	1.0	0.507	0.246
▲JHM 807045	**▲JHM 807012**	69	63	90	100	3	2.5	29.7	0.49	1.2	0.68	1.01	0.523
L 305649	**L 305610**	58	56	73	77	1.5	1.5	15.7	0.36	1.7	0.93	0.239	0.119
LM 104949	**LM 104911 A**	62	55	75	78	3.5	0.8	17.8	0.31	2.0	1.1	0.303	0.156
LM 104949	**LM 104912**	62	55	75	78	3.5	1.3	15.7	0.31	2.0	1.1	0.301	0.14
18790	**18720**	62	56	77	80	3.5	1.5	16.7	0.41	1.5	0.81	0.239	0.136
18200	**18337**	59	56	76	81	1.5	1.5	21.0	0.57	1.1	0.58	0.268	0.136
368 A	**362 A**	62	56	81	84	3.5	1.3	16.6	0.32	1.9	1.0	0.338	0.166
368	**362 A**	58	56	81	84	1.5	1.3	16.6	0.32	1.9	1.0	0.341	0.166
28580	**28521**	63	57	83	87	3.5	0.8	20.0	0.38	1.6	0.87	0.46	0.247
3775	**3730**	58	58	84	88	0.8	0.8	22.4	0.34	1.8	0.97	0.568	0.297
3780	**3730**	64	58	84	88	3.5	0.8	22.4	0.34	1.8	0.97	0.564	0.297
33889	**33821**	64	58	85	90	3.5	2.3	19.8	0.33	1.8	1.0	0.601	0.267
49585	**49520**	66	59	88	96	3.5	3.3	23.4	0.40	1.5	0.82	0.744	0.389
529	**522**	59	58	89	95	0.8	3.3	22.1	0.29	2.1	1.2	0.822	0.416
529 X	**522**	65	58	89	95	3.5	3.3	22.1	0.29	2.1	1.2	0.819	0.416
HM 807046	**HM 807011**	70	63	91	100	3.5	0.8	29.7	0.49	1.2	0.68	0.992	0.508
HM 807046	**HM 807010**	70	63	89	100	3.5	3.3	29.7	0.49	1.2	0.68	0.993	0.502
59200	**59429**	68	61	93	101	3.5	3.3	25.4	0.40	1.5	0.82	0.943	0.594
55200 C	**55437**	71	65	92	105	3.5	3.3	37.6	0.88	0.68	0.37	0.845	0.514
55200	**55437**	71	64	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.767	0.514
72200 C	**72487**	77	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.33	0.79
72200	**72487**	74	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.22	0.79
65200	**65500**	75	69	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.86	1.03
6279	**6220**	71	65	108	117	3.5	3.3	30.7	0.30	2.0	1.1	2.08	1.22
28584	**28521**	65	58	83	87	3.5	0.8	20.0	0.38	1.6	0.87	0.435	0.247
377	**372**	62	58	86	90	2.3	2	21.4	0.34	1.8	0.97	0.392	0.435
55206	**55437**	72	64	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.737	0.514

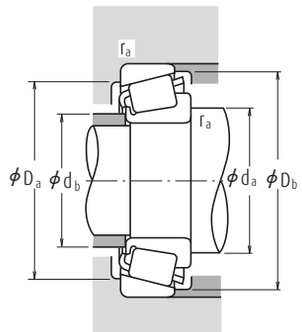
Notes * The maximum bore diameter is listed and its tolerance is negative

▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 53.975 – 58.738 mm





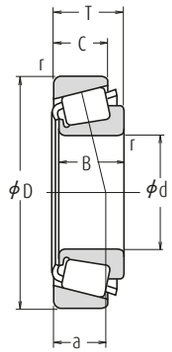
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
53.975	104.775	39.688	40.157	33.338	3.5	3.3	148 000	207 000	3 600	4 800
	107.950	36.512	36.957	28.575	3.5	3.3	144 000	182 000	3 600	4 800
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	3 000	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	3 000	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	2 800	4 000
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	3 000	4 000
	127.000	50.800	52.388	41.275	3.5	3.3	236 000	300 000	3 200	4 300
	130.175	36.512	33.338	23.812	3.5	3.3	133 000	154 000	2 600	3 600
55.000	90.000	23.000	23.000	18.500	1.5	0.5	79 000	111 000	3 800	5 300
	95.000	29.000	29.000	23.500	1.5	2.5	111 000	152 000	3 800	5 000
	96.838	21.000	21.946	15.875	2.3	0.8	80 500	100 000	3 600	5 000
	110.000	39.000	39.000	32.000	3.0	2.5	177 000	225 000	3 400	4 500
	115.000	41.021	41.275	31.496	3.0	3.0	172 000	214 000	3 200	4 500
55.562	97.630	24.608	24.608	19.446	3.5	0.8	89 000	129 000	3 600	5 000
	122.238	43.658	43.764	36.512	1.3	3.3	198 000	292 000	3 000	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	3 000	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	2 800	4 000
57.150	96.838	21.000	21.946	15.875	3.5	0.8	80 500	100 000	3 600	5 000
	96.838	21.000	21.946	15.875	2.3	0.8	80 500	100 000	3 600	5 000
	96.838	25.400	21.946	20.275	3.5	2.3	80 500	100 000	3 600	5 000
	98.425	21.000	21.946	17.826	3.5	0.8	80 500	100 000	3 600	5 000
	104.775	30.162	29.317	24.605	3.5	3.3	116 000	149 000	3 400	4 800
	104.775	30.162	29.317	24.605	2.3	3.3	116 000	149 000	3 400	4 800
	104.775	30.162	30.958	23.812	0.8	3.3	130 000	170 000	3 400	4 800
	104.775	30.162	30.958	23.812	0.8	0.8	130 000	170 000	3 400	4 800
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	3 000	4 000
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	2 800	4 000
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	140.030	36.512	33.236	23.520	3.5	2.3	152 000	183 000	2 600	3 600
	144.983	36.000	33.236	23.007	3.5	3.5	152 000	183 000	2 600	3 600
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	2 600	3 400
57.531	96.838	21.000	21.946	15.875	3.5	0.8	80 500	100 000	3 600	5 000
58.738	112.712	33.338	30.048	26.988	3.5	3.3	120 000	173 000	3 200	4 300

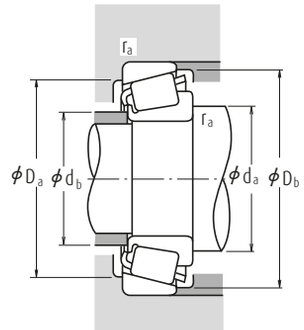
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone	Cup						
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
4595	**4535**	70	63	90	99	3.5	3.3	27.4	0.34	1.79	0.98	0.989	0.589
539	**532 X**	68	61	94	100	3.5	3.3	24.3	0.30	2.0	1.1	0.88	0.57
66584	**66520**	75	68	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.2	0.558
72212	**72487**	77	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.16	0.79
72212 C	**72487**	79	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.27	0.79
557 S	**552 A**	71	65	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.49	0.764
65212	**65500**	77	71	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.76	1.03
6280	**6220**	74	67	108	117	3.5	3.3	30.7	0.30	2.0	1.1	1.97	1.22
HM911242	**HM911210**	79	74	109	124	3.5	3.3	42.2	0.82	0.73	0.40	1.45	0.725
▲JLM506849	**▲JLM506810**	63	61	82	86	1.5	0.5	19.7	0.40	1.5	0.82	0.378	0.186
▲JM207049	**▲JM207010**	64	62	85	91	1.5	2.5	21.3	0.33	1.8	0.99	0.59	0.26
385	**382 A**	65	61	89	92	2.3	0.8	17.6	0.35	1.7	0.93	0.455	0.179
▲JH307749	**▲JH307710**	71	64	97	104	3	2.5	27.2	0.35	1.7	0.95	1.13	0.567
622 X	**614 X**	70	64	101	108	3	3	26.6	0.31	1.9	1.1	1.3	0.597
28680	**28622**	68	62	88	92	3.5	0.8	21.3	0.40	1.5	0.82	0.499	0.27
5566	**5535**	70	68	106	116	1.3	3.3	29.9	0.36	1.7	0.92	1.76	0.815
72218	**72487**	78	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.12	0.79
72218 C	**72487**	80	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.23	0.79
387 A	**382 A**	69	62	89	92	3.5	0.8	17.6	0.35	1.7	0.93	0.42	0.179
387	**382 A**	66	62	89	92	2.3	0.8	17.6	0.35	1.7	0.93	0.423	0.179
387 A	**382 S**	69	62	87	91	3.5	2.3	22.0	0.35	1.7	0.93	0.42	0.249
387 A	**382**	69	62	90	92	3.5	0.8	17.6	0.35	1.7	0.93	0.42	0.226
469	**453 X**	70	63	92	98	3.5	3.3	23.1	0.34	1.8	0.98	0.692	0.376
462	**453 X**	67	63	92	98	2.3	3.3	23.1	0.34	1.8	0.98	0.694	0.376
45289	**45220**	65	65	93	99	0.8	3.3	21.9	0.33	1.8	0.99	0.752	0.347
45289	**45221**	65	65	95	99	0.8	0.8	21.9	0.33	1.8	0.99	0.76	0.35
66587	**66520**	77	71	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.14	0.558
72225 C	**72487**	81	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.19	0.79
555 S	**552 A**	83	68	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.41	0.764
78225	**78551**	83	77	117	132	3.5	2.3	44.2	0.87	0.69	0.38	1.67	0.926
78225	**78571**	83	77	118	132	3.5	3.5	43.6	0.87	0.69	0.38	1.68	1.08
6455	**6420**	81	75	129	140	3.5	3.3	39.0	0.36	1.7	0.91	3.49	1.63
388 A	**382 A**	69	63	89	92	3.5	0.8	17.6	0.35	1.7	0.93	0.416	0.179
3981	**3926**	73	67	98	106	3.5	3.3	28.7	0.40	1.5	0.82	0.899	0.541

Note ▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 60.000 – 64.963 mm





Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
60.000	95.000	24.000	24.000	19.000	5.0	2.5	86 500	125 000	3 600	5 000
	104.775	21.433	22.000	15.875	2.3	2.0	83 500	107 000	3 400	4 500
	110.000	22.000	21.996	18.824	0.8	1.3	85 500	113 000	3 200	4 300
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	3 000	4 000
60.325	100.000	25.400	25.400	19.845	3.5	3.3	91 000	135 000	3 400	4 800
	101.600	25.400	25.400	19.845	3.5	3.3	91 000	135 000	3 400	4 800
	122.238	38.100	36.678	30.162	2.3	3.3	161 000	221 000	3 000	4 000
	122.238	38.100	38.354	29.718	8.0	1.5	188 000	245 000	3 000	4 000
	122.238	43.658	43.764	36.512	0.8	3.3	198 000	292 000	3 000	4 000
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	3 000	4 000
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	2 800	3 800
	135.755	53.975	56.007	44.450	3.5	3.3	264 000	355 000	2 800	3 800
61.912	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	2 600	3 400
	146.050	41.275	39.688	25.400	3.5	3.3	193 000	225 000	2 400	3 400
	152.400	47.625	46.038	31.750	3.5	3.3	237 000	267 000	2 400	3 400
63.500	94.458	19.050	19.050	15.083	1.5	1.5	59 000	100 000	3 600	4 800
	104.775	21.433	22.000	15.875	2.0	2.0	83 500	107 000	3 400	4 500
	107.950	25.400	25.400	19.050	1.5	3.3	90 000	138 000	3 200	4 300
	110.000	22.000	21.996	18.824	3.5	1.3	85 500	113 000	3 200	4 300
	110.000	22.000	21.996	18.824	1.5	1.3	85 500	113 000	3 200	4 300
	112.712	30.162	30.048	23.812	3.5	3.2	120 000	173 000	3 200	4 300
	112.712	30.162	30.162	23.812	3.5	3.3	142 000	202 000	3 200	4 300
	112.712	33.338	30.048	26.988	3.5	3.3	120 000	173 000	3 200	4 300
	122.238	38.100	38.354	29.718	7.0	3.3	188 000	245 000	3 000	4 000
	122.238	38.100	38.354	29.718	7.0	1.5	188 000	245 000	3 000	4 000
	122.238	38.100	38.354	29.718	3.5	1.5	188 000	245 000	3 000	4 000
	122.238	43.658	43.764	36.512	3.5	3.3	198 000	292 000	3 000	4 000
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	2 800	3 800
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	2 800	3 800
	136.525	36.512	33.236	23.520	2.3	3.3	152 000	183 000	2 600	3 600
	136.525	41.275	41.275	31.750	3.5	3.3	195 000	263 000	2 800	3 800
	140.030	36.512	33.236	23.520	2.3	2.3	152 000	183 000	2 600	3 600
64.963	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	2 800	3 800

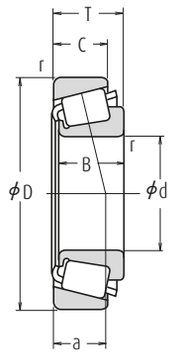
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone r_a max.	Cup r_a max.						
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
▲ JLM 508748	▲ JLM 508710	75	66	85	91	5	2.5	21.6	0.40	1.5	0.82	0.43	0.20
* 39236	39412	71	67	96	100	2.3	2	20.0	0.39	1.5	0.85	0.559	0.186
397	394 A	69	68	101	104	0.8	1.3	20.9	0.40	1.5	0.82	0.642	0.263
66585	66520	79	73	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.07	0.558
28985	28921	73	67	89	96	3.5	3.3	22.9	0.43	1.4	0.78	0.538	0.232
28985	28920	73	67	90	97	3.5	3.3	22.9	0.43	1.4	0.78	0.538	0.272
558	553 X	73	69	108	115	2.3	3.3	28.8	0.35	1.7	0.95	1.33	0.692
HM 212044	HM 212010	85	70	110	116	8	1.5	27.0	0.34	1.8	0.98	1.43	0.604
5582	5535	73	72	106	116	0.8	3.3	29.9	0.36	1.7	0.92	1.61	0.815
65237	65500	82	71	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.56	1.03
637	633	78	72	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.87	0.712
6376	6320	81	74	117	126	3.5	3.3	35.0	0.32	1.8	1.0	2.45	1.39
H 715334	H 715311	84	78	119	132	3.5	3.3	37.1	0.47	1.3	0.70	2.51	0.961
H 913842	H 913810	90	82	124	138	3.5	3.3	44.4	0.78	0.77	0.42	2.2	0.898
9180	9121	90	81	130	145	3.5	3.3	44.3	0.66	0.92	0.50	2.77	1.21
L 610549	L 610510	71	69	86	91	1.5	1.5	19.6	0.42	1.4	0.78	0.306	0.154
39250	39412	73	69	96	100	2	2	20.0	0.39	1.5	0.85	0.501	0.186
29586	29520	73	71	96	103	1.5	3.3	24.0	0.46	1.3	0.72	0.661	0.281
395	394 A	77	70	101	104	3.5	1.3	20.9	0.40	1.5	0.82	0.58	0.263
390 A	394 A	73	70	101	104	1.5	1.3	20.9	0.40	1.5	0.82	0.583	0.263
3982	3920	77	71	99	106	3.5	3.2	25.5	0.40	1.5	0.82	0.789	0.454
39585	39520	77	71	101	107	3.5	3.3	23.5	0.34	1.8	0.97	0.899	0.359
3982	3926	78	71	98	106	3.5	3.3	28.7	0.40	1.5	0.82	0.789	0.541
HM 212047	HM 212011	87	73	108	116	7	3.3	26.9	0.34	1.8	0.98	1.34	0.598
HM 212047	HM 212010	87	73	110	116	7	1.5	26.9	0.34	1.8	0.98	1.34	0.604
HM 212046	HM 212010	80	73	110	116	3.5	1.5	26.9	0.34	1.8	0.98	1.35	0.604
5584	5535	81	75	106	116	3.5	3.3	29.9	0.36	1.7	0.92	1.5	0.815
559	522 A	78	73	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.23	0.764
565	563	80	73	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.46	0.655
639	633	81	74	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.77	0.712
78250	78537	85	79	115	130	2.3	3.3	44.2	0.87	0.69	0.38	1.51	0.782
639	632	79	76	119	125	3.5	3.3	29.9	0.36	1.7	0.91	1.77	1.04
78250	78551	85	79	117	132	2.3	2.3	44.2	0.87	0.69	0.38	1.51	0.926
569	563	81	74	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.41	0.655

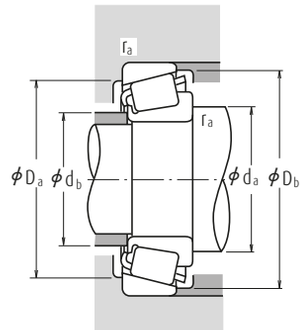
Notes * The maximum bore diameter is listed and its tolerance is negative

▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 65.000 – 69.850 mm





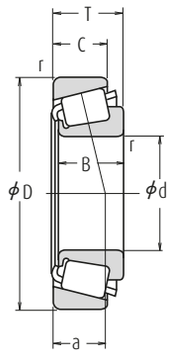
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
65.000	105.000	24.000	23.000	18.500	3.0	1.0	93 000	126 000	3 400	4 500
	110.000	28.000	28.000	22.500	3.0	2.5	120 000	173 000	3 200	4 300
	120.000	29.002	29.007	23.444	2.3	3.3	123 000	169 000	3 000	4 000
	120.000	39.000	38.500	32.000	3.0	2.5	185 000	249 000	3 000	4 000
65.088	135.755	53.975	56.007	44.450	3.5	3.3	264 000	355 000	2 800	3 800
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	2 600	3 400
66.675	110.000	22.000	21.996	18.824	0.8	1.3	85 500	113 000	3 200	4 300
	110.000	22.000	21.996	18.824	3.5	1.3	85 500	113 000	3 200	4 300
	112.712	30.162	30.048	23.812	3.5	3.2	120 000	173 000	3 200	4 300
	112.712	30.162	30.048	23.812	5.5	3.2	120 000	173 000	3 200	4 300
	112.712	30.162	30.162	23.812	3.5	0.8	142 000	202 000	3 200	4 300
	112.712	30.162	30.162	23.812	3.5	3.3	142 000	202 000	3 200	4 300
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	3 000	4 000
	122.238	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	122.238	38.100	38.354	29.718	3.5	1.5	188 000	245 000	3 000	4 000
	122.238	38.100	38.354	29.718	3.5	3.3	188 000	245 000	3 000	4 000
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	2 600	3 400
68.262	110.000	22.000	21.996	18.824	2.3	1.3	85 500	113 000	3 200	4 300
	120.000	29.795	29.007	24.237	3.5	2.0	123 000	169 000	3 000	4 000
	122.238	38.100	36.678	30.162	3.5	3.3	161 000	221 000	3 000	4 000
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	2 800	3 800
	136.525	41.275	41.275	31.750	3.5	3.3	229 000	297 000	2 600	3 600
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	2 600	3 400
	152.400	47.625	46.038	31.750	3.5	3.3	237 000	267 000	2 400	3 400
69.850	112.712	22.225	21.996	15.875	1.5	0.8	85 000	113 000	3 000	4 000
	112.712	25.400	25.400	19.050	1.5	3.3	96 000	152 000	2 800	4 000
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	3 000	4 000
	120.000	32.545	32.545	26.195	3.5	3.3	152 000	225 000	3 000	4 000
	120.650	25.400	25.400	19.050	1.5	3.3	96 000	152 000	2 800	4 000
	127.000	36.512	36.170	28.575	3.5	0.8	166 000	234 000	2 800	3 800
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	2 800	3 800
	146.050	41.275	39.688	25.400	3.5	3.3	193 000	225 000	2 400	3 400
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	149.225	53.975	54.229	44.450	5.0	3.3	287 000	410 000	2 600	3 400
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	2 400	3 200

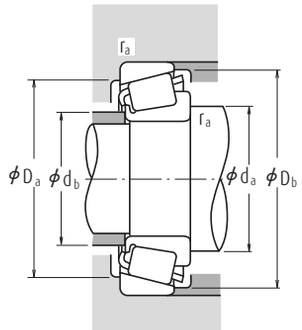
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
▲ JLM 710949	▲ JLM 710910	77	71	96	101	3	1	23.7	0.45	1.3	0.73	0.526	0.237
▲ JM 511946	▲ JM 511910	78	72	99	105	3	2.5	24.5	0.40	1.5	0.82	0.72	0.342
478	472 A	77	73	106	114	2.3	3.3	24.3	0.38	1.6	0.86	0.942	0.466
▲ JH 211749	▲ JH 211710	80	74	107	114	3	2.5	27.9	0.34	1.8	0.98	1.25	0.625
6379	6320	84	77	117	126	3.5	3.3	35.0	0.32	1.8	1.0	2.25	1.39
H 715340	H 715311	88	82	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.4	0.961
395 A	394 A	73	73	101	104	0.8	1.3	20.9	0.40	1.5	0.82	0.528	0.263
395 S	394 A	79	73	101	104	3.5	1.3	20.9	0.40	1.5	0.82	0.524	0.263
3984	3920	80	74	99	106	3.5	3.2	25.5	0.40	1.5	0.82	0.712	0.454
3994	3920	84	74	99	106	5.5	3.2	25.5	0.40	1.5	0.82	0.706	0.454
39590	39521	80	74	103	107	3.5	0.8	23.5	0.34	1.8	0.97	0.822	0.365
39590	39520	80	74	101	107	3.5	3.3	23.5	0.34	1.8	0.97	0.822	0.359
33262	33462	81	75	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.911	0.442
560	553 X	81	75	108	115	3.5	3.3	28.8	0.35	1.7	0.95	1.14	0.692
HM 212049	HM 212010	82	75	110	116	3.5	1.5	26.9	0.34	1.8	0.98	1.25	0.604
HM 212049	HM 212011	81	74	108	116	3.5	3.3	26.9	0.34	1.8	0.98	1.25	0.598
560	552 A	81	75	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.14	0.764
H 715341	H 715311	89	83	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.34	0.961
399 A	394 A	78	74	101	104	2.3	1.3	20.9	0.40	1.5	0.82	0.497	0.263
480	472	83	76	106	113	3.5	2	25.1	0.38	1.6	0.86	0.862	0.493
560 S	553 X	83	76	108	115	3.5	3.3	28.8	0.35	1.7	0.95	1.09	0.692
570	563	83	77	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.32	0.655
H 414245	H 414210	86	82	121	129	3.5	3.3	30.6	0.36	1.7	0.92	1.95	0.796
H 715343	H 715311	90	84	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.28	0.961
9185	9121	94	81	130	145	3.5	3.3	44.3	0.66	0.92	0.50	2.53	1.21
LM 613449	LM 613410	78	76	104	107	1.5	0.8	22.1	0.42	1.4	0.79	0.562	0.238
29675	29620	80	77	101	109	1.5	3.3	26.3	0.49	1.2	0.68	0.695	0.273
33275	33462	84	77	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.83	0.442
47487	47420	84	78	107	114	3.5	3.3	26.0	0.36	1.7	0.92	1.02	0.477
29675	29630	79	78	105	113	1.5	3.3	26.3	0.49	1.2	0.68	0.695	0.489
566	563 X	85	78	114	120	3.5	0.8	28.3	0.36	1.6	0.91	1.27	0.658
643	633	86	80	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.56	0.712
H 913849	H 913810	95	82	124	138	3.5	3.3	44.4	0.78	0.77	0.42	1.95	0.898
655	653	88	82	131	139	3.5	3.3	33.2	0.41	1.5	0.81	2.35	0.891
6454	6420	94	85	129	140	5	3.3	39.0	0.36	1.7	0.91	2.95	1.63
745 A	742	88	82	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.82	1.07

Note ▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 70.000 – 76.200 mm





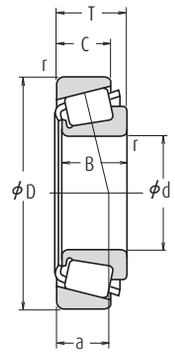
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r	Cup r				
d	D	T	B	C	min.		C_r	C_{0r}	Grease	Oil
70.000	110.000	26.000	25.000	20.500	1.0	2.5	98 500	152 000	3 000	4 000
	115.000	29.000	29.000	23.000	3.0	2.5	126 000	177 000	3 000	4 000
	120.000	29.795	29.007	24.237	2.0	2.0	123 000	169 000	3 000	4 000
71.438	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	3 000	4 000
	120.000	32.545	32.545	26.195	3.5	3.3	152 000	225 000	3 000	4 000
	127.000	36.512	36.170	28.575	6.4	3.3	166 000	234 000	2 800	3 800
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	2 800	3 800
	130.175	41.275	41.275	31.750	6.4	3.3	195 000	263 000	2 800	3 800
	136.525	41.275	41.275	31.750	3.5	3.3	195 000	263 000	2 800	3 800
	136.525	41.275	41.275	31.750	3.5	3.3	229 000	297 000	2 600	3 600
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	2 600	3 400
73.025	112.712	25.400	25.400	19.050	3.5	3.3	96 000	152 000	2 800	4 000
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	3 000	4 000
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	2 800	3 800
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	2 600	3 400
73.817	127.000	36.512	36.170	28.575	0.8	3.3	166 000	234 000	2 800	3 800
74.612	150.000	41.275	41.275	31.750	3.5	3.0	207 000	296 000	2 400	3 200
75.000	115.000	25.000	25.000	19.000	3.0	2.5	101 000	150 000	3 000	4 000
	120.000	31.000	29.500	25.000	3.0	2.5	129 000	198 000	2 800	3 800
	145.000	51.000	51.000	42.000	3.0	2.5	283 000	410 000	2 600	3 400
76.200	121.442	24.608	23.012	17.462	2.0	2.0	89 000	124 000	2 800	3 800
	127.000	30.162	31.000	22.225	3.5	3.3	134 000	195 000	2 800	3 800
	127.000	30.162	31.001	22.225	6.4	3.3	134 000	195 000	2 800	3 800
	133.350	33.338	33.338	26.195	0.8	3.3	154 000	237 000	2 600	3 600
	135.733	44.450	46.101	34.925	3.5	3.3	216 000	340 000	2 600	3 600
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	136.525	30.162	29.769	22.225	6.4	3.3	130 000	192 000	2 600	3 400
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	2 600	3 400
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	2 600	3 400
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
	152.400	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	161.925	49.212	46.038	31.750	3.5	3.3	248 000	290 000	2 200	3 000
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	2 200	3 000
	161.925	53.975	55.100	42.862	6.4	3.3	325 000	480 000	2 200	3 000
	161.925	53.975	55.100	42.862	6.4	0.8	325 000	480 000	2 200	3 000

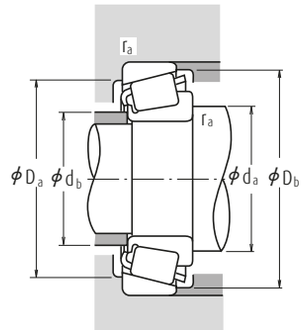
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone r_a	Cup r_a						
CONE	CUP	d_a	d_b	D_a	D_b	max.		a	e	Y_1	Y_0	CONE	CUP
▲ JLM 813049	▲ JLM 813010	78	77	98	105	1	2.5	26.2	0.49	1.2	0.68	0.604	0.304
▲ JM 612949	▲ JM 612910	83	77	103	110	3	2.5	26.4	0.43	1.4	0.77	0.800	0.362
484	**472**	80	78	106	113	2	2	25.1	0.38	1.6	0.86	0.822	0.493
33281	**33462**	85	79	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.789	0.442
47490	**47420**	86	79	107	114	3.5	3.3	26.0	0.36	1.7	0.92	0.983	0.477
567 S	**563**	92	80	112	120	6.4	3.3	28.3	0.36	1.6	0.91	1.21	0.655
567 A	**563**	86	80	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.23	0.655
645	**633**	93	81	116	124	6.4	3.3	29.9	0.36	1.7	0.91	1.49	0.712
644	**632**	87	81	118	125	3.5	3.3	29.9	0.36	1.7	0.91	1.5	1.04
H 414249	**H 414210**	89	83	121	129	3.5	3.3	30.6	0.36	1.7	0.92	1.83	0.796
H 715345	**H 715311**	92	84	119	132	3.5	3.3	37.1	0.47	1.3	0.70	2.15	0.961
29685	**29620**	86	80	101	109	3.5	3.3	26.3	0.49	1.2	0.68	0.62	0.273
33287	**33462**	87	80	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.746	0.442
567	**563**	88	81	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.17	0.655
657	**653**	91	85	131	139	3.5	3.3	33.2	0.41	1.5	0.81	2.24	0.891
6460	**6420**	93	87	129	140	3.5	3.3	39.0	0.36	1.7	0.91	2.8	1.63
568	**563**	83	82	112	120	0.8	3.3	28.3	0.36	1.6	0.91	1.15	0.655
658	**653 X**	92	86	133	141	3.5	3	33.2	0.41	1.5	0.81	2.37	0.932
▲ JLM 714149	▲ JLM 714110	87	81	104	110	3	2.5	25.3	0.46	1.3	0.72	0.638	0.272
▲ JM 714249	▲ JM 714210	88	83	108	115	3	2.5	28.8	0.44	1.4	0.74	0.863	0.436
▲ JH 415647	▲ JH 415610	94	89	129	139	3	2.5	36.7	0.36	1.7	0.91	2.64	1.19
34300	**34478**	86	84	111	116	2	2	26.3	0.45	1.3	0.73	0.65	0.316
42687	**42620**	90	84	114	121	3.5	3.3	27.3	0.42	1.4	0.79	1.03	0.438
42688	**42620**	94	84	114	121	6.4	3.3	27.3	0.42	1.4	0.79	1.01	0.438
47680	**47620**	86	85	119	128	0.8	3.3	29.0	0.40	1.5	0.82	1.39	0.577
5760	**5735**	94	88	119	130	3.5	3.3	32.9	0.41	1.5	0.81	1.86	0.887
495 A	**493**	92	86	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.27	0.55
495 AX	**493**	98	86	122	130	6.4	3.3	28.7	0.44	1.4	0.74	1.26	0.55
575	**572**	92	86	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.61	0.788
6461	**6420**	96	89	129	140	3.5	3.3	39.0	0.36	1.7	0.91	2.64	1.63
590 A	**592 A**	95	89	135	145	3.5	3.2	37.1	0.44	1.4	0.75	2.2	1.06
659	**652**	93	87	134	141	3.5	3.3	33.2	0.41	1.5	0.81	2.11	1.26
9285	**9220**	103	90	138	153	3.5	3.3	49.8	0.71	0.85	0.47	2.82	1.4
6576	**6535**	99	92	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.74	1.67
6575	**6535**	104	92	141	154	6.4	3.3	40.7	0.40	1.5	0.82	3.73	1.67
6575	**6536**	104	92	144	154	6.4	0.8	40.7	0.40	1.5	0.82	3.73	1.68

Note ▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 76.200 – 83.345 mm





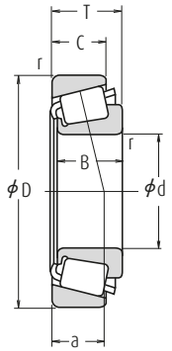
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
					r min.					
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
76.200	168.275	53.975	56.363	41.275	6.4	3.3	345 000	470 000	2 200	3 000
	168.275	53.975	56.363	41.275	0.8	3.3	345 000	470 000	2 200	3 000
	171.450	49.212	46.038	31.750	3.5	3.3	257 000	310 000	2 000	2 800
	177.800	55.562	50.800	34.925	3.5	3.3	257 000	310 000	2 000	2 800
77.788	121.442	24.608	23.012	17.462	3.5	2.0	89 000	124 000	2 800	3 800
	127.000	30.162	31.000	22.225	3.5	3.3	134 000	195 000	2 800	3 800
	135.733	44.450	46.101	34.925	3.5	3.3	216 000	340 000	2 600	3 600
79.375	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	2 400	3 200
80.000	130.000	35.000	34.000	28.500	3.0	2.5	166 000	251 000	2 600	3 600
80.962	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	139.700	36.512	36.098	28.575	3.5	3.3	175 000	260 000	2 600	3 400
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	2 600	3 400
82.550	125.412	25.400	25.400	19.845	3.5	1.5	102 000	164 000	2 600	3 600
	133.350	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	133.350	33.338	33.338	26.195	3.5	3.3	154 000	237 000	2 600	3 600
	133.350	33.338	33.338	26.195	0.8	3.3	154 000	237 000	2 600	3 600
	133.350	33.338	33.338	26.195	6.8	3.3	154 000	237 000	2 600	3 600
	133.350	39.688	39.688	32.545	6.8	3.3	179 000	310 000	2 600	3 600
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	139.700	36.512	36.098	28.575	3.5	3.3	175 000	260 000	2 600	3 400
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	2 600	3 400
	139.992	36.512	36.098	28.575	6.8	3.3	175 000	260 000	2 600	3 400
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	150.000	44.455	46.672	35.000	3.5	3.3	265 000	370 000	2 400	3 200
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	2 400	3 200
	152.400	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	2 200	3 000
	168.275	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000
	168.275	53.975	56.363	41.275	3.5	3.3	345 000	470 000	2 200	3 000
83.345	125.412	25.400	25.400	19.845	3.5	1.5	102 000	164 000	2 600	3 600
	125.412	25.400	25.400	19.845	0.8	1.5	102 000	164 000	2 600	3 600

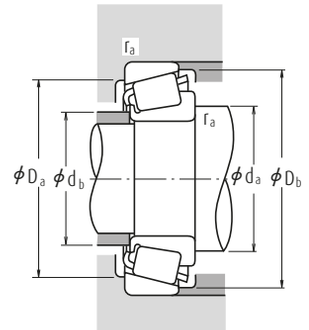
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
						r_a max.							
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
843	**832**	101	89	149	155	6.4	3.3	35.2	0.30	2.0	1.1	4.11	1.74
837	**832**	90	89	149	155	0.8	3.3	35.2	0.30	2.0	1.1	4.13	1.74
9380	**9321**	105	98	147	164	3.5	3.3	54.1	0.76	0.79	0.43	3.47	1.51
9378	**9320**	105	98	148	164	3.5	3.3	57.3	0.76	0.79	0.43	3.71	2.24
34306	**34478**	90	84	110	116	3.5	2	26.3	0.45	1.3	0.73	0.612	0.316
42690	**42620**	91	85	114	121	3.5	3.3	27.3	0.42	1.4	0.79	0.976	0.438
5795	**5735**	96	89	119	130	3.5	3.3	32.9	0.41	1.5	0.81	1.79	0.887
661	**653**	96	90	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.99	0.891
750	**742**	96	90	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.42	1.07
▲ JM 515649	**▲ JM 515610**	94	88	117	125	3	2.5	29.9	0.39	1.5	0.85	1.18	0.583
496	**493**	95	89	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.13	0.55
581	**572 X**	96	90	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.44	0.774
581	**572**	96	90	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.44	0.788
27687	**27620**	96	89	115	120	3.5	1.5	25.7	0.42	1.4	0.79	0.747	0.348
495	**492 A**	97	90	120	128	3.5	3.3	28.7	0.44	1.4	0.74	1.08	0.434
47686	**47620**	97	90	119	128	3.5	3.3	29.0	0.40	1.5	0.82	1.18	0.577
47685	**47620**	90	90	119	128	0.8	3.3	29.0	0.40	1.5	0.82	1.18	0.577
47687	**47620**	103	90	119	128	6.8	3.3	29.0	0.40	1.5	0.82	1.16	0.577
HM 516448	**HM 516410**	105	92	118	128	6.8	3.3	32.4	0.40	1.5	0.82	1.35	0.767
495	**493**	97	90	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.08	0.55
580	**572 X**	98	91	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.39	0.774
580	**572**	98	91	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.39	0.788
582	**572**	104	91	125	133	6.8	3.3	31.1	0.40	1.5	0.82	1.37	0.788
663	**653**	99	92	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.85	0.891
749 A	**743**	99	93	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.26	1.04
749 A	**742**	98	93	135	143	3.5	3.3	32.5	0.33	1.8	1.0	2.26	1.07
663	**652**	99	92	134	141	3.5	3.3	33.2	0.41	1.5	0.81	1.85	1.26
757	**752**	100	94	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.79	1.61
6559	**6535**	104	98	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.4	1.67
757	**753**	100	94	147	150	3.5	3.3	35.6	0.34	1.8	0.97	2.79	2.1
842	**832**	101	94	149	155	3.5	3.3	35.2	0.30	2.0	1.1	3.76	1.74
27690	**27620**	96	90	115	120	3.5	1.5	25.7	0.42	1.4	0.79	0.727	0.348
27689	**27620**	90	90	115	120	0.8	1.5	25.7	0.42	1.4	0.79	0.732	0.348

Note ▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 84.138 – 90.488 mm





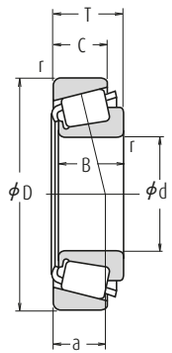
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
84.138	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	171.450	49.212	46.038	31.750	3.5	3.3	257 000	310 000	2 000	2 800
85.000	130.000	30.000	29.000	24.000	6.0	2.5	138 000	222 000	2 600	3 600
	130.000	30.000	29.000	24.000	3.0	2.5	138 000	222 000	2 600	3 600
	140.000	39.000	38.000	31.500	3.0	2.5	202 000	305 000	2 400	3 400
	150.000	46.000	46.000	38.000	3.0	2.5	275 000	390 000	2 400	3 200
85.026	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	2 400	3 200
	150.089	44.450	46.672	36.512	5.0	3.3	265 000	370 000	2 400	3 200
85.725	133.350	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	2 600	3 400
	142.138	42.862	42.862	34.133	4.8	3.3	221 000	360 000	2 400	3 400
	146.050	41.275	41.275	31.750	6.4	3.3	207 000	296 000	2 400	3 200
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	2 400	3 200
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	2 000	2 800
87.312	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	1 900	2 600
88.900	149.225	31.750	28.971	24.608	3.0	3.3	140 000	218 000	2 200	3 000
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
	152.400	39.688	39.688	30.162	6.4	3.3	253 000	365 000	2 200	3 200
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000
	161.925	47.625	48.260	38.100	7.0	3.3	274 000	390 000	2 200	3 000
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	2 200	3 000
	168.275	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000
	168.275	53.975	56.363	41.275	3.5	3.3	345 000	470 000	2 200	3 000
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	1 900	2 600
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	1 900	2 600
90.000	145.000	35.000	34.000	27.000	3.0	2.5	190 000	285 000	2 400	3 200
	147.000	40.000	40.000	32.500	7.0	3.5	229 000	345 000	2 400	3 200
	155.000	44.000	44.000	35.500	3.0	2.5	274 000	395 000	2 200	3 000
90.488	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	2 200	3 000

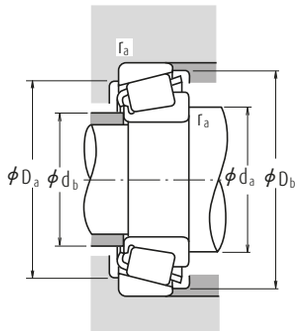
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone	Cup						
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
498	**493**	98	91	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.04	0.55
664	**653**	99	93	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.79	0.891
9385	**9321**	111	98	147	164	3.5	3.3	54.1	0.76	0.79	0.43	3.11	1.51
▲ **JM 716648**	▲ **JM 716610**	104	92	117	125	6	2.5	29.5	0.44	1.4	0.74	0.931	0.461
▲ **JM 716649**	▲ **JM 716610**	98	92	117	125	3	2.5	29.5	0.44	1.4	0.74	0.943	0.461
▲ **JHM 516849**	▲ **JHM 516810**	100	94	125	134	3	2.5	33.3	0.41	1.5	0.81	1.55	0.768
▲ **JH 217249**	▲ **JH 217210**	101	95	134	142	3	2.5	33.9	0.33	1.8	0.99	2.29	1.09
749	**742**	101	95	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.14	1.07
749 S	**742**	104	95	134	142	5	3.3	32.5	0.33	1.8	1.0	2.14	1.07
497	**492 A**	99	93	120	128	3.5	3.3	28.7	0.44	1.4	0.74	0.987	0.434
497	**493**	99	93	122	130	3.5	3.3	28.7	0.44	1.4	0.74	0.987	0.55
HM 617049	**HM 617010**	106	95	125	137	4.8	3.3	35.4	0.43	1.4	0.76	1.77	0.911
665 A	**653**	107	95	131	139	6.4	3.3	33.2	0.41	1.5	0.81	1.71	0.891
665	**653**	102	95	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.72	0.891
596	**592 A**	102	96	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.85	1.06
758	**752**	103	97	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.63	1.61
677	**672**	105	99	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.91	1.24
HH 221432	**HH 221410**	118	103	171	179	8	3.3	42.3	0.33	1.8	0.99	5.51	2.24
42350	**42587**	104	98	134	143	3	3.3	34.9	0.49	1.2	0.67	1.39	0.711
593	**592 A**	104	98	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.73	1.06
HM 518445	**HM 518410**	107	96	137	148	6.4	3.3	33.1	0.40	1.5	0.82	2.11	0.776
759	**752**	106	99	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.47	1.61
766	**752**	113	99	144	150	7	3.3	35.6	0.34	1.8	0.97	2.45	1.61
6580	**6535**	109	102	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.03	1.67
759	**753**	106	99	147	150	3.5	3.3	35.6	0.34	1.8	0.97	2.47	2.1
850	**832**	106	100	149	155	3.5	3.3	35.2	0.30	2.0	1.1	3.39	1.74
855	**854**	118	103	170	174	8	3.3	41.8	0.33	1.8	0.99	4.99	2.55
HH 221434	**HH 221410**	120	105	171	179	8	3.3	42.3	0.33	1.8	0.99	5.41	2.24
▲ **JM 718149**	▲ **JM 718110**	105	99	131	139	3	2.5	33.0	0.44	1.4	0.74	1.49	0.66
***HM 218248**	****HM 218210**	111	98	133	141	7	3.5	30.8	0.33	1.8	0.99	1.77	0.796
▲ **JHM 318448**	▲ **JHM 318410**	106	100	140	148	3	2.5	34.1	0.34	1.7	0.96	2.32	1.01
760	**752**	107	101	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.38	1.61

Notes
* The maximum bore diameter is listed and its tolerance is negative
** The maximum outside diameter is listed and its tolerance is negative
▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 92.075 – 100.012 mm





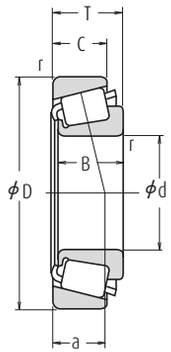
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
92.075	146.050	33.338	34.925	26.195	3.5	3.3	169 000	280 000	2 400	3 200
	148.430	28.575	28.971	21.433	3.5	3.0	140 000	218 000	2 200	3 000
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
	152.400	39.688	36.322	30.162	6.4	3.2	183 000	285 000	2 200	3 200
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	2 000	2 800
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	1 900	2 600
93.662	148.430	28.575	28.971	21.433	3.0	3.0	140 000	218 000	2 200	3 000
	149.225	31.750	28.971	24.608	3.0	3.3	140 000	218 000	2 200	3 000
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
95.000	150.000	35.000	34.000	27.000	3.0	2.5	183 000	285 000	2 200	3 200
95.250	146.050	33.338	34.925	26.195	3.5	3.3	169 000	280 000	2 400	3 200
	148.430	28.575	28.971	21.433	3.0	3.0	140 000	218 000	2 200	3 000
	149.225	31.750	28.971	24.608	3.5	3.3	140 000	218 000	2 200	3 000
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	2 200	3 200
	152.400	39.688	36.322	33.338	3.5	3.3	183 000	285 000	2 200	3 200
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	2 000	2 800
	171.450	47.625	48.260	38.100	3.5	3.3	282 000	415 000	2 000	2 800
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	2 000	2 600
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	1 900	2 600
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	1 900	2 600
96.838	148.430	28.575	28.971	21.433	3.5	3.0	140 000	218 000	2 200	3 000
	149.225	31.750	28.971	24.606	3.5	3.3	140 000	218 000	2 200	3 000
98.425	161.925	36.512	36.116	26.195	3.5	3.3	191 000	310 000	2 000	2 800
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	2 000	2 800
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	2 000	2 600
	190.500	57.150	57.531	44.450	3.5	3.3	355 000	500 000	1 900	2 600
	190.500	57.150	57.531	46.038	3.5	3.3	390 000	520 000	1 900	2 600
99.982	190.500	57.150	57.531	46.038	6.4	3.3	390 000	520 000	1 900	2 600
100.000	150.000	32.000	30.000	26.000	2.3	2.3	146 000	235 000	2 200	3 000
	155.000	36.000	35.000	28.000	3.0	2.5	191 000	325 000	2 000	2 800
	160.000	41.000	40.000	32.000	3.0	2.5	239 000	380 000	2 000	2 800
100.012	157.162	36.512	36.116	26.195	3.5	3.3	191 000	310 000	2 000	2 800

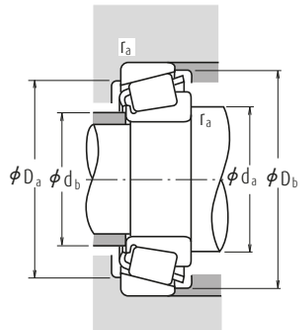
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
47890	**47820**	107	101	131	140	3.5	3.3	32.3	0.45	1.3	0.74	1.46	0.664
42362	**42584**	107	101	134	142	3.5	3	31.8	0.49	1.2	0.67	1.29	0.553
598	**592 A**	107	101	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.6	1.06
598 A	**592 A**	113	101	135	144	6.4	3.2	37.1	0.44	1.4	0.75	1.59	1.06
681	**672**	110	104	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.62	1.24
857	**854**	121	106	170	174	8	3.3	41.8	0.33	1.8	0.99	4.78	2.55
42368	**42584**	107	102	134	142	3	3	31.8	0.49	1.2	0.67	1.24	0.553
42368	**42587**	107	102	134	143	3	3.3	34.9	0.49	1.2	0.67	1.24	0.711
597	**592 A**	109	102	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.54	1.06
▲ **JM 719149**	▲ **JM 719113**	109	104	135	143	3	2.5	33.4	0.44	1.4	0.75	1.46	0.765
47896	**47820**	110	103	131	140	3.5	3.3	32.3	0.45	1.3	0.74	1.33	0.664
42375	**42584**	108	103	134	142	3	3	31.8	0.49	1.2	0.67	1.18	0.553
42376	**42587**	109	103	134	143	3.5	3.3	34.9	0.49	1.2	0.67	1.18	0.711
594	**592 A**	110	104	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.47	1.06
594	**592**	109	103	135	145	3.5	3.3	37.1	0.44	1.4	0.75	1.47	1.12
683	**672**	113	106	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.47	1.24
77375	**77675**	117	105	152	159	3.5	3.3	37.8	0.37	1.6	0.90	2.91	1.67
776	**772**	114	107	161	168	3.5	3.3	39.1	0.39	1.6	0.86	3.25	1.99
864	**854**	123	108	170	174	8	3.3	41.8	0.33	1.8	0.99	4.57	2.55
HH 221440	**HH 221410**	125	110	171	179	8	3.3	42.3	0.33	1.8	0.99	5.0	2.24
42381	**42584**	110	104	134	142	3.5	3	31.8	0.49	1.2	0.67	1.13	0.553
42381	**42587**	111	105	135	143	3.5	3.3	34.9	0.49	1.2	0.67	1.13	0.711
52387	**52637**	114	108	144	154	3.5	3.3	36.1	0.47	1.3	0.69	1.89	0.942
685	**672**	116	109	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.32	1.24
779	**772**	116	110	161	168	3.5	3.3	39.1	0.39	1.6	0.86	3.06	1.99
866	**854**	118	111	170	174	3.5	3.3	41.8	0.33	1.8	0.99	4.38	2.55
HH 221442	**HH 221410**	119	113	171	179	3.5	3.3	42.3	0.33	1.8	0.99	4.81	2.24
HH 221447	**HH 221410**	126	114	171	179	6.4	3.3	42.3	0.33	1.8	0.99	4.68	2.24
▲ **JLM 820048**	▲ **JLM 820012**	111	107	135	144	2.3	2.3	36.8	0.50	1.2	0.66	1.27	0.616
▲ **JM 720249**	▲ **JM 720210**	115	109	140	149	3	2.5	36.8	0.47	1.3	0.70	1.68	0.772
▲ **JHM 720249**	▲ **JHM 720210**	117	109	143	154	3	2.5	38.2	0.47	1.3	0.70	2.09	0.974
52393	**52618**	116	109	142	152	3.5	3.3	36.1	0.47	1.3	0.69	1.81	0.702

Note ▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 101.600 – 117.475 mm





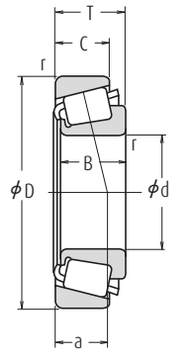
Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
101.600	157.162	36.512	36.116	26.195	3.5	3.3	191 000	310 000	2 000	2 800
	161.925	36.512	36.116	26.195	3.5	3.3	191 000	310 000	2 000	2 800
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	2 000	2 800
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	2 000	2 600
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	1 900	2 600
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	1 900	2 600
	212.725	66.675	66.675	53.975	7.0	3.3	570 000	810 000	1 700	2 200
104.775	180.975	47.625	48.006	38.100	7.0	3.3	258 000	375 000	2 000	2 600
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	2 000	2 600
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	1 800	2 400
106.362	165.100	36.512	36.512	26.988	3.5	3.3	195 000	320 000	2 000	2 600
107.950	158.750	23.020	21.438	15.875	3.5	3.3	102 000	165 000	2 000	2 800
	159.987	34.925	34.925	26.988	3.5	3.3	164 000	315 000	2 000	2 800
	161.925	34.925	34.925	26.988	3.5	3.3	164 000	280 000	2 000	2 800
	165.100	36.512	36.512	26.988	3.5	3.3	195 000	320 000	2 000	2 600
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	1 800	2 400
	212.725	66.675	66.675	53.975	8.0	3.3	570 000	810 000	1 700	2 200
109.987	159.987	34.925	34.925	26.988	3.5	3.3	164 000	315 000	2 000	2 800
	159.987	34.925	34.925	26.988	8.0	3.3	164 000	315 000	2 000	2 800
109.992	177.800	41.275	41.275	30.162	3.5	3.3	232 000	375 000	1 800	2 600
110.000	165.000	35.000	35.000	26.500	3.0	2.5	195 000	320 000	2 000	2 600
	180.000	47.000	46.000	38.000	3.0	2.5	310 000	490 000	1 900	2 600
111.125	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	1 800	2 400
114.300	152.400	21.433	21.433	16.670	1.5	1.5	89 500	178 000	2 000	2 800
	177.800	41.275	41.275	30.162	3.5	3.3	232 000	375 000	1 800	2 600
	180.000	34.925	31.750	25.400	3.5	0.8	174 000	254 000	1 800	2 400
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	1 800	2 400
	212.725	66.675	66.675	53.975	7.0	3.3	475 000	700 000	1 700	2 400
	212.725	66.675	66.675	53.975	7.0	3.3	570 000	810 000	1 700	2 200
115.087	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	1 800	2 400
117.475	180.975	34.925	31.750	25.400	3.5	3.3	174 000	254 000	1 800	2 400

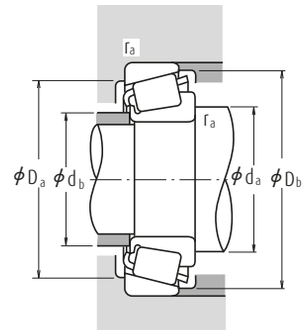
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx.	
						Cone	Cup						
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
52400	**52618**	117	111	142	152	3.5	3.3	36.1	0.47	1.3	0.69	1.75	0.702
52400	**52637**	117	111	144	154	3.5	3.3	36.1	0.47	1.3	0.69	1.75	0.942
687	**672**	118	112	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.15	1.24
780	**772**	119	113	161	168	3.5	3.3	39.1	0.39	1.6	0.86	2.88	1.99
861	**854**	129	114	170	174	8	3.3	41.8	0.33	1.8	0.99	4.13	2.55
HH 221449	**HH 221410**	131	116	171	179	8	3.3	42.3	0.33	1.8	0.99	4.55	2.24
HH 224335	**HH 224310**	132	121	192	202	7	3.3	47.3	0.33	1.8	1.0	8.14	3.06
787	**772**	129	116	161	168	7	3.3	39.1	0.39	1.6	0.86	2.66	1.99
782	**772**	122	116	161	168	3.5	3.3	39.1	0.39	1.6	0.86	2.68	1.99
71412	**71750**	124	118	171	181	3.5	3.3	40.1	0.42	1.4	0.79	4.0	1.71
56418	**56650**	122	116	149	159	3.5	3.3	38.6	0.50	1.2	0.66	1.87	0.861
37425	**37625**	122	115	143	152	3.5	3.3	37.0	0.61	0.99	0.54	0.886	0.488
LM 522546	**LM 522510**	122	116	146	154	3.5	3.3	33.7	0.40	1.5	0.82	1.65	0.784
48190	**48120**	122	116	146	156	3.5	3.3	38.7	0.51	1.2	0.65	1.59	0.83
56425	**56650**	123	117	149	159	3.5	3.3	38.6	0.50	1.2	0.66	1.8	0.861
71425	**71750**	126	120	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.79	1.71
HH 224340	**HH 224310**	139	126	192	202	8	3.3	47.3	0.33	1.8	1.0	7.58	3.06
LM 522549	**LM 522510**	124	118	146	154	3.5	3.3	33.7	0.40	1.5	0.82	1.55	0.784
LM 522548	**LM 522510**	133	118	146	154	8	3.3	33.7	0.40	1.5	0.82	1.53	0.784
64433	**64700**	128	121	160	172	3.5	3.3	42.4	0.52	1.2	0.64	2.64	1.11
▲JM 822049	**▲JM 822010**	124	119	149	159	3	2.5	38.3	0.50	1.2	0.66	1.64	0.842
▲JHM 522649	**▲JHM 522610**	127	122	162	172	3	2.5	40.9	0.41	1.5	0.81	3.12	1.51
71437	**71750**	129	123	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.58	1.71
L 623149	**L 623110**	123	121	143	148	1.5	1.5	27.4	0.41	1.5	0.80	0.725	0.344
64450	**64700**	131	125	160	172	3.5	3.3	42.4	0.52	1.2	0.64	2.39	1.11
68450	**** 68709**	130	123	165	172	3.5	0.8	40.0	0.50	1.2	0.66	1.95	1.0
71450	**71750**	132	125	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.37	1.71
938	**932**	141	128	187	193	7	3.3	46.9	0.33	1.8	1.0	6.01	4.11
HH 224346	**HH 224310**	143	131	192	202	7	3.3	47.3	0.33	1.8	1.0	7.01	3.06
71453	**71750**	133	126	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.31	1.71
68462	**68712**	132	125	163	172	3.5	3.3	40.0	0.50	1.2	0.66	1.73	1.05

Notes ** The maximum outside diameter is listed and its tolerance is negative
▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 120.000 – 165.100 mm





Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone r min.	Cup r min.				
d	D	T	B	C			C_r	C_{0r}	Grease	Oil
120.000	170.000	25.400	25.400	19.050	3.3	3.3	130 000	219 000	1 900	2 600
	174.625	35.720	36.512	27.783	3.5	1.5	212 000	385 000	1 900	2 600
120.650	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	1 800	2 400
	206.375	47.625	47.625	34.925	3.3	3.3	320 000	530 000	1 600	2 200
123.825	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	1 800	2 400
125.000	175.000	25.400	25.400	18.288	3.3	3.3	134 000	232 000	1 800	2 400
127.000	165.895	18.258	17.462	13.495	1.5	1.5	84 500	149 000	1 900	2 600
	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	1 800	2 400
	196.850	46.038	46.038	38.100	3.5	3.3	315 000	560 000	1 700	2 200
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	1 500	2 000
128.588	206.375	47.625	47.625	34.925	3.3	3.3	320 000	530 000	1 600	2 200
130.000	206.375	47.625	47.625	34.925	3.5	3.3	320 000	530 000	1 600	2 200
130.175	203.200	46.038	46.038	38.100	3.5	3.3	315 000	560 000	1 700	2 200
	206.375	47.625	47.625	34.925	3.5	3.3	320 000	530 000	1 600	2 200
133.350	177.008	25.400	26.195	20.638	1.5	1.5	124 000	258 000	1 800	2 400
	190.500	39.688	39.688	33.338	3.5	3.3	240 000	485 000	1 700	2 200
	196.850	46.038	46.038	38.100	3.5	3.3	315 000	560 000	1 700	2 200
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	1 500	2 000
136.525	190.500	39.688	39.688	33.338	3.5	3.3	216 000	440 000	1 700	2 200
	217.488	47.625	47.625	34.925	3.5	3.3	287 000	495 000	1 500	2 000
139.700	187.325	28.575	29.370	23.020	1.5	1.5	153 000	305 000	1 700	2 200
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	1 500	2 000
	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	1 300	1 800
142.875	200.025	41.275	39.688	34.130	3.5	3.3	227 000	460 000	1 600	2 200
146.050	193.675	28.575	28.575	23.020	1.5	1.5	170 000	355 000	1 600	2 200
	236.538	57.150	56.642	44.450	3.5	3.3	455 000	720 000	1 400	1 900
	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	1 300	1 800
149.225	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	1 300	1 800
152.400	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	1 300	1 800
158.750	225.425	41.275	39.688	33.338	3.5	3.3	240 000	540 000	1 400	1 900
165.100	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	1 300	1 700

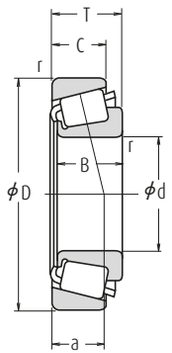
Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone r_a max.	Cup r_a max.					approx.	
CONE	CUP	d_a	d_b	D_a	D_b			a	e	Y_1	Y_0	CONE	CUP
▲JL 724348	**▲JL 724314**	132	127	156	163	3.3	3.3	32.9	0.46	1.3	0.72	1.08	0.591
*** M 224748**	**M 224710**	135	129	163	168	3.5	1.5	32.2	0.33	1.8	0.99	1.9	0.866
48282	**48220**	136	133	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.56	1.14
795	**792**	139	134	186	198	3.3	3.3	45.7	0.46	1.3	0.72	4.44	1.9
48286	**48220**	139	133	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.37	1.14
▲JL 725346	**▲JL 725316**	138	133	161	168	3.3	3.3	34.3	0.48	1.3	0.69	1.19	0.573
LL 225749	**LL 225710**	135	132	158	160	1.5	1.5	24.2	0.33	1.8	0.99	0.647	0.288
48290	**48220**	141	135	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.19	1.14
67388	**67322**	144	138	180	189	3.5	3.3	39.7	0.34	1.7	0.96	3.74	1.46
74500	**74850**	148	141	196	208	3.5	3.3	48.4	0.49	1.2	0.68	4.92	1.99
799	**792**	146	140	186	198	3.3	3.3	45.7	0.46	1.3	0.72	3.86	1.9
797	**792**	148	141	186	198	3.5	3.3	45.7	0.46	1.3	0.72	3.76	1.9
67389	**67320**	146	141	183	191	3.5	3.3	39.7	0.34	1.7	0.96	3.51	2.06
799 A	**792**	148	142	186	198	3.5	3.3	45.7	0.46	1.3	0.72	3.74	1.9
L 327249	**L 327210**	143	141	167	171	1.5	1.5	29.5	0.35	1.7	0.95	1.18	0.55
48385	**48320**	148	142	177	184	3.5	3.3	35.9	0.32	1.9	1.0	2.58	1.16
67390	**67322**	149	143	180	189	3.5	3.3	39.7	0.34	1.7	0.96	3.27	1.46
74525	**74850**	152	146	196	208	3.5	3.3	48.4	0.49	1.2	0.68	4.44	1.99
48393	**48320**	151	144	177	184	3.5	3.3	35.9	0.32	1.9	1.0	2.31	1.16
74537	**74856**	155	148	197	210	3.5	3.3	48.4	0.49	1.2	0.68	4.19	2.13
LM 328448	**LM 328410**	149	147	176	182	1.5	1.5	31.7	0.36	1.7	0.93	1.59	0.67
74550	**74850**	158	151	196	208	3.5	3.3	48.4	0.49	1.2	0.68	3.93	1.99
99550	**99100**	170	156	227	238	7	3.3	55.3	0.41	1.5	0.81	9.99	3.83
48685	**48620**	158	151	185	193	3.5	3.3	37.6	0.34	1.8	0.98	2.63	1.19
36690	**36620**	155	154	182	188	1.5	1.5	33.5	0.37	1.6	0.90	1.64	0.725
HM 231140	**HM 231110**	164	160	217	224	3.5	3.3	45.9	0.32	1.9	1.0	6.07	2.93
99575	**99100**	175	162	227	238	7	3.3	55.3	0.41	1.5	0.81	9.24	3.83
99587	**99100**	178	165	227	238	7	3.3	55.3	0.41	1.5	0.81	8.86	3.83
99600	**99100**	181	167	227	238	7	3.3	55.3	0.41	1.5	0.81	8.46	3.83
46780	**46720**	176	169	209	218	3.5	3.3	44.3	0.38	1.6	0.86	3.69	1.66
67780	**67720**	185	179	229	240	3.5	3.3	52.4	0.44	1.4	0.75	5.83	2.33

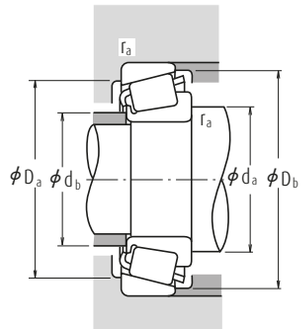
Notes * The maximum bore diameter is listed and its tolerance is negative

▲ The tolerances are listed

Single-Row Tapered Roller Bearings (Inch Design)

Bore Diameter 170.000 – 206.375 mm





Boundary Dimensions (mm)							Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
					Cone	Cup				
d	D	T	B	C	r min.		C_r	C_{0r}	Grease	Oil
170.000	230.000	39.000	38.000	31.000	3.0	2.5	278 000	520 000	1 300	1 800
	240.000	46.000	44.500	37.000	3.0	2.5	380 000	720 000	1 300	1 800
174.625	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	1 300	1 700
177.800	227.012	30.162	30.162	23.020	1.5	1.5	181 000	415 000	1 300	1 800
	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	1 300	1 700
	260.350	53.975	53.975	41.275	3.5	3.3	455 000	835 000	1 200	1 700
190.000	260.000	46.000	44.000	36.500	3.0	2.5	370 000	730 000	1 100	1 600
190.500	266.700	47.625	46.833	38.100	3.5	3.3	345 000	720 000	1 100	1 500
200.000	300.000	65.000	62.000	51.000	3.5	2.5	615 000	1 130 000	1 000	1 400
203.200	282.575	46.038	46.038	36.512	3.5	3.3	365 000	800 000	1 000	1 400
206.375	282.575	46.038	46.038	36.512	3.5	3.3	365 000	800 000	1 000	1 400

Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)	
						Cone	Cup					approx.	
CONE	CUP	d_a	d_b	D_a	D_b	r_a max.		a	e	Y_1	Y_0	CONE	CUP
▲JHM 534149	**▲JHM 534110**	184	178	217	224	3	2.5	43.2	0.38	1.6	0.86	3.1	1.3
▲JM 734449	**▲JM 734410**	185	180	222	232	3	2.5	50.5	0.44	1.4	0.75	4.42	2.02
67787	**67720**	192	185	229	240	3.5	3.3	52.4	0.44	1.4	0.75	4.88	2.33
36990	**36920**	189	186	214	221	1.5	1.5	42.9	0.44	1.4	0.75	2.1	0.907
67790	**67720**	194	188	229	240	3.5	3.3	52.4	0.44	1.4	0.75	4.56	2.33
M 236849	**M 236810**	195	192	241	249	3.5	3.3	47.5	0.33	1.8	0.99	6.49	2.86
▲JM 738249	**▲JM 738210**	206	200	242	252	3	2.5	56.4	0.48	1.3	0.69	4.73	2.2
67885	**67820**	209	203	246	259	3.5	3.3	57.9	0.48	1.3	0.69	5.4	2.64
▲JHM 840449	**▲JHM 840410**	223	215	273	289	3.5	2.5	73.1	0.52	1.2	0.63	10.3	5.19
67983	**67920**	222	216	260	275	3.5	3.3	61.9	0.51	1.2	0.65	6.03	2.82
67985	**67920**	224	219	260	275	3.5	3.3	61.9	0.51	1.2	0.65	5.66	2.82

Note ▲ The tolerances are listed

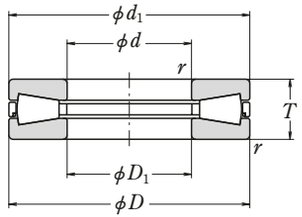
OID MECHANICAL PARTS BEARINGS



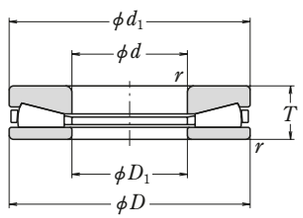
Trust Tapered Roller Bearings

Thrust Tapered Roller Bearings

TT, TTF Types
Bore Diameter 101.600 – 168.275 mm



TT



TTF

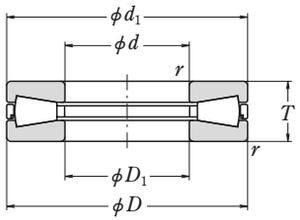
Boundary Dimensions (mm/inch)				Basic Load Ratings (kN)		Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	
101.600	215.900	46.038	3.3	710	2 900	*101TT2151
4.0000	8.5000	1.8125	3.3	710	2 900	*101TT2151
111.760	223.520	55.880	3.3	790	2 920	*111TT2251
4.4000	8.8000	2.2000	3.3	790	2 920	*111TT2251
114.300	250.825	53.975	4.0	970	4 100	*114TT2551
4.5000	9.8750	2.1250	4.0	970	4 100	*114TT2551
127.000	266.700	58.738	4.8	1 040	4 350	*127TT2551
5.0000	10.5000	2.3125	4.8	1 040	4 350	*127TT2551
	266.700	58.738	4.8	1 030	4 500	*127TTF2651
	10.5000	2.3125	4.8	1 030	4 500	*127TTF2651
128.575	265.100	63.500	6.4	1 040	4 350	*128TT2651
5.0620	10.4370	2.5000	6.4	1 040	4 350	*128TT2651
130	250	70	2.1	1 100	4 100	130TTF2501
135	245	65	2.1	855	3 100	135TT2401
150	300	90	5	1 470	6 300	150TTF3001
152.400	317.500	69.850	6.4	1 470	6 330	*152TTF3151
6.0000	12.5000	2.7500	6.4	1 470	6 300	*152TTF3151
	317.500	69.850	6.4	1 550	6 700	*152TT3152
	12.2500	2.7500	6.4	1 550	6 700	*152TT3152
165.100	311.150	88.900	6.4	1 560	5 250	*165TT3151
6.5000	12.2500	3.5000	6.4	1 560	5 250	*165TT3151
168.275	304.800	69.850	6.4	1 230	5 000	*168TTF3051
6.6250	12.0000	2.7500	6.4	1 230	5 000	*168TTF3051

Dimensions (mm)		Corner Radius of Shaft or Housing	Mass (kg)
D_1	d_1	r_a	approx.
103.200	214.300	3.3	8.9
103.200	214.300	3.3	8.9
113.300	221.900	3.3	11.2
113.300	221.900	3.3	11.2
114.500	250.825	4.0	14.4
114.500	250.825	4.0	14.4
128.600	265.100	4.8	17.3
128.600	265.100	4.8	17.3
128.600	265.100	4.8	17.3
128.600	265.100	4.8	17.3
128.900	265.100	6.4	18.2
128.900	265.100	6.4	18.2
130.3	250	2	17
135.3	245	2	14.5
152	306	4	34.2
152.700	315.900	6.4	28.9
152.700	315.900	6.4	28.9
152.400	317.500	6.4	28.9
152.400	317.500	6.4	28.9
165.400	311.150	6.4	33
165.400	311.150	6.4	33
169.000	302.500	6.4	24.1
169.000	302.500	6.4	24.1

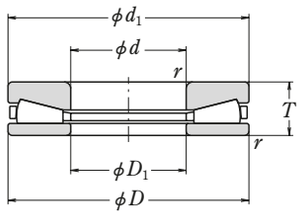
Note * Bearings marked * are inch design.

Thrust Tapered Roller Bearings

TT, TTF Types
Bore Diameter 170 – 241.300 mm



TT



TTF

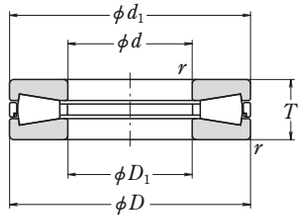
Boundary Dimensions (mm/inch)				Basic Load Ratings (kN)		Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	
170	320	100	5	1 650	5 550	**170TT3201**
174.625	358.775	82.550	6.4	1 740	7 400	***174TT3551**
6.8750	14.1250	3.2500	6.4	1 740	7 400	***174TT3551**
	358.775	82.550	6.4	1 740	7 400	***174TTF3551**
	14.1250	3.2500	6.4	1 740	7 400	***174TTF3551**
177.800	368.300	82.550	8.0	1 900	8 250	***177TT3651**
7.0000	14.5000	3.2500	8.0	1 900	8 250	***177TT3651**
203.200	419.100	92.075	9.7	2 530	11 300	***203TT4151**
8.0000	16.5000	3.6250	9.7	2 530	11 300	***203TT4151**
	419.100	92.075	9.7	2 530	11 300	***203TTF4153A**
	16.5000	3.6250	9.7	2 530	11 300	***203TTF4153A**
	419.100	120.650	9.7	2 530	11 300	***203TT4152**
	16.5000	4.7500	9.7	2 530	11 300	***203TT4152**
	419.100	120.650	9.7	2 530	11 300	***203TTF4152**
	16.5000	4.7500	9.7	2 530	11 300	***203TTF4152**
206.375	419.100	120.370	C10	2 590	11 700	***206TT4151**
8.1250	16.5000	4.7390	C10	2 590	11 700	***206TT4151**
228.600	482.600	104.775	11.2	3 350	16 400	***228TT4851**
9.0000	19.0000	4.1250	11.2	3 350	16 400	***228TT4851**
	482.600	104.775	11.2	3 350	16 400	***228TTF4851**
	19.0000	4.1250	11.2	3 350	16 400	***228TTF4851**
234.950	546.100	127.000	15.9	4 600	21 400	***234TT5451**
9.2500	21.5000	5.0000	15.9	4 600	21 400	***234TT5451**
241	404	110	4	2 200	8 650	**241TTF4002**
241.300	496.888	129.000	C8	3 450	16 700	***241TT4952**
9.5000	19.5625	5.0787	C8	3 450	16 700	***241TT4952**

Dimensions (mm)		Corner Radius of Shaft or Housing	Mass (kg)
D_1	d_1	r_a	approx.
170.5	320	4	39.3
174.625	358.775	6.4	43.3
174.625	358.775	6.4	43.3
174.625	358.775	6.4	43.3
174.625	358.775	6.4	43.3
180.400	365.800	8.0	45.9
180.400	365.800	8.0	45.9
205.600	416.700	9.7	66.1
205.600	416.700	9.7	66.1
203.200	419.100	9.7	66.1
203.200	419.100	9.7	66.1
205.600	416.700	9.7	86.6
205.600	416.700	9.7	86.6
205.600	416.700	9.7	86.6
205.600	416.700	9.7	86.6
206.375	419.100	6	85.5
206.375	419.100	6	85.5
228.900	482.600	11.2	101
228.900	482.600	11.2	101
230.600	480.600	11.2	101
230.600	480.600	11.2	101
237.000	544.000	15.9	165
237.000	544.000	15.9	165
241	404	3	61.8
241.300	496.888	5	130
241.300	496.888	5	130

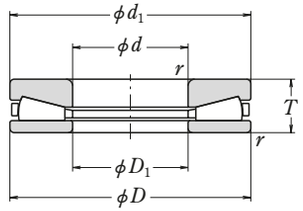
Note * Bearings marked * are inch design.

Thrust Tapered Roller Bearings

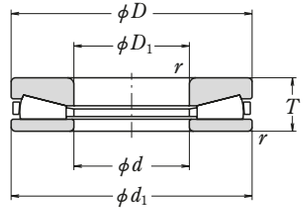
TT, TTF Types
Bore Diameter 254.000 – 600 mm



TT



TTF



TTF-1

Boundary Dimensions (mm/inch)				Basic Load Ratings (kN)		Bearing Numbers
d	D	T	r min.	C_a	C_{0a}	
254.000	539.750	117.475	11.2	3 950	18 600	*254TTF5351
10.0000	21.2500	4.6250	11.2	3 950	18 600	*254TTF5351
260	360	75	2.1	1 110	1 110	260TTF3601
273.050	552.450	133.350	C8	4 400	20 700	*273TT5551
10.7500	21.7500	5.2500	C8	4 400	20 700	*273TT5551
279.400	603.250	136.525	11.2	5 400	25 200	*279TT6051
11.0000	23.7500	5.3750	11.2	5 400	25 200	*279TT6051
330	440	85	3	1 300	6 300	330TTF4401
340	460	96	3	1 690	7 750	340TTF4603
350	460	85	2	1 370	6 600	350TTF4602A(1)
360	470	85	4	1 440	6 950	360TTF4701
360	600	120	4	3 700	20 100	360TTF6201
380	550	110	4	2 760	12 100	380TTF5501
406.400	711.200	146.050	9.7	5 900	28 600	*406TT7151
16.0000	28.0000	5.7500	9.7	5 900	28 600	*406TT7151
	838.200	177.800	12.7	8 950	46 500	*406TT8351
	33.0000	7.0000	12.7	8 950	46 500	*406TT8351
431.800	863.600	228.600	10.4	15 100	69 500	*431TTF8651
17.0000	34.0000	9.0000	10.4	15 100	69 500	*431TTF8651
440	600	105	4	2 720	13 900	440TTF6001
450	570	100	3	2 170	10 500	450TTF5701
460	580	90	3	1 890	9 550	460TTF5801
500	630	82	3	2 020	11 600	500TTF6301
508	730.25	120.65	6	4 900	26 100	508TT7301
508.000	990.600	196.850	12.7	12 000	65 000	*508TT9951
20.0000	39.0000	7.7500	12.7	12 000	65 000	*508TT9951
558	780	120	9.5	4 800	25 500	558TT7801
558.800	1 066.800	285.750	10.4	21 100	94 500	*558TTF1051
22.0000	42.0000	11.2500	10.4	21 100	94 500	*558TTF1051
560	670	85	3	1 950	10 700	560TTF6701
600	710	86	3	1 900	10 700	600TTF7101

Dimensions (mm)		Corner Radius of Shaft or Housing	Mass (kg)
D_1	d_1	r_a	approx.
254.000	539.750	11.2	142
254.000	539.750	11.2	142
260.3	360	2	24.8
273.050	552.450	5	164
273.050	552.450	5	164
279.700	603.250	11.2	208
279.700	603.250	11.2	208
331	440	2.5	38.5
340	460	2.5	49.2
351	450	2	40.4
360.4	470	3	41.4
366	620	3	148
381	550	3	92.9
406.800	711.200	9.7	266
406.800	711.200	9.7	266
406.800	837.800	12.7	510
406.800	837.800	12.7	510
435.000	862.000	10.4	683
435.000	862.000	10.4	683
440	600	3	93.3
455	569	2.5	65.4
465	579	2.5	60
505	628	2.5	64.3
509	730.25	5	177
508.000	990.600	12.7	760
508.000	990.600	12.7	760
558	780	8	190
561.980	1 065.219	10.4	1 260
561.980	1 065.219	10.4	1 260
565	668	2.5	61.4
604	710	2.5	66.2

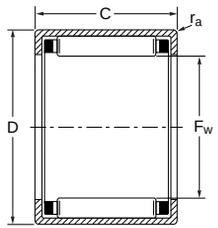
Note * Bearings marked * are inch design.

(1) For this bearing, the dimensional symbols are defined by Figure TTF-1.

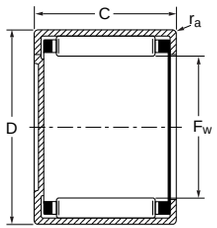
OID Mechanical Parts Bearings



Needle Roller Bearings



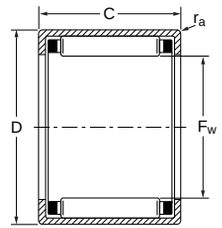
Open End - HK



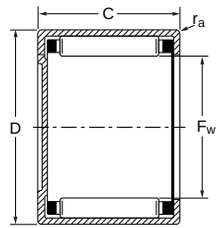
Closed End - BK

Basic Dimensions			Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F_w mm	D mm	C -0.3	r_a max	Dynamic C kN	Static C_0 kN	r/min	Open end	Open end g	Closed end	Closed end g
4	8	8	0.3	1.691	1.245	36900	HK 0408	2.0	BK 0408	2.1
5	9	9	0.4	2.280	1.891	34200	HK 0509	2.0	BK 0509	2.1
6	10	8	0.4	1.929	1.568	31500	HK 0608	2.1	-	-
6	10	9	0.4	2.708	2.470	31500	HK 0609	2.5	BK 0609	2.6
7	11	9	0.4	2.945	2.803	27900	HK 0709	2.6	BK 0709	2.9
8	12	8	0.4	2.613	2.470	25200	HK 0808	2.7	BK 0808	3.0
8	12	10	0.4	3.610	3.753	25200	HK 0810	3.0	BK 0810	3.4
9	13	8	0.4	3.373	3.563	22500	HK 0908	3.0	-	-
9	13	10	0.4	4.038	4.418	22500	HK 0910	4.0	BK 0910	4.3
9	13	12	0.4	5.035	5.985	22500	HK 0912	4.6	BK 0912	4.9
10	14	10	0.4	4.180	4.845	20700	HK 1010	4.1	BK 1010	4.3
10	14	12	0.4	5.225	6.460	20700	HK 1012	4.8	BK 1012	5.0
10	14	15	0.4	6.460	8.360	20700	HK 1015	6.0	BK 1015	6.2
12	16	10	0.4	4.703	5.890	18000	HK 1210	4.6	BK 1210	5.2
12	18	12	0.8	6.175	6.935	17100	HK 1212	9.0	BK 1212	10.0
13	19	12	0.8	6.460	7.505	16200	HK 1312	10.0	BK 1312	11.0
14	20	12	0.8	6.745	8.075	14400	HK 1412	10.5	BK 1412	12.0
15	21	12	0.8	7.505	8.930	14400	HK 1512	11.0	BK 1512	13.0
15	21	16	0.8	9.975	13.680	14400	HK 1516	15.0	BK 1516	17.0
15	21	22	0.8	12.730	18.525	14400	HK 1522	20.0	-	-
16	22	12	0.8	7.220	9.215	13500	HK 1612	12.0	BK 1612	14.0
16	22	16	0.8	10.355	14.535	13500	HK 1616	16.0	BK 1616	18.0
16	22	22	0.8	12.445	18.430	13500	HK 1622	22.0	BK 1622	24.0
17	23	12	0.8	7.505	9.785	12600	HK 1712	12.0	-	-
18	24	12	0.8	7.695	10.355	11700	HK 1812	13.0	BK 1812	15.0
18	24	16	0.8	11.020	16.435	11700	HK 1816	18.0	BK 1816	20.0
20	26	10	0.8	6.080	7.790	10800	HK 2010	12.0	-	-
20	26	12	0.8	8.170	11.495	10800	HK 2012	14.0	-	-
20	26	16	0.8	12.065	19.095	10800	HK 2016	19.0	BK 2016	22.0
20	26	20	0.8	14.915	24.700	10800	HK 2020	24.0	BK 2020	27.0
20	26	30	0.8	20.710	38.000	10800	HK 2030	35.0	-	-
22	28	10	0.8	7.125	9.975	9900	HK 2210	13.0	-	-

Drawn Cup Needle Roller Bearings



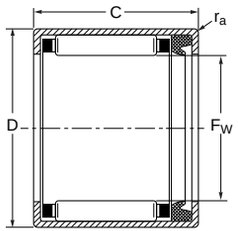
Open End - HK



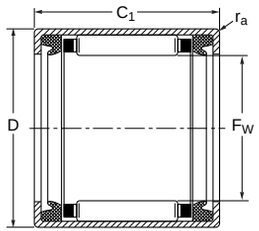
Closed End - BK

Basic Dimensions			Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F_w mm	D mm	C -0.3	r_a max	Dynamic C kN	Static C_0 kN	r/min	Open End	Open End g	Closed End	Closed End g
22	28	12	0.8	8.645	12.730	9900	HK 2212	15.0	BK 2212	18.0
22	28	16	0.8	12.730	20.995	9900	HK 2216	21.0	BK 2216	24.0
22	28	20	0.8	15.675	27.550	9900	HK 2220	26.0	-	-
25	32	12	0.8	10.450	14.440	9000	HK 2512	20.0	-	-
25	32	16	0.8	14.820	22.800	9000	HK 2516	27.0	-	-
25	32	20	0.8	18.905	31.350	9000	HK 2520	33.0	BK 2520	38.0
25	32	26	0.8	24.225	42.750	9000	HK 2526	44.0	BK 2526	48.0
25	32	38	0.8	32.300	62.700	9000	HK 2538	64.0	BK 2538	68.0
28	35	16	0.8	15.580	25.175	8100	HK 2816	29.0	-	-
28	35	20	0.8	19.855	34.200	8100	HK 2820	36.0	-	-
30	37	12	0.8	11.495	17.290	7650	HK 3012	23.0	BK 3012	28.0
30	37	16	0.8	16.340	27.550	7650	HK 3016	31.0	BK 3016	38.0
30	37	20	0.8	20.900	37.525	7650	HK 3020	39.0	BK 3020	47.0
30	37	26	0.8	26.600	51.300	7650	HK 3026	51.0	BK 3026	58.0
30	37	38	0.8	35.625	75.050	7650	HK 3038	76.0	BK 3038	84.0
35	42	12	0.8	12.445	20.235	6750	HK 3512	27.0	-	-
35	42	16	0.8	17.765	31.825	6750	HK 3516	36.0	-	-
35	42	20	0.8	22.610	43.700	6750	HK 3520	44.0	BK 3520	53.0
40	47	12	0.8	13.300	23.085	5850	HK 4012	30.0	-	-
40	47	16	0.8	19.000	36.575	5850	HK 4016	39.0	-	-
40	47	20	0.8	24.225	49.400	5850	HK 4020	54.0	BK 4020	62.0
45	52	12	0.8	14.155	26.125	5400	HK 4512	33.0	-	-
45	52	16	0.8	20.235	40.850	5400	HK 4516	46.0	-	-
45	52	20	0.8	25.650	56.050	5400	HK 4520	56.0	BK 4520	72.0
50	58	20	0.8	29.450	59.850	4500	HK 5020	70.0	-	-
50	58	25	0.8	36.575	79.800	4500	HK 5025	90.0	-	-
55	63	20	0.8	29.925	63.650	4230	HK 5520	74.0	-	-
55	63	28	0.8	41.800	97.850	4230	HK 5528	105.0	-	-
60	68	12	0.8	16.530	30.400	3960	HK 6012	49.0	-	-
60	68	20	0.8	31.825	71.250	3960	HK 6020	81.0	-	-
60	68	32	0.8	50.350	128.250	3960	HK 6032	136.0	-	-

Drawn Cup Needle Roller Bearings, Open End with Seals



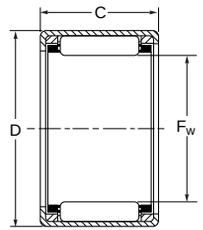
Open end with 1 side seal
- HK..RS



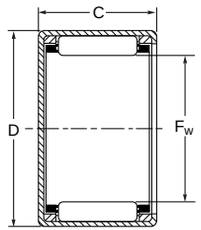
Open end with 2 side seals
- HK..2RS

Basic Dimensions				Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F_w mm	D mm	C -0.3	C_1 -0.3	r_a max	Dynamic C kN	Static C_0 kN	Grease r/min	Open end with 1 side seals	Open end with 1 side seals g	Open end with 2 side seals	Open end with 2 side seals g
8	12	10	12	0.4	2.750	2.600	20000	HK 0810 RS	3.0	HK 0812.2RS	3.3
10	14	12	14	0.4	4.400	5.100	17000	HK 1012 RS	4.2	HK 1014.2RS	4.6
12	18	14	16	0.8	6.500	7.300	14000	HK 1214 RS	10.0	HK 1216.2RS	11.0
14	20	14	16	0.8	7.100	8.500	12000	HK 1414 RS	12.0	HK 1416.2RS	13.0
15	21	14	16	0.8	7.800	9.800	11000	HK 1514 RS	12.0	HK 1516.2RS	15.0
15	21	18	20	0.8	10.500	14.400	11000	HK 1518 RS	16.0	HK 1520.2RS	18.0
16	22	14	16	0.8	7.600	9.700	11000	HK 1614 RS	13.0	HK 1616.2RS	14.0
16	22	-	20	0.8	10.900	15.300	11000	-	-	HK 1620.2RS	18.0
18	24	14	16	0.8	8.100	10.900	9500	HK 1814 RS	14.0	HK 1816.2RS	15.0
20	26	-	16	0.8	8.600	12.100	8500	-	-	HK 2016.2RS	18.0
20	26	18	20	0.8	12.700	20.100	8500	HK 2018 RS	21.0	HK 2020.2RS	23.0
22	28	14	16	0.8	9.100	13.400	8000	HK 2214 RS	16.0	HK 2216.2RS	18.0
22	28	18	20	0.8	13.400	22.100	8000	HK 2218 RS	24.0	HK 2220.2RS	26.0
25	32	-	16	0.8	11.000	15.200	7000	-	-	HK 2516.2RS	27.0
25	32	18	20	0.8	15.600	24.000	7000	HK 2518 RS	29.0	HK 2520.2RS	31.0
25	32	-	24	0.8	19.900	33.000	7000	-	-	HK 2524.2RS	40.0
25	32	-	30	0.8	25.500	45.000	7000	-	-	HK 2530.2RS	47.0
28	35	18	20	0.8	16.400	26.500	6000	HK 2818 RS	31.0	HK 2820.2RS	34.0
30	37	-	16	0.8	12.100	18.200	6000	-	-	HK 3016.2RS	31.0
30	37	18	20	0.8	17.200	29.000	6000	HK 3018 RS	37.0	HK 3020.2RS	36.0
30	37	-	24	0.8	22.000	39.500	6000	-	-	HK 3024.2RS	44.0
35	42	-	16	0.8	13.100	21.300	5000	-	-	HK 3516.2RS	32.0
35	42	18	20	0.8	18.700	33.500	5000	HK 3518 RS	39.0	HK 3520.2RS	41.0
40	47	-	16	0.8	14.000	24.300	4500	-	-	HK 4016.2RS	37.0
40	47	18	20	0.8	20.000	38.500	4500	HK 4018 RS	45.0	HK 4020.2RS	48.0
45	52	18	20	0.8	21.300	43.000	4000	HK 4518 RS	50.0	HK 4520.2RS	54.0
50	58	22	24	0.8	31.000	63.000	3600	HK 5022 RS	76.0	HK 5024.2RS	81.0

Drawn Cup Needle Roller Bearings - Inch Sizes



BA..Z

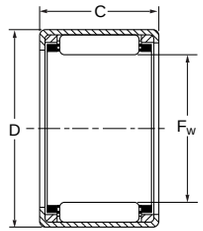


BAM

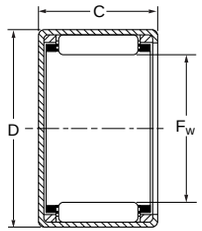
Basic Dimensions						Basic Load Ratings		Designation	Mass
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Open End BA...Z	Closed End g
1/4	6.350	7/16	11.112	1/4	6.35	1.323	0.970	BA 44 Z	2.1
1/4	6.350	7/16	11.112	5/16	7.92	1.323	0.970	BA 45 Z	2.5
1/4	6.350	7/16	11.112	7/16	11.13	2.381	2.117	BA 47 Z	3.5
5/16	7.938	1/2	12.700	5/16	7.92	1.676	1.411	BA 55 Z	3.0
5/16	7.938	1/2	12.700	3/8	9.52	2.381	2.117	BA 56 Z	3.6
5/16	7.938	1/2	12.700	7/16	11.13	2.999	2.911	BA 57 Z	4.3
5/16	7.938	1/2	12.700	9/16	14.27	3.793	3.881	BA 59 Z	5.4
3/8	9.525	9/16	14.288	5/16	7.92	2.029	1.852	BA 65 Z	3.5
3/8	9.525	9/16	14.288	3/8	9.52	2.822	2.734	BA 66 Z	4.2
3/8	9.525	9/16	14.288	1/2	12.70	3.793	4.145	BA 68 Z	5.7
3/8	9.525	9/16	14.288	9/16	14.27	4.410	5.027	BA 69 Z	6.3
3/8	9.525	9/16	14.288	5/8	15.88	5.116	5.998	BA 610 Z	7.0
7/16	11.112	5/8	15.875	3/8	9.52	2.999	3.087	BA 76 Z	4.8
7/16	11.112	5/8	15.875	7/16	11.13	3.704	4.234	BA 77 Z	5.6
7/16	11.112	5/8	15.875	1/2	12.70	3.969	4.586	BA 78 Z	6.4
7/16	11.112	5/8	15.875	5/8	15.88	5.380	6.791	BA 710 Z	7.9
1/2	12.700	11/16	17.462	5/16	7.92	2.205	2.293	BA 85 Z	4.4
1/2	12.700	11/16	17.462	3/8	9.52	3.087	3.440	BA 86 Z	5.3
1/2	12.700	11/16	17.462	7/16	11.13	3.969	4.675	BA 87 Z	6.3
1/2	12.700	11/16	17.462	1/2	12.70	4.234	5.116	BA 88 Z	7.2
1/2	12.700	11/16	17.462	5/8	15.88	5.733	7.497	BA 810 Z	8.9
1/2	12.700	11/16	17.462	3/4	19.05	7.056	9.878	BA 812 Z	10.6
9/16	14.288	3/4	19.050	5/16	7.92	2.470	2.646	BA 95 Z	4.9
9/16	14.288	3/4	19.050	3/8	9.52	3.440	4.057	BA 96 Z	5.9
9/16	14.288	3/4	19.050	7/16	11.13	4.410	5.557	BA 97 Z	6.9
9/16	14.288	3/4	19.050	1/2	12.70	4.675	6.086	BA 98 Z	7.9
9/16	14.288	3/4	19.050	5/8	15.88	6.350	8.908	BA 910 Z	9.9
9/16	14.288	3/4	19.050	3/4	19.05	7.850	11.642	BA 912 Z	11.7
5/8	15.875	13/16	20.638	5/16	7.92	2.558	2.911	BA 105 Z	5.3
5/8	15.875	13/16	20.638	7/16	11.13	4.498	5.998	BA 107 Z	7.6
5/8	15.875	13/16	20.638	1/2	12.70	4.851	6.527	BA 108 Z	8.7
5/8	15.875	13/16	20.638	5/8	15.88	6.615	9.702	BA 1010 Z	10.8

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 44	2.3	SCE 44	BCE 44
BAM 45	2.7	SCE 45	BCE 45
BAM 47	3.7	SCE 47	BCE 47
BAM 55	3.3	SCE 55	BCE 55
BAM 56	3.9	-	-
BAM 57	4.6	SCE 57	BCE 57
BAM 59	5.7	SCE 59	BCE 59
BAM 65	3.9	SCE 65	BCE 65
BAM 66	4.6	SCE 66	BCE 66
BAM 68	6.1	SCE 68	BCE 68
BAM 69	6.7	SCE 69	BCE 69
BAM 610	7.4	SCE 610	BCE 610
BAM 76	5.3	-	-
BAM 77	6.2	-	-
BAM 78	7.0	SCE 78	BCE 78
BAM 710	8.5	SCE 710	BCE 710
BAM 85	5.2	SCE 85	BCE 85
BAM 86	6.1	SCE 86	BCE 86
BAM 87	7.0	SCE 87	BCE 87
BAM 88	7.9	SCE 88	BCE 88
BAM 810	9.6	SCE 810	BCE 810
BAM 812	11.3	SCE 812	BCE 812
BAM 95	5.8	SCE 95	BCE 95
BAM 96	6.8	SCE 96	BCE 96
BAM 97	7.8	SCE 97	BCE 97
BAM 98	8.9	SCE 98	BCE 98
BAM 910	10.8	SCE 910	BCE 910
BAM 912	12.6	SCE 912	BCE 912
BAM 105	6.5	SCE 105	BCE 105
BAM 107	8.7	SCE 107	BCE 107
BAM 108	9.9	SCE 108	BCE 108
BAM 1010	12.0	SCE 1010	BCE 1010

Drawn Cup Needle Roller Bearings - Inch Sizes



BA..Z

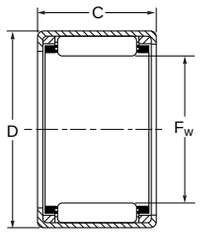


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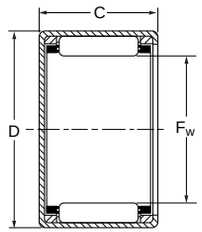
Basic Dimensions						Basic Load Ratings		Designation	Mass
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Open End BA...Z	Closed End g
5/8	15.875	13/16	20.638	3/4	19.05	8.114	12.613	BA 1012 Z	12.9
5/8	15.875	13/16	20.638	7/8	22.22	9.614	15.788	BA 1014 Z	15.1
5/8	15.875	13/16	20.638	1	25.40	11.025	18.787	BA 1016 Z	17.3
11/16	17.462	7/8	22.225	3/8	9.52	4.057	5.380	BA 116 Z	7.0
11/16	17.462	7/8	22.225	1/2	12.70	5.557	7.938	BA 118 Z	9.5
11/16	17.462	7/8	22.225	5/8	15.88	7.409	11.731	BA 1110 Z	11.8
11/16	17.462	7/8	22.225	3/4	19.05	9.173	15.347	BA 1112 Z	14.0
3/4	19.050	1	25.400	3/8	9.52	4.498	5.292	BA 126 Z	10.0
3/4	19.050	1	25.400	1/2	12.70	6.174	7.850	BA 128 Z	13.5
3/4	19.050	1	25.400	5/8	15.88	8.555	11.907	BA 1210 Z	17.0
3/4	19.050	1	25.400	3/4	19.05	10.760	15.876	BA 1212 Z	20.5
3/4	19.050	1	25.400	7/8	22.22	12.789	19.933	BA 1214 Z	23.5
3/4	19.050	1	25.400	1	25.40	14.641	23.814	BA 1216 Z	27.0
13/16	20.638	1 1/16	26.988	3/8	9.52	4.675	5.645	BA 136 Z	10.7
13/16	20.638	1 1/16	26.988	1/2	12.70	6.439	8.467	BA 138 Z	14.5
13/16	20.638	1 1/16	26.988	5/8	15.88	8.908	12.789	BA 1310 Z	18.2
13/16	20.638	1 1/16	26.988	3/4	19.05	11.113	17.111	BA 1312 Z	22.0
13/16	20.638	1 1/16	26.988	7/8	22.22	13.230	21.433	BA 1314 Z	25.0
13/16	20.638	1 1/16	26.988	1	25.40	15.259	25.666	BA 1316 Z	28.5
13/16	20.638	1 1/16	26.988	1 1/4	31.75	19.051	34.310	BA 1320 Z	35.5
7/8	22.225	1 1/8	28.575	3/8	9.52	4.851	6.086	BA 146 Z	11.5
7/8	22.225	1 1/8	28.575	1/2	12.70	6.703	9.085	BA 148 Z	15.6
7/8	22.225	1 1/8	28.575	3/4	19.05	11.554	18.346	BA 1412 Z	23.5
7/8	22.225	1 1/8	28.575	7/8	22.22	13.759	22.932	BA 1414 Z	27.0
7/8	22.225	1 1/8	28.575	1	25.40	15.788	27.430	BA 1416 Z	31.0
7/8	22.225	1 1/8	28.575	1 1/8	28.58	17.816	32.017	BA 1418 Z	34.5
7/8	22.225	1 1/8	28.575	1 3/8	34.92	21.609	41.101	BA 1422 Z	42.5
15/16	23.812	1 3/16	30.162	1/2	12.70	7.232	10.231	BA 158 Z	16.5
15/16	23.812	1 3/16	30.162	5/8	15.88	9.878	15.435	BA 1510 Z	20.5
15/16	23.812	1 3/16	30.162	1	25.40	17.023	30.870	BA 1516 Z	33.0
1	25.400	1 1/4	31.750	3/8	9.52	5.380	7.232	BA 166 Z	13.1
1	25.400	1 1/4	31.750	7/16	11.13	6.968	9.967	BA 167 Z	15.4

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 1012	14.0	SCE 1012	BCE 1012
BAM 1014	16.2	-	-
BAM 1016	18.4	-	-
BAM 116	8.4	SCE 116	BCE 116
BAM 118	10.8	SCE 118	BCE 118
BAM 1110	13.2	SCE 1110	BCE 1110
BAM 1112	15.4	SCE 1112	BCE 1112
BAM 126	11.7	SCE 126	BCE 126
BAM 128	15.2	SCE 128	BCE 128
BAM 1210	18.6	SCE 1210	BCE 1210
BAM 1212	22.0	SCE 1212	BCE 1212
BAM 1214	25.0	-	-
BAM 1216	28.5	-	-
BAM 136	12.6	SCE 136	BCE 136
BAM 138	16.4	SCE 138	BCE 138
BAM 1310	20.0	-	-
BAM 1312	23.5	SCE 1312	BCE 1312
BAM 1314	27.0	SCE 1314	BCE 1314
BAM 1316	30.5	-	-
BAM 1320	37.5	-	-
BAM 146	13.8	SCE 146	BCE 146
BAM 148	17.8	SCE 148	BCE 148
BAM 1412	26.0	SCE 1412	BCE 1412
BAM 1414	29.5	-	-
BAM 1416	33.5	SCE 1416	BCE 1416
BAM 1418	37.0	-	-
BAM 1422	44.5	-	-
BAM 158	19.0	-	-
BAM 1510	23.0	-	-
BAM 1516	35.5	SCE 1516	BCE 1516
BAM 166	16.0	-	-
BAM 167	18.3	SCE 167	BCE 167

Drawn Cup Needle Roller Bearings - Inch Sizes



BA..Z

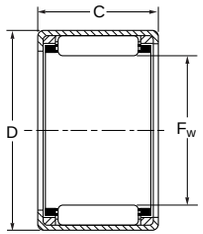


BAM

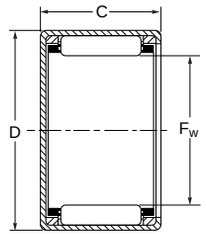
Basic Dimensions						Basic Load Ratings		Designation	Mass
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Open End BA...Z	Closed End g
1	25.400	1 1/4	31.750	1/2	12.70	7.409	10.849	BA 168 Z	17.7
1	25.400	1 1/4	31.750	5/8	15.88	10.231	16.317	BA 1610 Z	22.0
1	25.400	1 1/4	31.750	3/4	19.05	12.789	21.785	BA 1612 Z	26.5
1	25.400	1 1/4	31.750	7/8	22.22	15.259	27.342	BA 1614 Z	31.0
1	25.400	1 1/4	31.750	1	25.40	17.464	32.634	BA 1616 Z	35.5
1	25.400	1 1/4	31.750	1 1/4	31.75	21.874	43.659	BA 1620 Z	44.0
11/16	26.988	1 5/16	33.338	5/8	15.88	10.496	17.199	BA 1710 Z	23.5
11/16	26.988	1 5/16	33.338	1	25.40	17.993	34.398	BA 1716 Z	37.0
1 1/8	28.575	1 3/8	34.925	3/8	9.52	5.733	8.026	BA 186 Z	14.5
1 1/8	28.575	1 3/8	34.925	1/2	12.70	7.762	11.995	BA 188 Z	19.5
1 1/8	28.575	1 3/8	34.925	3/4	19.05	13.495	24.255	BA 1812 Z	29.5
1 1/8	28.575	1 3/8	34.925	1	25.40	18.434	36.250	BA 1816 Z	39.0
1 1/8	28.575	1 3/8	34.925	1 1/4	31.75	23.108	48.422	BA 1820 Z	48.5
1 3/16	30.162	1 1/2	38.100	5/8	15.88	13.495	20.286	BA 1910 Z	32.5
1 3/16	30.162	1 1/2	38.100	1	25.40	23.197	40.748	BA 1916 Z	52.0
1 1/4	31.750	1 1/2	38.100	1/2	12.70	8.203	13.230	BA 208 Z	21.5
1 1/4	31.750	1 1/2	38.100	5/8	15.88	11.290	19.933	BA 2010 Z	27.0
1 1/4	31.750	1 1/2	38.100	3/4	19.05	14.112	26.636	BA 2012 Z	32.5
1 1/4	31.750	1 1/2	38.100	1	25.40	19.316	39.866	BA 2016 Z	43.0
1 1/4	31.750	1 1/2	38.100	1 1/4	31.75	24.255	53.273	BA 2020 Z	53.5
1 5/16	33.338	1 5/8	41.275	1/2	12.70	9.967	14.200	BA 218 Z	28.5
1 5/16	33.338	1 5/8	41.275	5/8	15.88	13.847	21.521	BA 2110 Z	35.5
1 5/16	33.338	1 5/8	41.275	3/4	19.05	17.375	28.841	BA 2112 Z	43.0
1 3/8	34.925	1 5/8	41.275	1/2	12.70	8.820	14.994	BA 228 Z	23.5
1 3/8	34.925	1 5/8	41.275	3/4	19.05	15.170	30.164	BA 2212 Z	35.5
1 3/8	34.925	1 5/8	41.275	1	25.40	20.727	45.158	BA 2216 Z	47.5
1 3/8	34.925	1 5/8	41.275	1 1/4	31.75	26.019	60.329	BA 2220 Z	59.0
1 1/2	38.100	1 7/8	47.625	1/2	12.70	11.642	16.052	BA 248 Z	38.5
1 1/2	38.100	1 7/8	47.625	5/8	15.88	16.052	24.431	BA 2410 Z	48.5
1 1/2	38.100	1 7/8	47.625	3/4	19.05	20.286	32.987	BA 2412 Z	58.5
1 1/2	38.100	1 7/8	47.625	7/8	22.22	23.990	41.013	BA 2414 Z	69.0
1 1/2	38.100	1 7/8	47.625	1	25.40	27.959	49.833	BA 2416 Z	79.0

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 168	20.5	SCE 168	BCE 168
BAM 1610	25.0	-	-
BAM 1612	29.5	SCE 1612	BCE 1612
BAM 1614	33.5	-	-
BAM 1616	38.0	SCE 1616	BCE 1616
BAM 1620	46.5	-	-
BAM 1710	26.5	-	-
BAM 1716	40.5	-	-
BAM 186	18.1	SCE 186	BCE 186
BAM 188	23.0	SCE 188	BCE 188
BAM 1812	33.0	SCE 1812	BCE 1812
BAM 1816	42.5	SCE 1816	BCE 1816
BAM 1820	52.0	-	-
BAM 1910	37.5	-	-
BAM 1916	57.0	SCE 1916	BCE 1916
BAM 208	26.0	SCE 208	BCE 208
BAM 2010	31.5	SCE 2010	BCE 2010
BAM 2012	37.0	SCE 2012	BCE 2012
BAM 2016	47.5	SCE 2016	BCE 2016
BAM 2020	58.0	SCE 2020	BCE 2020
BAM 218	35.0	-	-
BAM 2110	41.5	SCE 2110	BCE 2110
BAM 2112	49.0	-	-
BAM 228	29.0	SCE 228	BCE 228
BAM 2212	41.0	SCE 2212	BCE 2212
BAM 2216	53.0	SCE 2216	BCE 2216
BAM 2220	64.0	SCE 2220	BCE 2220
BAM 248	47.5	SCE 248	BCE 248
BAM 2410	57.5	SCE 2410	BCE 2410
BAM 2412	67.5	SCE 2412	BCE 2412
BAM 2414	78.0	SCE 2414	BCE 2414
BAM 2416	88.0	SCE 2416	BCE 2416

Drawn Cup Needle Roller Bearings - Inch Sizes



BA..Z

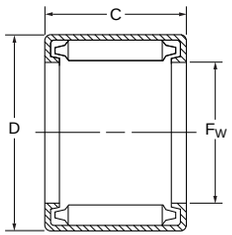


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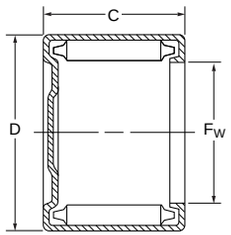
Basic Dimensions						Basic Load Ratings		Designation	Mass
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Open End BA...Z	Closed End g
1 1/2	38.100	1 7/8	47.625	1 1/4	31.75	35.104	66.767	BA 2420 Z	97.5
1 5/8	41.275	2	50.800	1/2	12.70	12.348	17.816	BA 268 Z	41.0
1 5/8	41.275	2	50.800	5/8	15.88	17.023	26.989	BA 2610 Z	52.0
1 5/8	41.275	2	50.800	1	25.40	29.723	55.125	BA 2616 Z	85.0
1 5/8	41.275	2	50.800	1 1/4	31.75	37.220	73.823	BA 2620 Z	105.0
1 3/4	44.45	2 1/8	53.975	3/4	19.05	22.667	40.043	BA 2812 Z	67.5
1 3/4	44.45	2 1/8	53.975	1	25.40	31.223	60.593	BA 2816 Z	91.0
1 3/4	44.45	2 1/8	53.975	1 1/4	31.75	39.249	81.056	BA 2820 Z	112.0
1 3/4	44.45	2 1/8	53.975	1 1/2	38.10	46.746	101.430	BA 2824 Z	136.0
1 7/8	47.625	2 1/4	57.150	1/2	12.70	13.230	20.462	BA 308 Z	47.5
1 7/8	47.625	2 1/4	57.150	5/8	15.88	18.257	31.046	BA 3010 Z	60.0
1 7/8	47.625	2 1/4	57.150	3/4	19.05	23.108	41.895	BA 3012 Z	72.5
1 7/8	47.625	2 1/4	57.150	1	25.40	31.840	63.416	BA 3016 Z	97.5
2	50.800	2 3/8	60.325	1/2	12.70	13.847	22.226	BA 328 Z	50.0
2	50.800	2 3/8	60.325	1	25.40	33.340	68.796	BA 3216 Z	104.0
2	50.800	2 3/8	60.325	1 1/4	31.75	41.895	91.728	BA 3220 Z	128.0
2	50.800	2 3/8	60.325	1 1/2	38.10	49.921	115.542	BA 3224 Z	155.0
2 1/8	53.975	2 1/2	63.500	1/2	12.70	14.465	23.990	BA 348 Z	53.0
2 1/8	53.975	2 1/2	63.500	1	25.40	34.839	74.264	BA 3416 Z	109.0
2 1/8	53.975	2 1/2	63.500	1 1/2	38.10	52.126	124.362	BA 3424 Z	162.0
2 1/4	57.150	2 5/8	66.675	3/4	19.05	25.666	50.891	BA 3612 Z	85.5
2 1/4	57.150	2 5/8	66.675	1	25.40	35.368	76.999	BA 3616 Z	115.0
2 1/4	57.150	2 5/8	66.675	1 1/4	31.75	44.453	103.194	BA 3620 Z	143.0

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 2420	106.0	SCE 2420	BCE 2420
BAM 268	51.5	-	-
BAM 2610	62.5	SCE 2610	BCE 2610
BAM 2616	95.5	-	-
BAM 2620	115.0	SCE 2620	BCE 2620
BAM 2812	79.5	SCE 2812	BCE 2812
BAM 2816	103.0	SCE 2816	BCE 2816
BAM 2820	125.0	-	-
BAM 2824	148.0	SCE 2824	BCE 2824
BAM 308	61.0	-	-
BAM 3010	74.0	-	-
BAM 3012	86.5	-	-
BAM 3016	112.0	-	-
BAM 328	66.0	SCE 328	BCE 328
BAM 3216	119.0	SCE 3216	BCE 3216
BAM 3220	144.0	SCE 3220	BCE 3220
BAM 3224	170.0	-	-
BAM 348	70.5	-	-
BAM 3416	127.0	SCE 3416	BCE 3416
BAM 3424	180.0	-	-
BAM 3612	105.0	SCE 3612	BCE 3612
BAM 3616	135.0	SCE 3616	BCE 3616
BAM 3620	163.0	-	-

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

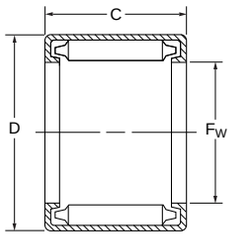


M-1

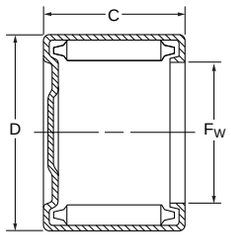
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_O kN	Grease	Oil
1/8	3.1750	1/4	6.3500	1/4	6.3500	1.554	1.466	7290	11700
5/32	3.9700	9/32	7.1425	1/4	6.3500	1.790	1.814	6300	9900
5/32	3.9700	9/32	7.1425	5/16	7.9248	2.327	2.539	6300	9900
3/16	4.7625	11/32	8.7325	1/4	6.3500	1.994	1.922	6300	9900
3/16	4.7625	11/32	8.7325	3/8	9.5250	3.388	3.797	6300	9900
1/4	6.3500	7/16	11.1125	1/4	6.3500	2.463	2.367	5850	9000
1/4	6.3500	7/16	11.1125	5/16	7.9248	3.200	3.308	5850	9000
1/4	6.3500	7/16	11.1125	3/8	9.5250	4.085	4.526	5850	9000
1/4	6.3500	7/16	11.1125	7/16	11.1252	4.966	5.807	5850	9000
5/16	7.9375	1/2	12.7000	5/16	7.9248	3.677	4.125	4860	7470
5/16	7.9375	1/2	12.7000	3/8	9.5250	4.726	5.727	4860	7470
5/16	7.9375	1/2	12.7000	7/16	11.1252	5.687	7.249	4860	7470
5/16	7.9375	1/2	12.7000	9/16	14.2748	7.529	10.413	4860	7470
5/16	7.9375	1/2	12.7000	7/16	11.1252	6.328	6.608	6750	10800
5/16	7.9375	1/2	12.7000	9/16	14.2748	8.531	9.692	6750	10800
3/8	9.5250	9/16	14.2875	5/16	7.9248	4.085	4.966	4140	6390
3/8	9.5250	9/16	14.2875	3/8	9.5250	5.247	6.809	4140	6390
3/8	9.5250	9/16	14.2875	7/16	11.1252	6.328	8.731	4140	6390
3/8	9.5250	9/16	14.2875	1/2	12.7000	7.369	10.613	4140	6390
3/8	9.5250	9/16	14.2875	9/16	14.2748	8.411	12.536	4140	6390
3/8	9.5250	9/16	14.2875	5/8	15.8750	9.372	14.378	4140	6390
3/8	9.5250	9/16	14.2875	1/2	12.7000	8.411	9.852	5850	9000
7/16	11.1125	5/8	15.8750	3/8	9.5250	5.727	7.970	3690	5670
7/16	11.1125	5/8	15.8750	7/16	11.1252	6.929	10.173	3690	5670
7/16	11.1125	5/8	15.8750	1/2	12.7000	8.090	12.416	3690	5670
7/16	11.1125	5/8	15.8750	5/8	15.8750	10.213	16.821	3690	5670
7/16	11.1125	5/8	15.8750	1/2	12.7000	9.292	11.494	5130	7920
1/2	12.7000	11/16	17.4625	5/16	7.9248	4.806	6.608	3240	5040
1/2	12.7000	11/16	17.4625	3/8	9.5250	6.168	9.131	3240	5040
1/2	12.7000	11/16	17.4625	7/16	11.1252	7.489	11.695	3240	5040
1/2	12.7000	11/16	17.4625	1/2	12.7000	8.691	14.138	3240	5040
1/2	12.7000	11/16	17.4625	5/8	15.8750	11.014	19.184	3240	5040

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
0.91	-	B 24	-
0.91	-	B 2.1/2 4	-
1.36	-	B 2.1/2 5	-
1.36	1.82	B 34	M 341
2.27	2.72	B 35	M 361
2.27	2.72	B 44	M 441
3.18	3.63	B 45	M 451
3.63	-	B 46	-
4.09	4.99	B 47	M 471
3.63	4.09	B 55	M 551
4.54	-	B 56	-
4.99	5.90	B 57	M 571
6.36	-	B 59	-
7.26	8.17	BH 57	MH 571
9.08	-	BH 59	-
4.09	4.54	B 65	M 651
4.99	5.45	B 66	M 661
5.90	-	B 67	-
6.81	7.72	B 68	M 681
7.26	-	B 69	-
8.17	9.53	B 610	M 6101
9.53	-	BH 68	-
5.45	-	B 76	-
6.81	-	B 77	-
7.72	8.63	B 78	M 781
9.53	-	B 710	-
10.44	-	BH 78	-
5.45	6.36	B 85	M 851
6.36	7.26	B 86	M 861
7.26	8.17	B 87	M 871
8.63	9.53	B 88	M 881
10.44	11.80	B 810	M 8101

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

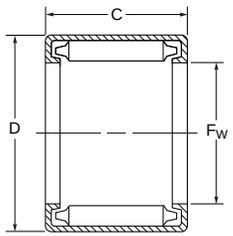


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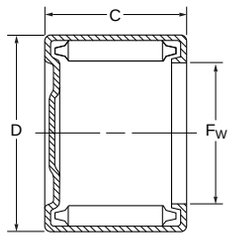
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Grease	Oil
1/2	12.7000	11/16	17.4625	3/4	19.0500	13.217	24.270	3240	5040
1/2	12.7000	11/16	17.4625	7/16	11.1252	8.531	10.613	4590	7110
1/2	12.7000	11/16	17.4625	1/2	12.7000	10.053	13.136	4590	7110
1/2	12.7000	11/16	17.4625	5/8	15.8750	12.936	18.183	4590	7110
1/2	12.7000	11/16	17.4625	3/4	19.0500	15.660	23.189	4590	7110
9/16	14.2875	3/4	19.0500	5/16	7.9248	5.166	7.489	2970	4500
9/16	14.2875	3/4	19.0500	3/8	9.5250	6.608	10.293	2970	4500
9/16	14.2875	3/4	19.0500	7/16	11.1252	7.970	13.136	2970	4500
9/16	14.2875	3/4	19.0500	1/2	12.7000	9.292	15.980	2970	4500
9/16	14.2875	3/4	19.0500	5/8	15.8750	11.775	21.627	2970	4500
9/16	14.2875	3/4	19.0500	3/4	19.0500	14.098	27.314	2970	4500
9/16	14.2875	13/16	20.6375	1/2	12.7000	10.773	14.819	4140	6390
9/16	14.2875	13/16	20.6375	5/8	15.8750	13.857	20.466	4140	6390
9/16	14.2875	13/16	20.6375	3/4	19.0500	16.781	26.113	4140	6390
5/8	15.8750	13/16	20.6375	5/16	7.9248	5.447	8.330	2700	4050
5/8	15.8750	13/16	20.6375	7/16	11.1252	8.451	14.618	2700	4050
5/8	15.8750	13/16	20.6375	1/2	12.7000	9.812	17.742	2700	4050
5/8	15.8750	13/16	20.6375	5/8	15.8750	12.456	24.030	2700	4050
5/8	15.8750	13/16	20.6375	3/4	19.0500	14.899	30.318	2700	4050
5/8	15.8750	7/8	22.2123	1/2	12.7000	11.454	16.461	3780	5850
5/8	15.8750	7/8	22.2123	5/8	15.8750	14.738	22.748	3780	5850
5/8	15.8750	7/8	22.2123	3/4	19.0500	17.822	29.036	3780	5850
5/8	15.8750	7/8	22.2123	1	25.4000	23.589	41.652	3780	5850
11/16	17.4625	7/8	22.2123	3/8	9.5250	7.369	12.576	2430	3780
11/16	17.4625	7/8	22.2123	1/2	12.7000	10.333	19.544	2430	3780
11/16	17.4625	7/8	22.2123	5/8	15.8750	13.096	26.473	2430	3780
11/16	17.4625	7/8	22.2123	3/4	19.0500	15.700	33.402	2430	3780
11/16	17.4625	15/16	23.8125	7/16	11.1252	10.253	14.618	3510	5400
11/16	17.4625	15/16	23.8125	5/8	15.8750	15.579	25.031	3510	5400
11/16	17.4625	15/16	23.8125	3/4	19.0500	18.824	31.960	3510	5400
3/4	19.0500	1	25.4000	3/8	9.5250	8.731	12.215	3240	5040
3/4	19.0500	1	25.4000	1/2	12.7000	12.696	19.785	3240	5040

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
12.71	14.07	B 812	M 8121
10.44	-	BH 87	-
11.80	-	BH 88	-
14.98	-	BH 810	-
17.71	19.98	BH 812	MH 8121
5.90	6.36	B 95	M 951
6.81	8.17	B 96	M 961
8.17	9.53	B 97	M 971
9.08	10.44	B 98	M 981
11.80	13.17	B 910	M 9101
14.07	15.44	B 912	M 9121
13.17	-	BH 98	-
16.34	-	BH 910	-
19.52	-	BH 912	-
6.36	7.26	B 105	M 1051
9.08	9.99	B 107	M 1071
9.99	10.44	B 108	M 1081
12.71	14.53	B 1010	M 10101
15.44	17.25	B 1012	M 10121
14.07	15.89	BH 108	MH 1081
17.71	-	BH 1010	-
21.34	-	BH 1012	-
28.15	-	BH 1016	-
8.17	9.08	B 116	M 1161
10.90	12.26	B 118	M 1181
13.62	15.44	B 1110	M 11101
16.34	18.61	B 1112	M 11121
13.62	-	BH 117	-
19.07	21.34	BH1110	MH 11101
23.15	-	BH 1112	-
12.26	14.07	B 126	M 1261
16.34	18.61	B 128	M 1281

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

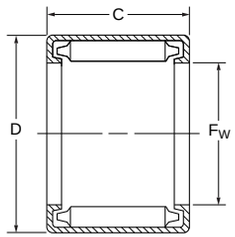


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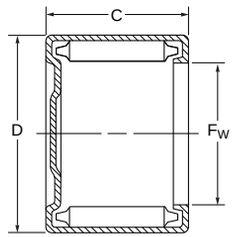
Basic Dimensions						Basic Load Ratings		Limiting Speed	
						Dynamic	Static	Grease	Oil
F_w inch	mm	D inch	mm	C inch	mm	C kN	C_0 kN		
3/4	19.0500	1	25.4000	5/8	15.8750	16.340	27.314	3240	5040
3/4	19.0500	1	25.4000	3/4	19.0500	19.745	34.884	3240	5040
13/16	20.6375	1 1/16	26.9875	3/8	9.5250	9.131	13.217	3060	4680
13/16	20.6375	1 1/16	26.9875	1/2	12.7000	13.257	21.427	3060	4680
13/16	20.6375	1 1/16	26.9875	7/8	22.2250	24.070	46.058	3060	4680
13/16	20.6375	1 1/16	26.9875	1	25.4000	27.314	54.068	3060	4680
13/16	20.6426	1 1/8	28.5750	1/2	12.7000	13.377	18.743	3690	5670
13/16	20.6375	1 1/8	28.5750	5/8	15.8750	17.742	26.914	3690	5670
13/16	20.6375	1 1/8	28.5750	3/4	19.0500	21.787	35.084	3690	5670
7/8	22.2250	1 1/8	28.5750	3/8	9.5250	9.492	14.258	2790	4320
7/8	22.2250	1 1/8	28.5750	1/2	12.7000	13.817	23.069	2790	4320
7/8	22.2250	1 1/8	28.5750	3/4	19.0500	21.507	40.851	2790	4320
7/8	22.2250	1 1/8	28.5750	1	25.4000	28.436	58.473	2790	4320
7/8	22.2250	1 1/8	28.5750	1 1/8	28.5750	31.720	67.284	2790	4320
7/8	22.2250	1 3/16	30.1625	5/8	15.8750	18.303	28.996	3420	5292
7/8	22.2250	1 3/16	30.1625	3/4	19.0500	22.508	37.807	3420	5292
7/8	22.2250	1 3/16	30.1625	1	25.4000	30.318	55.269	3420	5292
15/16	23.8125	1 3/16	30.1625	1/2	12.7000	14.338	24.751	2700	4050
15/16	23.8125	1 3/16	30.1625	1	25.4000	29.517	62.478	2700	4050
1	25.4000	1 1/4	31.7500	3/8	9.5250	10.213	16.300	2520	3870
1	25.4000	1 1/4	31.7500	7/16	11.1252	12.576	21.307	2520	3870
1	25.4000	1 1/4	31.7500	1/2	12.7000	14.859	26.393	2520	3870
1	25.4000	1 1/4	31.7500	5/8	15.8750	19.104	36.486	2520	3870
1	25.4000	1 1/4	31.7500	3/4	19.0500	23.109	46.458	2520	3870
1	25.4000	1 1/4	31.7500	1	25.4000	30.558	66.884	2520	3870
1	25.4000	1 5/16	33.3375	1/2	12.7000	14.979	23.069	3060	4680
1	25.4000	1 5/16	33.3375	5/8	15.8750	19.825	33.161	3060	4680
1	25.4000	1 5/16	33.3375	3/4	19.0500	24.390	43.254	3060	4680
1	25.4000	1 5/16	33.3375	7/8	22.2250	28.716	53.267	3060	4680
1	25.4000	1 5/16	33.3375	1	25.4000	32.841	63.279	3060	4680
1	25.4000	1 5/16	33.3375	1 1/4	31.7500	40.851	83.705	3060	4680
1	25.4000	1 5/16	33.3375	1 1/2	38.1000	48.060	103.730	3060	4680

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
20.43	23.61	B 1210	M 12101
24.52	28.15	B 1212	M 12121
13.17	-	B 136	-
17.71	19.98	B 138	M 1381
30.87	34.96	B 1314	M 13141
35.41	39.95	B 1316	M 13161
22.70	25.88	BH 138	MH 1381
28.60	30.87	BH 1310	MH 13101
34.50	39.04	BH 1312	MH 13121
14.07	15.89	B 146	M 1461
19.07	21.79	B 148	M 1481
28.15	31.78	B 1412	M 14121
37.68	42.68	B 1416	M 14161
42.68	48.58	B 1418	-
30.42	30.42	BH 1410	MH 14101
36.32	41.31	BH 1412	MH 14121
48.58	-	BH 1416	-
19.98	-	B 158	-
39.95	45.40	B 1516	M 15161
15.89	-	B 166	-
18.61	20.88	B 167	M 1671
21.34	24.06	B 168	M 1681
26.33	29.96	B 1610	M 16101
31.78	36.32	B 1612	M 16121
42.68	48.12	B 1616	M 16161
27.24	30.87	BH 168	MH 1681
34.05	-	BH 1610	-
40.86	46.31	BH 1612	MH 16121
47.67	-	BH 1614	-
54.48	61.74	BH 1616	MH 16161
68.10	-	BH 1620	-
81.72	108.96	BH 1624	MH 16241

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

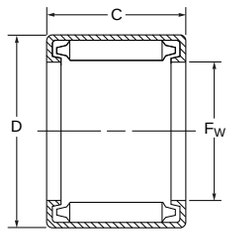


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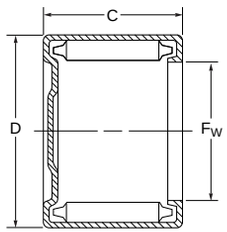
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Grease	Oil
1 1/16	26.9875	1 5/16	33.3375	5/8	15.8750	19.745	38.768	2340	3600
1 1/8	28.5750	1 3/8	34.9250	3/8	9.5250	10.894	18.343	2250	3420
1 1/8	28.5750	1 3/8	34.9250	1/2	12.7000	15.820	29.717	2250	3420
1 1/8	28.5750	1 3/8	34.9250	5/8	15.8750	20.345	41.252	2250	3420
1 1/8	28.5750	1 3/8	34.9250	3/4	19.0500	24.591	52.466	2250	3420
1 1/8	28.5750	1 3/8	34.9250	1	25.4000	32.561	75.294	2250	3420
1 1/8	28.5750	1 1/2	38.1000	3/4	19.0500	28.395	47.660	3240	5040
1 1/8	28.5750	1 1/2	38.1000	1	25.4000	38.288	70.088	3240	5040
1 1/8	28.5750	1 1/2	38.1000	1 1/4	31.7500	47.660	92.916	3240	5040
1 3/16	30.1625	1 1/2	38.1000	5/8	15.8750	21.707	39.409	2610	3960
1 3/16	30.1625	1 1/2	38.1000	1	25.4000	35.965	75.294	2610	3960
1 1/4	31.7500	1 1/2	38.1000	1/2	12.7000	16.701	33.001	2070	3150
1 1/4	31.7500	1 1/2	38.1000	5/8	15.8750	21.507	45.657	2070	3150
1 1/4	31.7500	1 1/2	38.1000	3/4	19.0500	25.992	58.073	2070	3150
1 1/4	31.7500	1 1/2	38.1000	1	25.4000	34.403	83.304	2070	3150
1 1/4	31.7500	1 1/2	38.1000	1 1/4	31.7500	42.453	108.936	2070	3150
1 1/4	31.7500	1 5/8	41.2750	1/2	12.7000	17.702	27.034	2970	4500
1 1/4	31.7500	1 5/8	41.2750	3/4	19.0500	29.797	52.866	2970	4500
1 1/4	31.7500	1 5/8	41.2750	1	25.4000	40.451	78.098	2970	4500
1 1/4	31.7500	1 5/8	41.2750	1 1/4	31.7500	50.463	103.329	2970	4500
1 5/16	33.3375	1 5/8	41.2750	1/2	12.7000	17.342	30.318	2340	3690
1 5/16	33.3375	1 5/8	41.2750	5/8	15.8750	22.989	43.655	2340	3690
1 5/16	33.3375	1 5/8	41.2750	1 1/4	31.7500	47.259	110.138	2340	3690
1 3/8	34.9250	1 5/8	41.2750	1/2	12.7000	17.582	36.325	1890	2880
1 3/8	34.9250	1 5/8	41.2750	3/4	19.0500	27.354	64.080	1890	2880
1 3/8	34.9250	1 5/8	41.2750	1	25.4000	36.165	91.715	1890	2880
1 3/8	34.9250	1 5/8	41.2750	1 1/4	31.7500	44.456	119.750	1890	2880
1 3/8	34.9250	1 3/4	44.4500	1/2	12.7000	19.104	30.198	2700	4230
1 3/8	34.9250	1 3/4	44.4500	5/8	15.8750	25.672	44.055	2700	4230
1 3/8	34.9250	1 3/4	44.4500	3/4	19.0500	31.760	58.073	2700	4230
1 3/8	34.9250	1 3/4	44.4500	1	25.4000	42.854	85.307	2700	4230
1 3/8	34.9250	1 3/4	44.4500	1 1/4	31.7500	53.667	113.342	2700	4230

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
28.15	31.78	B 1710	M 17101
17.71	19.98	B 186	M 1861
23.61	26.79	B 188	M 1881
29.51	-	B 1810	-
35.41	39.95	B 1812	M 18121
47.22	53.57	B 1816	M 18161
55.84	62.65	BH 1812	MH 18121
74.46	84.44	BH 1816	MH 18161
93.07	105.33	BH 1820	MH 18201
30.87	-	B 1910	M 19101
63.56	-	B 1916	-
25.88	29.51	B 208	M 2081
32.23	36.32	B 2010	M 20101
39.04	44.95	B 2012	M 20121
51.76	59.02	B 2016	M 20161
64.92	73.55	B 2020	M 20201
40.86	46.31	BH 208	MH 2081
61.29	69.46	BH 2012	MH 20121
81.27	92.16	BH 2016	MH 20161
101.70	115.32	BH 2020	MH 20201
34.50	39.04	B 218	M 2181
43.13	49.03	B 2110	M 21101
86.71	-	B 2120	-
28.15	31.78	B 228	M 2281
42.68	48.58	B 2212	M 22121
56.75	64.47	B 2216	M 22161
70.82	80.36	B 2220	M 22201
44.49	-	BH 228	-
55.39	-	BH 2210	-
66.28	74.91	BH 2212	MH 22121
88.53	100.33	BH 2216	MH 22161
110.78	125.30	BH 2220	-

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

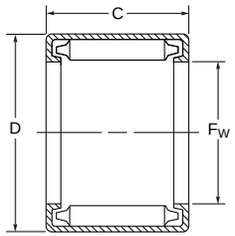


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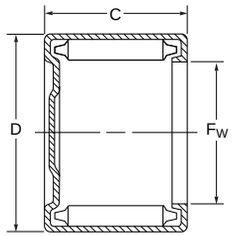
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Grease	Oil
1 1/2	38.1000	1 7/8	47.6250	1/2	12.7000	20.105	33.402	2520	3870
1 1/2	38.1000	1 7/8	47.6250	5/8	15.8750	26.874	48.461	2520	3870
1 1/2	38.1000	1 7/8	47.6250	3/4	19.0500	33.201	63.680	2520	3870
1 1/2	38.1000	1 7/8	47.6250	7/8	22.2250	39.169	78.899	2520	3870
1 1/2	38.1000	1 7/8	47.6250	1	25.4000	44.856	93.317	2520	3870
1 1/2	38.1000	1 7/8	47.6250	1 1/4	31.7500	55.670	124.155	2520	3870
1 5/8	41.2750	2	50.8000	1/2	12.7000	20.506	35.324	2340	3510
1 5/8	41.2750	2	50.8000	5/8	15.8750	27.594	51.665	2340	3510
1 5/8	41.2750	2	50.8000	1	25.4000	46.458	100.926	2340	3510
1 5/8	41.2750	2	50.8000	11/4	31.7500	57.672	133.767	2340	3510
1 3/4	44.4500	2 1/8	53.9750	3/4	19.0500	35.364	73.292	2160	3330
1 3/4	44.4500	2 1/8	53.9750	1	25.4000	48.060	108.536	2160	3330
1 3/4	44.4500	2 1/8	53.9750	11/4	31.7500	59.675	144.180	2160	3330
1 3/4	44.4500	2 1/8	53.9750	11/2	38.1000	70.889	179.424	2160	3330
1 7/8	47.6250	2 1/4	57.1500	1/2	12.7000	22.628	41.652	2070	3150
1 7/8	47.6250	2 1/4	57.1500	3/4	19.0500	37.367	79.700	2070	3150
1 7/8	47.6250	2 1/4	57.1500	1	25.4000	50.463	116.946	2070	3150
2	50.8000	2 3/8	60.3250	1/2	12.7000	22.869	43.254	1890	2970
2	50.8000	2 3/8	60.3250	1	25.4000	51.665	124.155	1890	2970
2	50.8000	2 3/8	60.3250	1 1/4	31.7500	64.481	164.606	1890	2970
2	50.8000	2 3/8	60.3250	1 1/2	38.1000	76.496	205.056	1890	2970
2	50.8000	2 3/8	60.3250	1 3/4	44.4500	87.710	245.507	1890	2970
2 1/16	52.3875	2 17/3	64.2925	3/4	19.0500	41.652	78.098	2340	3690
2 1/16	52.3875	2 17/32	64.2925	3/4	19.0500	57.672	119.750	2340	3690
2 1/16	52.3875	2 17/32	64.2925	1 1/2	38.1000	87.309	203.054	2340	3690
2 1/8	53.9750	2 1/2	63.5000	1/2	12.7000	23.509	46.058	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1	25.4000	53.267	132.165	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1 1/4	31.7500	66.083	175.019	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1 1/2	38.1000	78.498	217.872	1800	2790
2 1/4	57.1500	2 5/8	66.6750	3/4	19.0500	42.854	94.919	1800	2700
2 1/4	57.1500	2 5/8	66.6750	1 1/4	31.7500	69.687	185.832	1800	2700
2 1/4	57.1500	2 5/8	66.6750	1 1/2	38.1000	82.904	231.089	1800	2700

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
47.67	54.03	B 248	M 2481
59.93	68.10	B 2410	M 24101
71.73	81.27	B 2412	M 24121
83.54	94.89	B 2414	M 24141
95.79	108.51	B 2416	M 24161
119.40	135.29	B 2420	M 24201
51.30	-	B 268	-
64.01	72.64	B 2610	M 26101
102.60	-	B 2616	-
128.03	145.28	B 2620	M 26201
82.17	93.07	B 2812	M 28121
109.87	124.40	B 2816	M 28161
137.11	-	B 2820	-
164.80	186.59	B 2824	M 26241
58.57	66.28	B 308	M 3081
87.62	-	B 3012	-
117.13	132.57	B 3016	M 30161
61.74	69.92	B 328	M 3281
123.94	140.29	B 3216	M 32161
154.81	175.24	B 3220	M 32201
186.14	211.11	B 3224	M 32241
217.01	245.61	B 3228	M 32281
122.13	-	BH 3312	-
162.53	184.32	BH 3316	MH 33161
243.80	276.49	BH 3324	MH 33241
65.38	-	B 348	-
138.02	156.63	B 3416	M 34161
163.89	-	B 3420	-
196.58	222.91	B 3424	M 34241
103.51	117.13	B 3612	M 36121
172.52	-	B 3620	-
207.02	234.72	B 3624	M 36241

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



B, BH

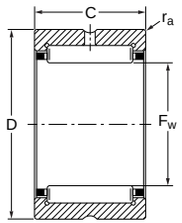


M-1

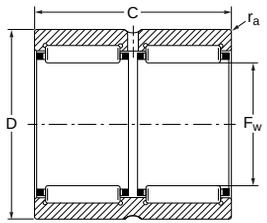
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F_w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C_0 kN	Grease	Oil
2 5/8	66.6750	3	76.2000	1	25.4000	60.075	163.805	1530	2250
2 3/4	69.8500	3 1/8	79.3750	5/8	15.8750	36.886	88.110	1440	2250
2 3/4	69.8500	3 1/8	79.3750	1	25.4000	62.078	171.414	1440	2250
2 3/4	69.8500	3 1/8	79.3750	1 1/4	31.7500	76.896	227.084	1440	2250
3 1/2	88.9000	4	101.6000	3/4	19.0500	58.473	134.969	1620	2430
5 1/2	139.7000	6	152.4000	3/4	19.0500	69.287	208.260	900	1440

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
159.35	180.69	B 4216	M 42161
103.97	-	B 4410	-
166.16	-	B 4416	-
207.93	235.63	B 4420	M 44201
212.47	-	B 5612	-
325.52	-	B 8812	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_W \geqq 35$ mm)

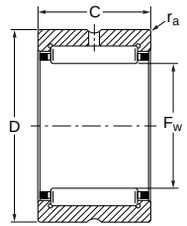


RNA 69 ($F_w \geqq 40$ mm)

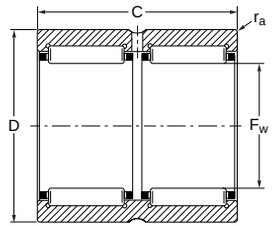
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min		NK
5	10	10	0.15	2.35	1.92	33300	3.1	NK 5/10 TN
5	10	12	0.15	3.00	2.65	33300	3.7	NK 5/12 TN
6	12	10	0.15	2.60	2.28	29700	4.7	NK 6/10 TN
6	12	12	0.15	3.35	3.15	29700	5.7	NK 6/12 TN
7	14	10	0.30	2.85	2.65	27900	6.9	NK 7/10 TN
7	14	12	0.30	3.65	3.60	27900	8.2	NK 7/12 TN
8	15	12	0.30	3.95	4.10	26100	8.7	NK 8/12 TN
8	15	16	0.30	5.10	5.80	26100	12.0	NK 8/16 TN
9	16	12	0.30	4.50	5.00	25200	10.3	NK 9/12 TN
9	16	16	0.30	5.90	7.10	25200	12.8	NK 9/16 TN
10	17	12	0.30	4.75	5.50	24300	10.1	NK 10/12 TN
10	17	16	0.30	6.20	7.80	24300	13.3	NK 10/16 TN
12	19	12	0.30	6.40	7.10	22500	12.1	NK 12/12
12	19	16	0.30	9.00	11.00	22500	15.9	NK 12/16
14	22	16	0.30	10.10	11.50	21600	20.7	NK 14/16
14	22	20	0.30	12.80	15.80	21600	25.5	NK 14/20
14	22	13	0.30	8.50	9.20	22500	16.5	-
15	23	16	0.30	10.70	12.70	20700	21.8	NK 15/16
15	23	20	0.30	13.50	17.40	20700	26.6	NK 15/20
16	24	16	0.30	11.30	13.90	19800	22.4	NK 16/16
16	24	20	0.30	14.40	18.80	19800	28.4	NK 16/20
16	24	13	0.30	9.40	10.90	21600	17.4	-
16	24	22	0.30	16.00	21.60	19800	31.0	-
17	25	16	0.30	11.90	15.00	19800	23.7	NK 17/16
17	25	20	0.30	15.10	20.40	19800	29.8	NK 17/20
18	26	16	0.30	12.50	16.20	18900	24.9	NK 18/16
18	26	20	0.30	15.80	22.00	18900	31.4	NK 18/20
19	27	16	0.30	13.00	17.40	18900	26.1	NK 19/16
19	27	20	0.30	16.50	23.60	18900	32.2	NK 19/20
20	28	16	0.30	13.00	17.50	18000	27.0	NK 20/16
20	28	20	0.30	16.40	23.80	18000	33.9	NK 20/20
20	28	13	0.30	10.60	13.60	19800	21.7	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
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-	-	-	-
-	-	RNA 4900	-
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-	-	-	-
-	-	-	-
-	-	RNA 4901	-
-	-	-	RNA 6901
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4902	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_W \geqq 35$ mm)

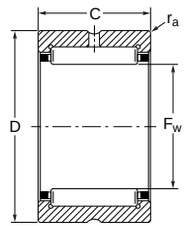


RNA 69 ($F_w \geqq 40$ mm)

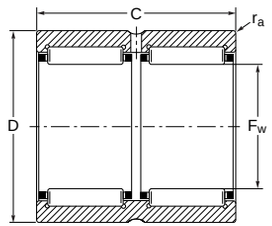
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
20	28	23	0.30	17.30	25.50	18000	39.7	-
20	32	20	0.30	23.00	25.00	17100	48.7	-
21	29	16	0.30	13.50	18.70	18000	28.1	NK 21/16
21	29	20	0.30	17.10	25.50	18000	35.2	NK 21/20
22	30	16	0.30	14.00	19.90	17100	30.0	NK 22/16
22	30	20	0.30	17.70	27.00	17100	37.0	NK 22/20
22	30	13	0.30	11.00	14.60	18900	22.2	-
22	30	23	0.30	18.60	29.00	17100	42.4	-
22	35	20	0.60	24.50	28.00	15300	61.5	-
24	32	16	0.30	15.00	22.30	16200	31.9	NK 24/16
24	32	20	0.30	19.00	30.50	16200	40.0	NK 24/20
24	37	20	0.60	26.00	31.00	14400	65.5	-
25	33	16	0.30	14.90	22.40	15300	32.6	NK 25/16
25	33	20	0.30	18.80	30.50	15300	42.0	NK 25/20
25	37	17	0.30	21.00	25.50	15300	52.3	-
25	37	30	0.30	36.00	51.00	14400	100.0	-
25	38	20	0.60	27.50	33.50	14400	68.1	-
26	34	16	0.30	15.30	23.60	14400	34.0	NK 26/16
26	34	20	0.30	19.40	32.00	14400	42.0	NK 26/20
28	37	20	0.30	22.00	34.00	13500	52.2	NK 28/20
28	37	30	0.30	33.00	57.00	13500	82.0	NK 28/30
28	39	17	0.30	22.80	29.50	14400	50.2	-
28	39	30	0.30	37.50	55.00	13500	98.0	-
28	42	20	0.60	28.50	36.50	12600	83.6	-
29	38	20	0.30	21.90	34.00	13500	53.7	NK 29/20
29	38	30	0.30	32.50	57.00	13500	84.3	NK 29/30
30	40	20	0.30	22.60	36.00	12600	65.0	NK 30/20
30	40	30	0.30	33.50	60.00	12600	97.9	NK 30/30
30	42	17	0.30	23.60	31.50	13500	61.0	-
30	42	30	0.30	39.00	59.00	12600	112.0	-
30	45	22	0.60	32.00	40.00	11700	104.0	-
32	42	20	0.30	23.10	37.50	11700	68.0	NK 32/20

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	RNA 6902
NKS 20	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4903	-
-	-	-	RNA 6903
NKS 22	-	-	-
-	-	-	-
-	-	-	-
NKS 24	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4904	-
-	-	-	RNA 6904
NKS 25	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 49/22	-
-	-	-	RNA 69/22
NKS 28	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4905	-
-	-	-	RNA 6905
NKS 30	-	-	-
-	-	-	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_w \geqq 35$ mm)

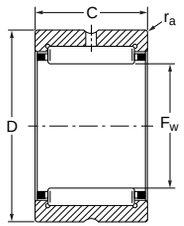


RNA 69 ($F_w \geqq 40$ mm)

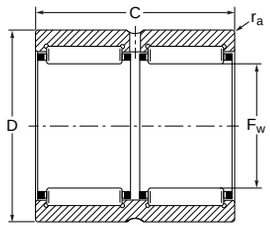
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
32	42	30	0.30	34.50	63.00	11700	102.0	NK 32/30
32	45	17	0.30	24.40	33.50	11700	73.2	-
32	45	30	0.30	40.50	63.00	11700	135.0	-
32	47	22	0.60	33.50	43.50	10800	110.0	-
35	45	20	0.30	24.30	41.50	10800	73.8	NK 35/20
35	45	30	0.30	36.50	69.00	10800	112.0	NK 35/30
35	47	17	0.30	25.00	35.50	11700	69.4	-
35	47	30	0.30	43.50	71.00	10800	126.0	-
35	50	22	0.60	35.00	47.00	10800	118.0	-
37	47	20	0.30	24.90	43.50	10800	77.0	NK 37/20
37	47	30	0.30	37.00	73.00	10800	113.0	NK 37/30
37	52	22	0.60	36.50	50.00	9900	123.0	-
38	48	20	0.30	25.50	45.00	9900	79.4	NK 38/20
38	48	30	0.30	38.00	76.00	9900	116.0	NK 38/30
40	50	20	0.30	26.00	47.00	9900	82.7	NK 40/20
40	50	30	0.30	39.00	79.00	9900	125.0	NK 40/30
40	52	20	0.60	30.50	47.50	10800	89.1	-
40	52	36	0.60	47.00	82.00	9900	162.0	-
40	55	22	0.60	38.00	54.00	9000	129.0	-
42	52	20	0.30	26.50	49.00	9000	85.8	NK 42/20
42	52	30	0.30	39.50	82.00	9000	130.0	NK 42/30
42	55	20	0.60	31.50	50.00	9900	107.0	-
42	55	36	0.60	48.00	86.00	9000	193.0	-
43	53	20	0.30	27.00	51.00	9000	86.0	NK 43/20
43	53	30	0.30	40.50	85.00	9000	133.0	NK 43/30
43	58	22	0.60	39.00	57.00	8550	139.0	-
45	55	20	0.30	27.50	53.00	9000	91.5	NK 45/20
45	55	30	0.30	41.00	88.00	9000	139.0	NK 45/30
45	60	22	0.60	40.50	60.00	8550	145.0	-
47	57	20	0.30	28.50	56.00	8550	94.5	NK 47/20
47	57	30	0.30	43.00	94.00	8550	142.0	NK 47/30
48	62	22	0.60	43.00	67.00	8550	140.0	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	-
-	-	RNA 49/28	-
-	-	-	RNA 69/28
NKS 32	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4906	-
-	-	-	RNA 6906
NKS 35	-	-	-
-	-	-	-
-	-	-	-
NKS 37	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 49/32	-
-	-	-	RNA 69/32
NKS 40	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4907	-
-	-	-	RNA 6907
-	-	-	-
-	-	-	-
NKS 43	-	-	-
-	-	-	-
-	-	-	-
NKS 45	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4908	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_W \geqq 35$ mm)

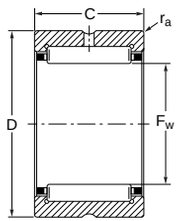


RNA 69 ($F_w \geqq 40$ mm)

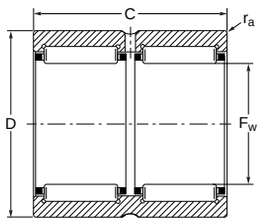
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
48	62	40	0.60	66.00	116.00	8100	256.0	-
50	62	25	0.60	38.00	74.00	8100	158.0	NK 50/25
50	62	35	0.60	50.00	106.00	8100	221.0	NK 50/35
50	65	22	1.00	42.50	67.00	7650	157.0	-
52	68	22	0.60	45.00	73.00	7650	182.0	-
52	68	40	0.60	69.00	127.00	7200	338.0	-
55	68	25	0.60	40.00	82.00	7200	180.0	NK 55/25
55	68	35	0.60	53.00	118.00	7200	250.0	NK 55/35
55	72	22	1.00	45.00	74.00	6750	221.0	-
58	72	22	0.60	47.00	80.00	7200	163.0	-
58	72	40	0.60	73.00	139.00	6750	310.0	-
60	72	25	0.60	42.00	90.00	6750	185.0	NK 60/25
60	72	35	0.60	56.00	130.00	6750	258.0	NK 60/35
60	80	28	1.10	63.00	98.00	6300	335.0	-
63	80	25	1.00	58.00	100.00	6750	255.0	-
63	80	45	1.00	90.00	176.00	6300	470.0	-
65	78	25	0.60	44.00	98.00	6300	221.0	NK 65/25
65	78	35	0.60	59.00	142.00	6300	310.0	NK 65/35
65	85	28	1.10	67.00	108.00	5850	356.0	-
68	82	25	0.60	43.50	89.00	5850	241.0	NK 68/25
68	82	35	0.60	62.00	139.00	5850	338.0	NK 68/35
68	85	25	1.00	60.00	108.00	6300	275.0	-
68	85	45	1.00	94.00	191.00	5850	488.0	-
70	85	25	0.60	44.50	92.00	5850	260.0	NK 70/25
70	85	35	0.60	63.00	144.00	5850	370.0	NK 70/35
70	90	28	1.10	68.00	113.00	5400	380.0	-
72	90	25	1.00	61.00	112.00	5850	312.0	-
72	90	45	1.00	95.00	198.00	5400	580.0	-
73	90	25	1.00	53.00	100.00	5400	302.0	NK 73/25
73	90	35	1.00	75.00	156.00	5400	428.0	NK 73/35
75	92	25	1.00	54.00	104.00	5400	315.0	NK 75/25
75	92	35	1.00	77.00	162.00	5400	445.0	NK 75/35

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	RNA 6908
-	-	-	-
-	-	-	-
NKS 50	-	-	-
-	-	RNA 4909	-
-	-	-	RNA 6909
-	-	-	-
-	-	-	-
NKS 55	-	-	-
-	-	RNA 4910	-
-	-	-	RNA 6910
-	-	-	-
-	-	-	-
NKS 60	-	-	-
-	-	RNA 4911	-
-	-	-	RNA 6911
-	-	-	-
-	-	-	-
NKS 65	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4912	-
-	-	-	RNA 6912
-	-	-	-
-	-	-	-
NKS 70	-	-	-
-	-	RNA 4913	-
-	-	-	RNA 6913
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_W \geqq 35$ mm)

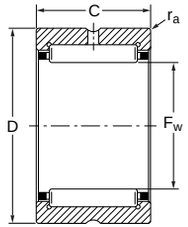


RNA 69 ($F_w \geqq 40$ mm)

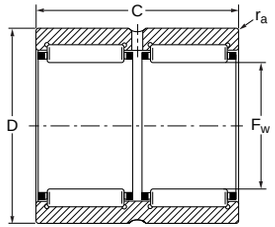
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
75	95	28	1.10	71.00	123.00	5400	402.0	-
80	95	25	1.00	56.00	119.00	4950	301.0	NK 80/25
80	95	35	1.00	78.00	184.00	4950	425.0	NK 80/35
80	100	30	1.00	84.00	156.00	5400	460.0	-
80	100	54	1.00	128.00	265.00	4950	857.0	-
85	105	25	1.00	69.00	123.00	4500	425.0	NK 85/25
85	105	35	1.00	98.00	193.00	4500	600.0	NK 85/35
85	105	30	1.00	86.00	162.00	4950	489.0	-
85	105	54	1.00	130.00	275.00	4500	935.0	-
90	110	25	1.00	72.00	132.00	4410	450.0	NK 90/25
90	110	35	1.00	103.00	208.00	4410	630.0	NK 90/35
90	110	30	1.00	89.00	174.00	4500	516.0	-
90	110	54	1.00	135.00	300.00	4410	987.0	-
95	115	26	1.00	73.00	137.00	4230	490.0	NK 95/26
95	115	36	1.00	107.00	223.00	4230	680.0	NK 95/36
100	120	26	1.00	76.00	146.00	4050	515.0	NK 100/26
100	120	36	1.00	111.00	237.00	4050	715.0	NK 100/36
100	120	35	1.10	111.00	237.00	4320	657.0	-
100	120	63	1.10	166.00	400.00	4050	1200.0	-
105	125	26	1.00	78.00	155.00	3870	540.0	NK 105/26
105	125	36	1.00	114.00	250.00	3870	713.0	NK 105/36
105	125	35	1.10	114.00	250.00	4140	745.0	-
105	125	63	1.10	172.00	425.00	3870	1330.0	-
110	130	30	1.10	98.00	210.00	3690	650.0	NK 110/30
110	130	40	1.10	127.00	290.00	3690	830.0	NK 110/40
110	130	35	1.10	116.00	260.00	3960	719.0	-
110	130	63	1.10	174.00	440.00	3690	1460.0	-
115	140	40	1.10	128.00	270.00	3690	1150.0	-
120	140	30	1.00	94.00	216.00	3420	670.0	-
125	150	40	1.10	132.00	290.00	3420	1240.0	-
130	150	30	1.00	99.00	239.00	3150	730.0	-
135	165	45	1.10	181.00	390.00	3060	1860.0	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
NKS 75	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4914	-
-	-	-	RNA 6914
-	-	-	-
-	-	-	-
-	-	RNA 4915	-
-	-	-	RNA 6915
-	-	-	-
-	-	-	-
-	-	RNA 4916	-
-	-	-	RNA 6916
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4917	-
-	-	-	RNA 6917
-	-	-	-
-	-	-	-
-	-	RNA 4918	-
-	-	-	RNA 6918
-	-	-	-
-	-	-	-
-	-	RNA 4919	-
-	-	-	RNA 6919
-	-	RNA 4920	-
-	RNA 4822	-	-
-	-	RNA 4922	-
-	RNA 4824	-	-
-	-	RNA 4924	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_w \geqq 35$ mm)

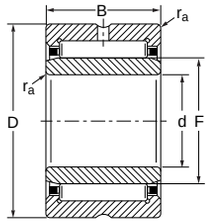


RNA 69 ($F_w \geqq 40$ mm)

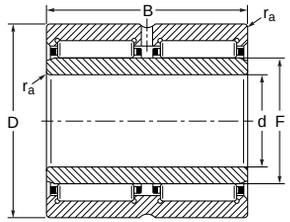
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
145	165	35	1.10	118.00	310.00	2880	990.0	-
150	180	50	1.50	203.00	470.00	2880	2210.0	-
155	175	35	1.10	120.00	325.00	2700	1050.0	-
160	190	50	1.50	209.00	500.00	2700	2350.0	-
165	190	40	1.10	152.00	400.00	2520	1600.0	-
175	200	40	1.10	160.00	435.00	2340	1700.0	-
185	215	45	1.10	185.00	510.00	2250	2540.0	-
195	225	45	1.10	194.00	550.00	2070	2680.0	-
210	240	50	1.50	227.00	690.00	1980	3210.0	-
220	250	50	1.50	230.00	720.00	1890	3350.0	-
240	270	50	1.50	243.00	790.00	1710	3620.0	-
265	300	60	2.00	355.00	1080.00	1530	5400.0	-
285	320	60	2.00	370.00	1160.00	1440	5800.0	-
305	350	69	2.00	450.00	1300.00	1350	9300.0	-
330	380	80	2.10	620.00	1770.00	1260	12700.0	-
350	400	80	2.10	630.00	1850.00	1170	13400.0	-
370	420	80	2.10	640.00	1940.00	1080	14000.0	-
390	440	80	2.10	660.00	2020.00	1080	14800.0	-
415	480	100	2.10	1000.00	2900.00	990	26000.0	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	RNA 4826	-	-
-	-	RNA 4926	-
-	RNA 4828	-	-
-	-	RNA 4928	-
-	RNA 4830	-	-
-	RNA 4832	-	-
-	RNA 4834	-	-
-	RNA 4836	-	-
-	RNA 4838	-	-
-	RNA 4840	-	-
-	RNA 4844	-	-
-	RNA 4848	-	-
-	RNA 4852	-	-
-	RNA 4856	-	-
-	RNA 4860	-	-
-	RNA 4864	-	-
-	RNA 4868	-	-
-	RNA 4872	-	-
-	RNA 4876	-	-

Needle Roller Bearings, with Inner Ring



NKI (d≦ 30 mm)
NKIS
NA 49, NA 69 (d≦ 30 mm)
NA 48

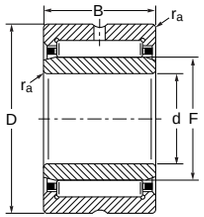


NA 69 (d ≧ 32 mm)

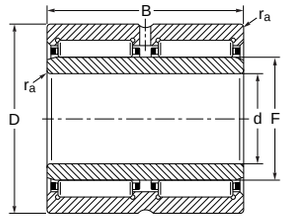
Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r_a max	Dynamic C kN	Static C_0 k.N	r/min	g	NKI
5	8	15	12	0.30	3.95	4.10	28800	11.5	NKI 5/12
5	8	15	16	0.30	5.10	5.80	28800	15.3	NKI 5/16
6	9	16	12	0.30	4.50	5.00	27000	13.5	NKI 6/12
6	9	16	16	0.30	5.90	7.10	27000	17.4	NKI 6/16
7	10	17	12	0.30	4.75	5.50	26100	13.7	NKI 7/12
7	10	17	16	0.30	6.20	7.80	26100	18.2	NKI 7/16
9	12	19	12	0.30	6.40	7.10	24300	16.6	NKI 9/12
9	12	19	16	0.30	9.00	11.00	24300	21.9	NKI 9/16
10	14	22	16	0.30	10.10	11.50	22500	29.4	NKI 10/16
10	14	22	20	0.30	12.80	15.60	22500	37.1	NKI 10/20
10	14	22	13	0.30	8.50	9.20	22500	23	-
12	16	24	16	0.30	11.30	13.90	21600	33.3	NKI 12/16
12	16	24	20	0.30	14.40	18.80	21600	41.9	NKI 12/20
12	16	24	13	0.30	9.40	10.90	21600	26	-
12	16	24	22	0.30	16.00	21.60	21600	46	-
15	19	27	16	0.30	13.00	17.40	19800	38.8	NKI 15/16
15	19	27	20	0.30	16.50	23.60	19800	48.7	NKI 15/20
15	20	28	13	0.30	10.60	13.60	19800	34	-
15	20	28	23	0.30	17.30	25.50	19800	63.6	-
15	22	35	20	0.60	24.50	28.00	18000	92	-
17	21	29	16	0.30	13.50	18.70	18900	42.4	NKI 17/16
17	21	29	20	0.30	17.10	25.50	18900	53.4	NKI 17/20
17	22	30	13	0.30	11.00	14.60	18900	37	-
17	22	30	23	0.30	18.60	29.00	18900	72	-
17	24	37	20	0.60	26.00	31.00	16200	98	-
20	24	32	16	0.30	15.00	22.30	17100	49	NKI 20/16
20	24	32	20	0.30	19.00	30.50	17100	61	NKI 20/20
20	25	37	17	0.30	21.00	25.50	15300	75.2	-
20	25	37	30	0.30	36.00	51.00	15300	141	-
20	28	42	20	0.60	28.50	36.50	14400	129	-
22	26	34	16	0.30	15.30	23.60	16200	52	NKI 22/16
22	26	34	20	0.30	19.40	32.00	16200	65.4	NKI 22/20

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4900	-
-	-	-	-
-	-	-	-
-	-	NA 4901	-
-	-	-	NA 6901
-	-	-	-
-	-	-	-
-	-	NA 4902	-
-	-	-	NA 6902
NKIS 15	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4903	-
-	-	-	NA 6903
NKIS 17	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4904	-
-	-	-	NA 6904
NKIS 20	-	-	-
-	-	-	-
-	-	-	-

Needle Roller Bearings, with Inner Ring



NKI (d≦ 30 mm)
NKIS
NA 49, NA 69 (d≦ 30 mm)
NA 48

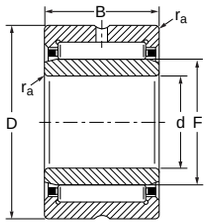


NA 69 (d ≧ 32 mm)

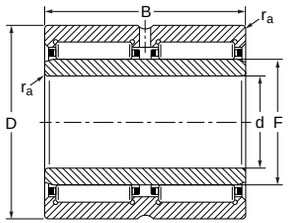
Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NKI
22	28	39	17	0.30	22.80	29.50	14400	80	-
22	28	39	30	0.30	37.50	55.00	14400	150	-
25	29	38	20	0.30	21.90	34.00	14400	79.4	NKI 25/20
25	29	38	30	0.30	32.50	57.00	14400	124	NKI 25/30
25	30	42	17	0.30	23.60	31.50	13500	88	-
25	30	42	30	0.30	39.00	59.00	13500	161	-
25	32	47	22	0.60	33.50	43.50	12600	162	-
28	32	42	20	0.30	23.10	37.50	12600	96.5	NKI 28/20
28	32	42	30	0.30	34.50	63.00	12600	146	NKI 28/30
28	32	45	17	0.30	24.40	33.50	11700	97.7	-
28	32	45	30	0.30	40.50	63.00	11700	182	-
30	35	45	20	0.30	24.30	41.50	11700	112	NKI 30/20
30	35	45	30	0.30	36.50	69.00	11700	170	NKI 30/30
30	35	47	17	0.30	25.00	35.50	11700	101	-
30	35	47	30	0.30	43.50	71.00	11700	192	-
30	37	52	22	0.60	36.50	50.00	10800	184	-
32	37	47	20	0.30	24.90	43.50	10800	118	NKI 32/20
32	37	47	30	0.30	37.00	73.00	10800	180	NKI 32/30
32	40	52	20	0.60	30.50	47.50	10800	158	-
32	40	52	36	0.60	47.00	82.00	10800	288	-
35	40	50	20	0.30	26.00	47.00	10800	127	NKI 35/20
35	40	50	30	0.30	39.00	79.00	10800	193	NKI 35/30
35	42	55	20	0.60	31.50	50.00	9900	170	-
35	42	55	36	0.60	48.00	86.00	9900	310	-
35	43	58	22	0.60	39.00	57.00	9900	220	-
38	43	53	20	0.30	27.00	51.00	9900	136	NKI 38/20
38	43	53	30	0.30	40.50	85.00	9900	207	NKI 38/30
40	45	55	20	0.30	27.50	53.00	9000	142	NKI 40/20
40	45	55	30	0.30	41.00	88.00	9000	216	NKI 40/30
40	48	62	22	0.60	43.00	67.00	8550	230	-
40	48	62	40	0.60	66.00	116.00	8550	430	-
40	50	65	22	1.00	42.50	67.00	8550	281	-

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	NA 49/22	-
-	-	-	NA 69/22
-	-	-	-
-	-	-	-
-	-	NA 4905	-
-	-	-	NA 6905
NKIS 25	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 49/28	-
-	-	-	NA 69/28
-	-	-	-
-	-	-	-
-	-	NA 4906	-
-	-	-	NA 6906
NKIS 30	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 49/32	-
-	-	-	NA 69/32
-	-	-	-
-	-	-	-
-	-	NA 4907	-
-	-	-	NA 6907
NKIS 35	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4908	-
-	-	-	NA 6908
NKIS 40	-	-	-

Needle Roller Bearings, with Inner Ring



NKI (d≦ 30 mm)
NKIS
NA 49, NA 69 (d≦ 30 mm)
NA 48

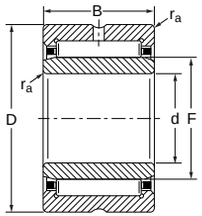


NA 69 (d ≧ 32 mm)

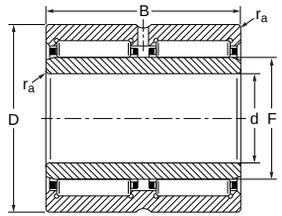
Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NKI
42	47	57	20	0.30	28.50	56.00	9000	148	NKI 42/20
42	47	57	30	0.30	43.00	94.00	9000	222	NKI 42/30
45	50	62	25	0.60	38.00	74.00	8100	229	NKI 45/25
45	50	62	35	0.60	50.00	105.00	8100	322	NKI 45/35
45	52	68	22	0.60	45.00	73.00	7650	271	-
45	52	68	40	0.60	69.00	127.00	7650	495	-
45	55	72	22	1.00	45.00	74.00	7650	336	-
50	55	68	25	0.60	40.00	82.00	7650	270	NKI 50/25
50	55	68	35	0.60	53.00	118.00	7650	379	NKI 50/35
50	58	72	22	0.60	47.00	80.00	7200	274	-
50	58	72	40	0.60	73.00	139.00	7200	515	-
50	60	80	28	1.10	63.00	98.00	6750	518	-
55	60	72	25	0.60	42.00	90.00	6750	272	NKI 55/25
55	60	72	35	0.60	56.00	130.00	6750	379	NKI 55/35
55	63	80	25	1.00	58.00	100.00	6750	393	-
55	63	80	45	1.00	90.00	176.00	6750	780	-
55	65	85	28	1.10	67.00	108.00	6300	558	-
60	68	82	25	0.60	43.50	89.00	6300	394	NKI 60/25
60	68	82	35	0.60	62.00	139.00	6300	553	NKI 60/35
60	68	85	25	1.00	60.00	108.00	6300	426	-
60	68	85	45	1.00	94.00	191.00	6300	808	-
60	70	90	28	1.10	68.00	113.00	5850	560	-
65	73	90	25	1.00	53.00	100.00	5850	467	NKI 65/25
65	73	90	35	1.00	75.00	156.00	5850	659	NKI 65/35
65	72	90	25	1.00	61.00	112.00	5850	456	-
65	72	90	45	1.00	95.00	198.00	5850	833	-
65	75	95	28	1.10	71.00	123.00	5400	641	-
70	80	95	25	1.00	56.00	119.00	5400	521	NKI 70/25
70	80	95	35	1.00	78.00	184.00	5400	737	NKI 70/35
70	80	100	30	1.00	84.00	156.00	5400	728	-
70	80	100	54	1.00	128.00	265.00	5400	1340	-
75	85	105	25	1.00	69.00	123.00	4950	641	NKI 75/25

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4909	-
-	-	-	NA 6909
NKIS 45	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4910	-
-	-	-	NA 6910
NKIS 50	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4911	-
-	-	-	NA 6911
NKIS 55	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4912	-
-	-	-	NA 6912
NKIS 60	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4913	-
-	-	-	NA 6913
NKIS 65	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4914	-
-	-	-	NA 6914
-	-	-	-

Needle Roller Bearings, with Inner Ring



NKI (d≦ 30 mm)
NKIS
NA 49, NA 69 (d≦ 30 mm)
NA 48

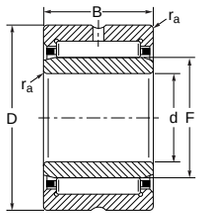


NA 69 (d ≧ 32 mm)

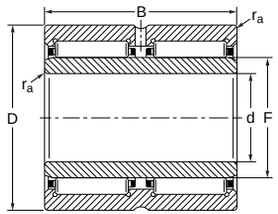
Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r_a max	Dynamic C kN	Static C_0 k.N	r/min	g	NKI
75	85	105	35	1.00	98.00	193.00	4950	908	NKI 75/35
75	85	105	30	1.00	86.00	162.00	4950	775	-
75	85	105	54	1.00	130.00	275.00	4950	1450	-
80	90	110	25	1.00	72.00	132.00	4500	677	NKI 80/25
80	90	110	35	1.00	103.00	208.00	4500	959	NKI 80/35
80	90	110	30	1.00	89.00	174.00	4500	878	-
80	90	110	54	1.00	135.00	300.00	4500	1522	-
85	95	115	26	1.00	73.00	137.00	4410	743	NKI 85/26
85	95	115	36	1.00	107.00	223.00	4410	1040	NKI 85/36
85	100	120	35	1.10	111.00	237.00	4320	1250	-
85	100	120	63	1.10	166.00	400.00	4320	2200	-
90	100	120	26	1.00	76.00	146.00	4230	778	NKI 90/26
90	100	120	36	1.00	111.00	237.00	4230	1090	NKI 90/36
90	105	125	35	1.10	114.00	250.00	4140	1312	-
90	105	125	63	1.10	172.00	425.00	4140	2310	-
95	105	125	26	1.00	78.00	155.00	4050	816	NKI 95/26
95	105	125	36	1.00	114.00	250.00	4050	1145	NKI 95/36
95	110	130	35	1.10	116.00	260.00	3960	1371	-
95	110	130	63	1.10	174.00	440.00	3960	2500	-
100	110	130	30	1.10	98.00	210.00	3870	990	NKI 100/30
100	110	130	40	1.10	127.00	290.00	3870	1330	NKI 100/40
100	115	140	40	1.10	128.00	270.00	3690	1900	-
110	125	150	40	1.10	132.00	290.00	3420	2070	-
110	120	140	30	1.00	94.00	216.00	3510	1080	-
120	135	165	45	1.10	181.00	390.00	3060	2860	-
120	130	150	30	1.00	68.00	113.00	3240	1170	-
130	145	165	35	1.10	118.00	310.00	2970	1810	-
130	150	180	50	1.50	203.00	470.00	2880	3900	-
140	155	175	35	1.10	120.00	325.00	2790	1920	-
140	160	190	50	1.50	209.00	500.00	2700	4150	-
150	165	190	40	1.10	152.00	400.00	2610	2720	-
160	175	200	40	1.10	160.00	435.00	2430	2890	-

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	NA 4915	-
-	-	-	NA 6915
-	-	-	-
-	-	-	-
-	-	NA 4916	-
-	-	-	NA 6916
-	-	-	-
-	-	-	-
-	-	NA 4917	-
-	-	-	NA 6917
-	-	-	-
-	-	-	-
-	-	NA 4918	-
-	-	-	NA 6918
-	-	-	-
-	-	-	-
-	-	NA 4919	-
-	-	-	NA 6919
-	-	-	-
-	-	-	-
-	-	NA 4920	-
-	-	NA 4922	-
-	NA 4822	-	-
-	-	NA 4924	-
-	NA 4824	-	-
-	NA 4826	-	-
-	-	NA 4926	-
-	NA 4828	-	-
-	-	NA 4928	-
-	NA 4830	-	-
-	NA 4832	-	-

Needle Roller Bearings, with Inner Ring



NKI (d≤ 30 mm)
NKIS
NA 49, NA 69 (d≤ 30 mm)
NA 48

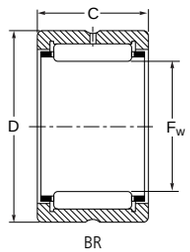


NA 69 (d ≥ 32 mm)

Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r_a max	Dynamic C kN	Static C_0 k.N	 r/min	 g	NKI
170	185	215	45	1.10	185.00	510.00	2250	3960	-
180	195	225	45	1.10	194.00	550.00	2160	4200	-
190	210	240	50	1.50	227.00	690.00	2070	5610	-
200	220	250	50	1.50	230.00	720.00	1980	5840	-
220	240	270	50	1.50	243.00	790.00	1800	6380	-
240	265	300	60	2.00	355.00	1080.00	1620	10000	-
260	285	320	60	2.00	370.00	1160.00	1530	10600	-
280	305	350	69	2.00	450.00	1300.00	1440	15300	-
300	330	380	80	2.10	620.00	1770.00	1260	21800	-
320	350	400	80	2.10	630.00	1850.00	1260	23000	-
340	370	420	80	2.10	640.00	1940.00	1170	24200	-
360	390	440	80	2.10	660.00	2020.00	1080	25600	-
380	415	480	100	2.10	1000.00	2900.00	990	42600	-

Designation			
NKIS	NA 48	NA 49	NA 69
-	NA 4834	-	-
-	NA 4836	-	-
-	NA 4838	-	-
-	NA 4840	-	-
-	NA 4844	-	-
-	NA 4848	-	-
-	NA 4852	-	-
-	NA 4856	-	-
-	NA 4860	-	-
-	NA 4864	-	-
-	NA 4868	-	-
-	NA 4872	-	-
-	NA 4876	-	-

Needle Roller Bearings, without Inner Ring - Inch Sizes

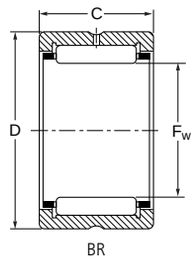


BR

Basic Dimensions						Basic Load Ratings		Mass	Designation
F_w inch	mm	D inch	mm	C inch	mm	Dynamic kN	Static kN	g	Sealed Type BR
5/8	15.875	1 1/8	28.575	3/4	19.050	17.023	17.728	49.0	BR 101812
3/4	19.050	1 1/4	31.750	3/4	19.050	19.580	21.962	56.0	BR 122012
3/4	19.050	1 1/4	31.750	1	25.400	24.784	29.812	75.0	BR 122016
7/8	22.225	1 3/8	34.925	3/4	19.050	20.639	24.431	63.0	BR 142212
7/8	22.225	1 3/8	34.925	1	25.400	26.195	33.163	84.5	BR 142216
1	25.400	1 1/2	38.100	3/4	19.050	22.756	28.665	69.0	BR 162412
1	25.400	1 1/2	38.100	1	25.400	28.930	38.984	92.5	BR 162416
1 1/8	28.575	1 5/8	41.275	1	25.400	31.399	44.894	102.0	BR 182616
1 1/8	28.575	1 5/8	41.275	1 1/4	31.750	38.896	59.006	128.0	BR 182620
1 1/4	31.750	1 3/4	44.450	1	25.400	32.369	48.069	110.0	BR 202816
1 1/4	31.750	1 3/4	44.450	1 1/4	31.750	40.131	63.328	138.0	BR 202820
1 3/8	34.925	1 7/8	47.625	1	25.400	34.663	53.978	119.0	BR 223016
1 3/8	34.925	1 7/8	47.625	1 1/4	31.750	42.953	71.089	149.0	BR 223020
1 1/2	38.100	2 1/16	52.388	1	25.400	39.337	60.152	149.0	BR 243316
1 1/2	38.100	2 1/16	52.388	1 1/4	31.750	48.775	79.204	187.0	BR 243320
1 5/8	41.275	2 3/16	55.562	1	25.400	40.307	63.769	158.0	BR 263516
1 5/8	41.275	2 3/16	55.562	1 1/4	31.750	50.009	84.055	199.0	BR 263520
1 3/4	44.450	2 5/16	58.738	1	25.400	42.777	70.384	170.0	BR 283716
1 3/4	44.450	2 5/16	58.738	1 1/4	31.750	53.008	92.610	215.0	BR 283720
1 3/4	44.450	2 3/8	60.325	1 1/4	31.750	53.008	92.610	250.0	BR 283820
1 7/8	47.625	2 7/16	61.912	1 1/4	31.750	54.067	97.020	225.0	BR 303920
2	50.800	2 9/16	65.088	1	25.400	45.864	80.350	190.0	BR 324116
2	50.800	2 9/16	65.088	1 1/4	31.750	56.801	105.840	240.0	BR 324120

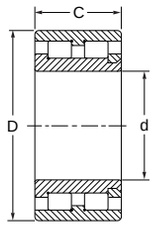
Designation		
HJ	MR	NCS
HJ-101812	MR-10-N	NCS 1012
HJ-122012	MR-12-N	NCS 1212
HJ-122016	MR-12	NCS 1216
HJ-142212	MR-14-N	NCS 1412
HJ-142216	MR-14	NCS 1416
HJ-162412	MR-16-N	NCS 1612
HJ-162416	MR-16	NCS 1616
HJ-182616	MR-18-N	NCS 1816
HJ-182620	MR-18	NCS 1820
HJ-202816	MR-20-N	NCS 2016
HJ-202820	MR-20	NCS 2020
HJ-223016	MR-22-N	NCS 2216
HJ-223020	MR-22	NCS 2220
HJ-243316	MR-24-N	NCS 2416
HJ-243320	MR-24	NCS 2420
HJ-263516	MR-26-N	NCS 2616
HJ-263520	MR-26	NCS 2620
HJ-283716	MR-28-N	NCS 2816
HJ-283720	MR-28-N	NCS 2820
-	-	-
HJ-303920	MR-30	NCS 3020
HJ-324116	MR-32-N	NCS 3216
HJ-324120	MR-32	NCS 3220

Needle Roller Bearings, without Inner Ring - Inch Sizes

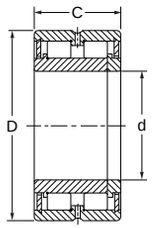


Basic Dimensions						Basic Load Ratings		Mass	Designation
F_w		D		C		Dynamic	Static		
inch	mm	inch	mm	inch	mm	kN	kN	g	Sealed Type BR
2 1/4	57.150	3	76.200	1 1/2	38.100	81.144	142.002	435.0	BR 364824
2 1/4	57.150	3	76.200	1 3/4	44.450	94.374	171.990	510.0	BR 364828
2 1/2	63.500	3 1/4	82.550	1 1/2	38.100	85.025	156.114	475.0	BR 405224
2 1/2	63.500	3 1/4	82.550	1 3/4	44.450	98.784	188.748	555.0	BR 405228
2 3/4	69.850	3 1/2	88.900	1 1/2	38.100	89.082	170.226	510.0	BR 445624
2 3/4	69.850	3 1/2	88.900	1 3/4	44.450	103.194	205.506	600.0	BR 445628
3	76.200	3 3/4	95.250	1 1/2	38.100	94.374	190.512	555.0	BR 486024
3	76.200	3 3/4	95.250	1 3/4	44.450	109.368	230.202	650.0	BR 486028
3 1/4	82.550	4 1/4	107.950	1 3/4	44.450	127.008	232.848	990.0	BR 526828
3 1/4	82.550	4 1/4	107.950	2	50.800	138.474	260.190	1140.0	BR 526832
3 1/2	88.900	4 1/2	114.300	2	50.800	145.530	283.122	1220.0	BR 567232
3 3/4	95.250	4 3/4	120.650	2	50.800	151.704	307.818	1290.0	BR 607632
4	101.600	5	127.000	2	50.800	158.760	330.750	1370.0	BR 648032

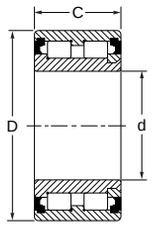
Designation		
HJ	MR	NCS
HJ-364824	MR-36-N	NCS 3624
HJ-364828	MR-36	-
HJ-405224	MR-40-N	NCS 4024
HJ-405228	MR-40	-
HJ-445624	MR-44-N	NCS 4424
HJ-445628	MR-44	-
HJ-486024	MR-48-N	NCS 4824
HJ-486028	MR-48	-
HJ-526828	MR-52	NCS 5228
HJ-526832	-	NCS 5232
HJ-567232	MR-56	NCS 5632
HJ-607632	MR-60	-
HJ-648032	MR-64	-



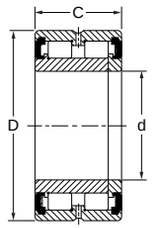
NAG 49
(d ≧ 17)



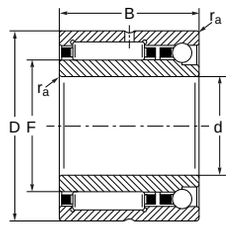
NAG 49



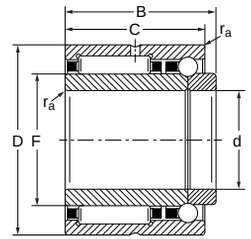
NAG 49..UU
(d ≦ 17)



NAG 49..UU



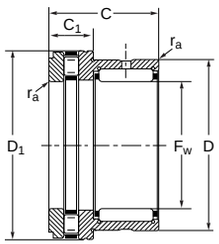
NKIA



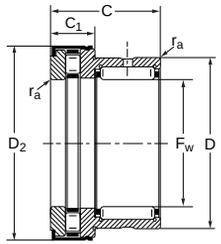
NKIB

Basic Dimensions			Basic Load Ratings		Designation	Mass	Designation	Mass
			Dynamic	Static				
d	D	B	C	C_0	Open Type	Open	Sealed Type	Sealed
mm	mm	mm	kN	kN	NAG 49	g	NAG 49..U	g
10	22	13	10.672	12.701	NAG 4900	25.5	NAG 4900 UU	25.5
12	24	13	11.466	14.200	NAG 4901	28.5	NAG 4901 UU	28.5
15	28	13	13.054	17.905	NAG 4902	38.0	NAG 4902 UU	38.0
17	30	13	13.671	19.404	NAG 4903	41.0	NAG 4903 UU	41.0
20	37	17	17.816	23.020	NAG 4904	76.5	NAG 4904 UU	76.5
25	42	17	19.933	28.312	NAG 4905	89.5	NAG 4905 UU	89.5
30	47	17	21.521	32.546	NAG 4906	103.0	NAG 4906 UU	103.0
35	55	20	32.281	52.479	NAG 4907	172.0	NAG 4907 UU	172.0
40	62	22	38.896	59.447	NAG 4908	225.0	NAG 4908 UU	225.0
45	68	22	40.925	65.621	NAG 4909	265.0	NAG 4909 UU	265.0
50	72	22	43.042	71.795	NAG 4910	270.0	NAG 4910 UU	270.0
55	80	25	53.978	92.610	NAG 4911	395.0	NAG 4911 UU	395.0
60	85	25	56.272	100.548	NAG 4912	425.0	NAG 4912 UU	425.0
65	90	25	58.653	108.486	NAG 4913	455.0	NAG 4913 UU	455.0
70	100	30	83.173	156.114	NAG 4914	725.0	NAG 4914 UU	725.0
75	105	30	85.642	164.052	NAG 4915	775.0	NAG 4915 UU	775.0
80	110	30	89.082	176.400	NAG 4916	815.0	NAG 4916 UU	815.0
85	120	35	116.424	219.618	NAG 4917	1190.0	NAG 4917 UU	1190.0
90	125	35	119.952	231.084	NAG 4918	1250.0	NAG 4918 UU	1250.0
95	130	35	122.598	243.432	NAG 4919	1300.0	NAG 4919 UU	1300.0
100	140	40	157.878	315.756	NAG 4920	1850.0	NAG 4920 UU	1850.0
110	150	40	164.052	339.570	NAG 4922	2010.0	NAG 4922 UU	2010.0
120	165	45	207.270	440.118	NAG 4924	2780.0	NAG 4924 UU	2780.0
130	180	50	238.140	505.386	NAG 4926	3750.0	NAG 4926 UU	3750.0
140	190	50	247.842	542.430	NAG 4928	3990.0	NAG 4928 UU	3990.0

Basic Dimensions						Basic Load Ratings		Limiting Speed	Designation	Mass
						Dynamic	Static			
d	F	D	B	C	r_a	C	C_0			
mm	mm	mm	mm	mm	max	kN	kN	r/min		g
12	16	24	16	-	0.3	6.8	7.5	21600	NKIA 5901	40
12	16	24	17.5	16	0.3	6.8	7.5	21600	NKIB 5901	43
15	20	28	18	-	0.3	9.5	12.2	19800	NKIA 5902	50
15	20	28	20	18	0.3	9.5	12.2	19800	NKIB 5902	52
17	22	30	18	-	0.3	9.9	13.1	18900	NKIA 5903	56
17	22	30	20	18	0.3	9.9	13.1	18900	NKIB 5903	58
20	25	37	23	-	0.3	18.9	23.0	15300	NKIA 5904	103
20	25	37	25	23	0.3	18.9	23.0	15300	NKIB 5904	107
22	28	39	23	-	0.3	20.5	26.6	14400	NKIA 59/22	118
22	28	39	25	23	0.3	20.5	26.6	14400	NKIB 59/22	122
25	30	42	23	-	0.3	21.2	28.4	13500	NKIA 5905	130
25	30	42	25	23	0.3	21.2	28.4	13500	NKIB 5905	134
30	35	47	23	-	0.3	22.5	32.0	11700	NKIA 5906	147
30	35	47	25	23	0.3	22.5	32.0	11700	NKIB 5906	151
35	42	55	27	-	0.6	28.4	45.0	9900	NKIA 5907	243
35	42	55	30	27	0.6	28.4	45.0	9900	NKIB 5907	247
40	48	62	30	-	0.6	38.7	60.3	8550	NKIA 5908	315
40	48	62	34	30	0.6	38.7	60.3	8550	NKIB 5908	320
45	52	68	30	-	0.6	40.5	65.7	7650	NKIA 5909	375
45	52	68	34	30	0.6	40.5	65.7	7650	NKIB 5909	380
50	58	72	30	-	0.6	42.3	72.0	7200	NKIA 5910	380
50	58	72	34	30	0.6	42.3	72.0	7200	NKIB 5910	385
55	63	80	34	-	1.0	52.2	90.0	6750	NKIA 5911	550
55	63	80	38	34	1.0	52.2	90.0	6750	NKIB 5911	555
60	68	85	34	-	1.0	54.0	97.2	6300	NKIA 5912	590
60	68	85	38	34	1.0	54.0	97.2	6300	NKIB 5912	595
65	72	90	34	-	1.0	54.9	100.8	5850	NKIA 5913	635
65	72	90	38	34	1.0	54.9	100.8	5850	NKIB 5913	640
70	80	100	40	-	1.0	75.6	140.4	5400	NKIA 5914	980
70	80	100	45	40	1.0	75.6	140.4	5400	NKIB 5914	985

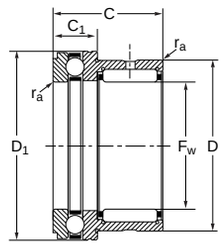


NKXR

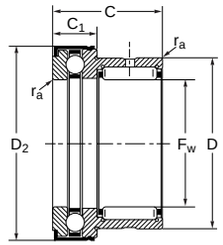


NKXR..Z

Basic Dimensions							Basic Load Ratings		Limiting Speed	Designation	Mass	Basic Load Ratings		Limiting Speed
							Dynamic	Static				Dynamic	Static	
F_w mm	D mm	D_1 mm	D_2 mm	C mm	C_1 mm	r_a max	C kN	C_0 kN	r/min		g	C kN	C_0 kN	nG r/min
15	24	28.1	29.2	23	9	0.3	9.63	11.43	11700	NKXR 15	42	10.7	12.7	13000
17	26	30.1	31.2	25	9	0.3	10.71	13.5	10800	NKXR 17	50	11.9	15	12000
20	30	35.1	36.2	30	10	0.3	14.76	21.42	9000	NKXR 20	80	16.4	23.8	10000
25	37	42.1	43.2	30	11	0.6	16.92	27.45	7650	NKXR 25	120	18.8	30.5	8500
30	42	47.1	48.2	30	11	0.6	20.34	32.4	6750	NKXR 30	135	22.6	36	7500
35	47	52.1	53.2	30	12	0.6	21.87	37.35	5850	NKXR 35	157	24.3	41.5	6500
40	52	60.1	61.2	32	13	0.6	23.4	42.3	5400	NKXR 40	204	26	47	6000
45	58	65.2	66.5	32	14	0.6	24.75	47.7	4500	NKXR 45	244	27.5	53	5000
50	62	70.2	71.5	35	14	0.6	34.2	66.6	4320	NKXR 50	268	38	74	4800

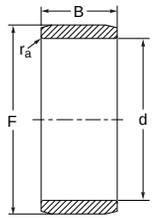


NKX



NKX..Z

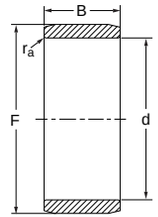
Basic Dimensions							Basic Load Ratings		Limiting Speed	Designation	Mass	Basic Load Ratings		Limiting Speed
							Dynamic	Static				Dynamic	Static	
F_w mm	D mm	D_1 mm	D_2 mm	C mm	C_1 mm	r_a max	C kN	C_0 kN	r/min		g	C kN	C_0 kN	nG r/min
12	21	26.1	27.2	23	9	0.3	8.1	9.9	9900	NKX 12	38	9	11	11000
15	24	28.1	29.2	23	9	0.3	9.63	11.43	8550	NKX 15	44	10.7	12.7	9500
17	26	30.1	31.2	25	9	0.3	10.71	13.5	7650	NKX 17	53	11.9	15	8500
20	30	35.1	36.2	30	10	0.3	14.76	21.42	6750	NKX 20	83	16.4	23.8	7500
25	37	42.1	43.2	30	11	0.6	16.92	27.45	5400	NKX 25	125	18.8	30.5	6000
30	42	47.1	48.2	30	11	0.6	20.34	32.4	4500	NKX 30	141	22.6	36	5000
35	47	52.1	53.2	30	12	0.6	21.87	37.35	4140	NKX 35	163	24.3	41.5	4600
40	52	60.1	61.2	32	13	0.6	23.4	42.3	3600	NKX 40	200	26	47	4000
45	58	65.2	66.5	32	14	0.6	24.75	47.7	3240	NKX 45	252	27.5	53	3600
50	62	70.2	71.5	35	14	0.6	34.2	66.6	2970	NKX 50	280	38	74	3300
60	72	85.2	86.5	40	17	1	37.8	81	2520	NKX 60	360	42	90	2800
70	85	95.2	96.5	40	18	1	40.05	82.8	2160	NKX 70	500	44.5	92	2400



Inner Ring - IR

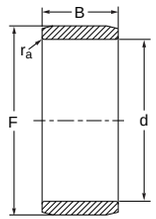
Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
5	8	12	0.3	2.8	IR 5 x 8 x 12
5	8	16	0.3	3.7	IR 5 x 8 x 16
6	9	12	0.3	3.0	IR 6 x 9 x 12
6	9	16	0.3	4.3	IR 6 x 9 x 16
6	10	10	0.3	3.7	IR 6 x 10 x 10
6	10	12	0.3	4.6	IR 6 x 10 x 12
7	10	10.5	0.3	3.1	IR 7 x 10 x 10.5
7	10	12	0.3	3.6	IR 7 x 10 x 12
7	10	16	0.3	4.9	IR 7 x 10 x 16
8	12	10	0.3	4.8	IR 8 x 12 x 10
8	12	10.5	0.3	5.0	IR 8 x 12 x 10.5
8	12	12	0.3	5.6	IR 8 x 12 x 12
8	12	12.5	0.3	5.9	IR 8 x 12 x 12.5
9	12	12	0.3	4.4	IR 9 x 12 x 12
9	12	16	0.3	6.0	IR 9 x 12 x 16
10	13	12.5	0.3	5.2	IR 10 x 13 x 12.5
10	14	12	0.3	7.3	IR 10 x 14 x 12
10	14	13	0.3	7.4	IR 10 x 14 x 13
10	14	14	0.3	8.1	IR 10 x 14 x 14
10	14	16	0.3	9.2	IR 10 x 14 x 16
10	14	20	0.3	11.5	IR 10 x 14 x 20
12	15	12	0.3	5.7	IR 12 x 15 x 12
12	15	12.5	0.3	6.1	IR 12 x 15 x 12.5
12	15	16	0.3	7.6	IR 12 x 15 x 16
12	15	16.5	0.3	8.1	IR 12 x 15 x 16.5
12	15	22.5	0.3	10.9	IR 12 x 15 x 22.5
12	16	12	0.3	7.9	IR 12 x 16 x 12
12	16	13	0.3	8.5	IR 12 x 16 x 13
12	16	14	0.3	9.4	IR 12 x 16 x 14
12	16	16	0.3	10.7	IR 12 x 16 x 16
12	16	20	0.3	13.5	IR 12 x 16 x 20
12	16	22	0.3	14.9	IR 12 x 16 x 22

Inner Rings



Inner Ring - IR

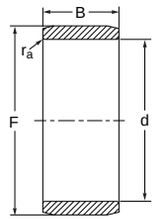
Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
14	17	17	0.3	9.5	IR 14 x 17 x 17
15	18	16	0.3	9.4	IR 15 x 18 x 16
15	18	16.5	0.3	9.8	IR 15 x 18 x 16.5
15	19	16	0.3	12.9	IR 15 x 19 x 16
15	19	20	0.3	16.3	IR 15 x 19 x 20
15	20	12	0.3	12.2	IR 15 x 20 x 12
15	20	13	0.3	13.5	IR 15 x 20 x 13
15	20	14	0.3	14.6	IR 15 x 20 x 14
15	20	23	0.3	24.4	IR 15 x 20 x 23
17	20	16	0.3	10.6	IR 17 x 20 x 16
17	20	16.5	0.3	11.1	IR 17 x 20 x 16.5
17	20	20	0.3	13.5	IR 17 x 20 x 20
17	20	20.5	0.3	13.8	IR 17 x 20 x 20.5
17	20	30.5	0.3	20.6	IR 17 x 20 x 30.5
17	21	16	0.3	15.0	IR 17 x 21 x 16
17	21	20	0.3	18.0	IR 17 x 21 x 20
17	22	13	0.3	14.9	IR 17 x 22 x 13
17	22	14	0.3	16.4	IR 17 x 22 x 14
17	22	16	0.3	18.4	IR 17 x 22 x 16
17	22	23	0.3	27.1	IR 17 x 22 x 23
17	24	20	0.6	33.8	IR 17 x 24 x 20
20	24	16	0.3	15.0	IR 20 x 24 x 16
20	24	20	0.3	21.3	IR 20 x 24 x 20
20	25	16	0.3	24.0	IR 20 x 25 x 16
20	25	17	0.3	25.0	IR 20 x 25 x 17
20	25	18	0.3	24.2	IR 20 x 25 x 18
20	25	20	0.3	27.5	IR 20 x 25 x 20
20	25	20.5	0.3	27.4	IR 20 x 25 x 20.5
20	25	26.5	0.3	38.0	IR 20 x 25 x 26.5
20	25	30	0.3	40.4	IR 20 x 25 x 30
20	25	38.5	0.3	52.5	IR 20 x 25 x 38.5
20	28	20	0.6	45.2	IR 20 x 28 x 20



Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
22	26	16	0.3	18.2	IR 22 x 26 x 16
22	26	20	0.3	23.0	IR 22 x 26 x 20
22	28	17	0.3	29.5	IR 22 x 28 x 17
22	28	20	0.3	35.0	IR 22 x 28 x 20
22	28	20.5	0.3	36.0	IR 22 x 28 x 20.5
22	28	30	0.3	54.4	IR 22 x 28 x 30
25	29	20	0.3	25.9	IR 25 x 29 x 20
25	29	30	0.3	39.3	IR 25 x 29 x 30
25	30	16	0.3	25.7	IR 25 x 30 x 16
25	30	17	0.3	27.4	IR 25 x 30 x 17
25	30	18	0.3	29.8	IR 25 x 30 x 18
25	30	20	0.3	32.8	IR 25 x 30 x 20
25	30	20.5	0.3	33.4	IR 25 x 30 x 20.5
25	30	26.5	0.3	46.0	IR 25 x 30 x 26.5
25	30	30	0.3	53.0	IR 25 x 30 x 30
25	30	32	0.3	56.0	IR 25 x 30 x 32
25	30	38.5	0.3	64.5	IR 25 x 30 x 38.5
25	32	22	0.6	52.5	IR 25 x 32 x 22
28	32	17	0.3	24.5	IR 28 x 32 x 17
28	32	20	0.3	28.5	IR 28 x 32 x 20
28	32	30	0.3	43.5	IR 28 x 32 x 30
30	35	13	0.3	25.0	IR 30 x 35 x 13
30	35	16	0.3	34.0	IR 30 x 35 x 16
30	35	17	0.3	36.0	IR 30 x 35 x 17
30	35	18	0.3	35.1	IR 30 x 35 x 18
30	35	20	0.3	39.0	IR 30 x 35 x 20
30	35	20.5	0.3	39.7	IR 30 x 35 x 20.5
30	35	26	0.3	50.4	IR 30 x 35 x 26
30	35	30	0.3	58.5	IR 30 x 35 x 30
30	37	18	0.6	50.0	IR 30 x 37 x 18
30	37	22	0.6	61.6	IR 30 x 37 x 22
30	38	20	0.6	77.0	IR 30 x 38 x 20

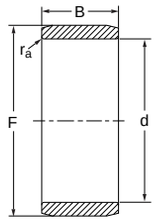
Inner Rings



Inner Ring - IR

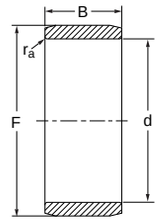
Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
32	37	20	0.3	42.0	IR 32 x 37 x 20
32	37	30	0.3	62.0	IR 32 x 37 x 30
32	40	20	0.6	68.0	IR 32 x 40 x 20
32	40	36	0.6	124.0	IR 32 x 40 x 36
33	37	13	0.3	21.9	IR 33 x 37 x 13
35	40	17	0.3	37.8	IR 35 x 40 x 17
35	40	20	0.3	44.2	IR 35 x 40 x 20
35	40	20.5	0.3	46.1	IR 35 x 40 x 20.5
35	40	30	0.3	67.1	IR 35 x 40 x 30
35	42	20	0.6	63.9	IR 35 x 42 x 20
35	42	21	0.6	68.0	IR 35 x 42 x 21
35	42	23	0.6	74.7	IR 35 x 42 x 23
35	42	36	0.6	117.0	IR 35 x 42 x 36
35	43	22	0.6	82.0	IR 35 x 43 x 22
38	43	20	0.3	48.1	IR 38 x 43 x 20
38	43	30	0.3	73.6	IR 38 x 43 x 30
40	45	17	0.3	42.5	IR 40 x 45 x 17
40	45	20	0.3	50.8	IR 40 x 45 x 20
40	45	20.5	0.3	51.8	IR 40 x 45 x 20.5
40	45	30	0.3	84.0	IR 40 x 45 x 30
40	48	22	0.6	91.6	IR 40 x 48 x 22
40	48	23	0.6	97.5	IR 40 x 48 x 23
40	48	40	0.6	170.0	IR 40 x 48 x 40
40	50	20	1.0	106.0	IR 40 x 50 x 20
40	50	22	1.0	118.0	IR 40 x 50 x 22
42	47	20	0.3	52.8	IR 42 x 47 x 20
42	47	30	0.3	81.0	IR 42 x 47 x 30
45	50	25	0.3	70.8	IR 45 x 50 x 25
45	50	25.5	0.3	75.1	IR 45 x 50 x 25.5
45	50	35	0.6	101.0	IR 45 x 50 x 35
45	52	22	0.6	89.0	IR 45 x 52 x 22
45	52	23	0.6	93.9	IR 45 x 52 x 23

Inner Rings



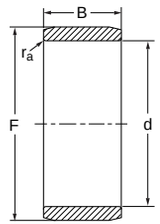
Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
45	52	40	0.6	164.0	IR 45 x 52 x 40
45	55	20	1.0	117.0	IR 45 x 55 x 20
45	55	22	1.0	129.0	IR 45 x 55 x 22
50	55	20	0.6	62.5	IR 50 x 55 x 20
50	55	25	0.6	78.0	IR 50 x 55 x 25
50	55	35	0.6	112.0	IR 50 x 55 x 35
50	58	22	0.6	115.0	IR 50 x 58 x 22
50	58	23	0.6	119.0	IR 50 x 58 x 23
50	58	40	0.6	208.0	IR 50 x 58 x 40
50	60	20	1.0	128.0	IR 50 x 60 x 20
50	60	25	1.0	162.0	IR 50 x 60 x 25
50	60	28	1.1	181.0	IR 50 x 60 x 28
55	60	25	0.6	85.5	IR 55 x 60 x 25
55	60	35	0.6	121.0	IR 55 x 60 x 35
55	63	25	1.0	141.0	IR 55 x 63 x 25
55	63	45	1.0	256.0	IR 55 x 63 x 45
55	65	28	1.1	198.0	IR 55 x 65 x 28
60	68	25	1.0	152.0	IR 60 x 68 x 25
60	68	35	0.6	213.0	IR 60 x 68 x 35
60	68	45	1.0	276.0	IR 60 x 68 x 45
60	70	25	1.0	195.0	IR 60 x 70 x 25
60	70	28	1.1	215.0	IR 60 x 70 x 28
65	72	25	1.0	141.0	IR 65 x 72 x 25
65	72	45	1.0	259.0	IR 65 x 72 x 45
65	73	25	1.0	164.0	IR 65 x 73 x 25
65	73	35	1.0	231.0	IR 65 x 73 x 35
65	75	28	1.1	229.0	IR 65 x 75 x 28
70	80	25	1.0	221.0	IR 70 x 80 x 25
70	80	30	1.0	267.0	IR 70 x 80 x 30
70	80	35	1.0	312.0	IR 70 x 80 x 35
70	80	54	1.0	488.0	IR 70 x 80 x 54
75	85	25	1.0	238.0	IR 75 x 85 x 25



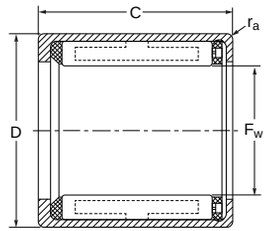
Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
75	85	30	1.0	287.0	IR 75 x 85 x 30
75	85	35	1.0	336.0	IR 75 x 85 x 35
75	85	54	1.0	520.0	IR 75 x 85 x 54
80	90	25	1.0	253.0	IR 80 x 90 x 25
80	90	30	1.0	304.0	IR 80 x 90 x 30
80	90	35	1.0	355.0	IR 80 x 90 x 35
80	90	54	1.0	556.0	IR 80 x 90 x 54
85	95	26	1.0	277.0	IR 85 x 95 x 26
85	95	36	1.0	388.0	IR 85 x 95 x 36
85	100	35	1.1	582.0	IR 85 x 100 x 35
85	100	63	1.1	1054.0	IR 85 x 100 x 63
90	100	26	1.0	294.0	IR 90 x 100 x 26
90	100	30	1.0	340.0	IR 90 x 100 x 30
90	100	36	1.0	406.0	IR 90 x 100 x 36
90	105	35	1.1	610.0	IR 90 x 105 x 35
90	105	63	1.1	1110.0	IR 90 x 105 x 63
95	105	26	1.0	313.0	IR 95 x 105 x 26
95	105	36	1.0	431.0	IR 95 x 105 x 36
95	110	35	1.1	657.0	IR 95 x 110 x 35
95	110	63	1.1	1170.0	IR 95 x 110 x 63
100	110	30	1.1	350.0	IR 100 x 110 x 30
100	110	40	1.1	505.0	IR 100 x 110 x 40
100	115	40	1.1	797.0	IR 100 x 115 x 40
110	120	30	1.0	409.0	IR 110 x 120 x 30
110	125	40	1.1	840.0	IR 110 x 125 x 40
120	130	30	1.0	442.0	IR 120 x 130 x 30
120	135	45	1.1	1044.0	IR 120 x 135 x 45
130	145	35	1.1	855.0	IR 130 x 145 x 35
130	150	50	1.5	1690.0	IR 130 x 150 x 50
140	155	35	1.1	917.0	IR 140 x 155 x 35
140	160	50	1.5	1800.0	IR 140 x 160 x 50
150	165	40	1.1	1122	IR 150 x 165 x 40



Inner Ring - IR

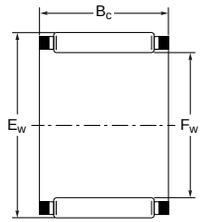
Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r_a max	g	
160	175	40	1.1	1200	IR 160 x 175 x 40
170	185	45	1.1	1441	IR 170 x 185 x 45
180	195	45	1.1	1510	IR 180 x 195 x 45
190	210	50	1.5	2410	IR 190 x 210 x 50
200	220	50	1.5	2518	IR 200 x 220 x 50
220	240	50	1.5	2753	IR 220 x 240 x 50
240	265	60	2.0	4600	IR 240 x 265 x 60
260	285	60	2.0	4980	IR 260 x 285 x 60
280	305	69	2.0	6100	IR 280 x 305 x 69
300	330	80	2.1	9200	IR 300 x 330 x 80
320	350	80	2.1	9800	IR 320 x 350 x 80
340	370	80	2.1	10200	IR 340 x 370 x 80
360	390	80	2.1	10900	IR 360 x 390 x 80
380	415	100	2.1	16700	IR 380 x 415 x 100

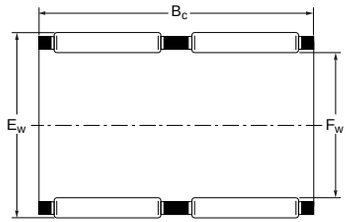


HF, HF..KF

Basic Dimensions			Chamfer Dimension	Limiting Speed	Mass	Designation	
F_w mm	D mm	C mm	r_a max	r/min	g	Plastic Springs	Steel Springs
4	8	6	0.3	32300	1.0	HF 0406 KF	-
4	8	6	0.3	32300	1.0	HF 0406 KFR	-
6	10	12	0.3	21850	3.0	HF 0612 KF	HF 0612
6	10	12	0.3	21850	3.0	HF 0612 KFR	HF 0612 R
8	12	12	0.3	16150	3.5	HF 0812 KF	HF 0812
8	12	12	0.3	16150	3.5	HF 0812 KFR	HF 0812 R
10	14	12	0.3	13300	4.0	HF 1012 KF	HF 1012
12	18	16	0.3	10450	11.0	-	HF 1216
14	20	16	0.3	9025	13.0	-	HF 1416
16	22	16	0.3	8075	14.0	-	HF 1616
18	24	16	0.3	7125	16.0	-	HF 1816
20	26	16	0.3	6650	17.0	-	HF 2016
25	32	20	0.3	5225	30.0	-	HF 2520
30	37	20	0.3	4275	36.0	-	HF 3020
35	42	20	0.3	3705	40.0	-	HF 3520

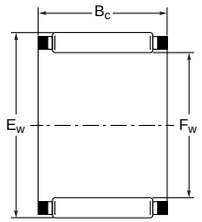
Needle Cage Assemblies

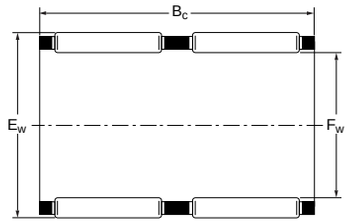




K..ZW

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
3	5	7	1.39	1.16	45000	0.3	KT 3 x 5 x 7
3	5	9	1.54	1.33	45000	0.4	KT 3 x 5 x 9
3	6	7	1.29	0.87	42300	0.4	KT 3 x 6 x 7
4	7	7	1.57	1.14	38700	0.5	KT 4 x 7 x 7
4	7	10	2.10	1.66	38700	0.7	KT 4 x 7 x 10
5	8	8	2.12	1.73	35100	0.7	KT 5 x 8 x 8
5	8	10	2.70	2.39	35100	0.9	KT 5 x 8 x 10
6	9	8	2.34	2.05	33300	0.8	KT 6 x 9 x 8
6	9	10	3.02	2.84	33300	1.1	KT 6 x 9 x 10
6	10	13	3.42	2.79	31500	1.9	KT 6 x 10 x 13
7	9	7	1.56	1.59	31500	0.8	KT 7 x 9 x 7
7	10	8	2.57	2.39	30600	0.9	KT 7 x 10 x 8
7	10	10	3.29	3.24	30600	1.0	KT 7 x 10 x 10
8	11	8	2.79	2.70	28800	1.0	KT 8 x 11 x 8
8	11	10	3.56	3.69	28800	1.2	KT 8 x 11 x 10
8	11	13	4.59	5.22	28800	1.7	KT 8 x 11 x 13
8	12	10	4.50	4.23	28800	2.0	KT 8 x 12 x 10
9	12	10	4.05	4.50	27900	1.5	KT 9 x 12 x 10
9	12	13	5.31	6.39	27900	2.1	KT 9 x 12 x 13
10	13	10	4.28	4.95	26100	1.6	KT 10 x 13 x 10
10	13	13	5.58	7.02	26100	2.3	KT 10 x 13 x 13
10	13	16	6.39	8.37	26100	2.9	KT 10 x 13 x 16
10	14	10	5.22	5.40	26100	2.5	KT 10 x 14 x 10
10	14	13	6.75	7.56	26100	4.6	KT 10 x 14 x 13
10	16	12	7.29	6.48	25200	5.5	KT 10 x 16 x 12
12	15	10	4.41	5.49	24300	2.9	KT 12 x 15 x 10
12	15	13	5.76	7.65	24300	2.3	KT 12 x 15 x 13
12	16	13	7.20	8.46	24300	5.5	KT 12 x 16 x 13
12	17	13	8.64	9.36	23400	4.9	KT 12 x 17 x 13
12	18	12	9.00	8.91	23400	6.0	KT 12 x 18 x 12
14	18	10	6.39	7.65	22500	4.0	KT 14 x 18 x 10
14	18	13	7.38	9.09	22500	6.5	KT 14 x 18 x 13

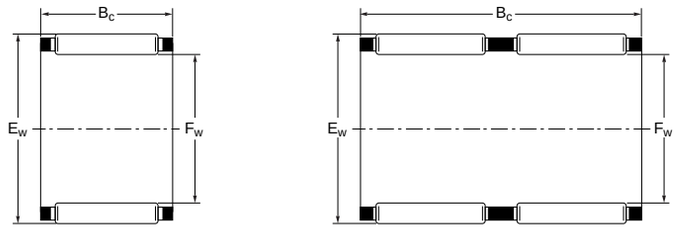




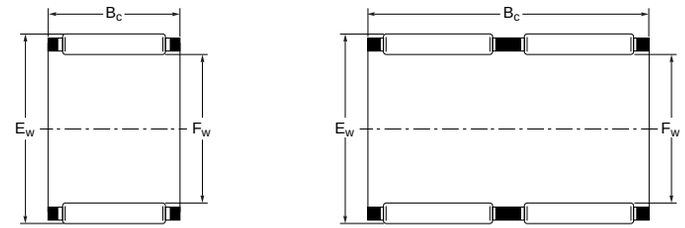
K..ZW

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
14	18	15	8.55	11.07	22500	5.0	KT 14 x 18 x 15
14	18	17	9.72	12.96	22500	8.0	KT 14 x 18 x 17
14	20	12	9.27	9.54	21600	8.5	KT 14 x 20 x 12
15	18	17	7.20	10.89	22500	4.6	KT 15 x 18 x 17
15	19	10	6.75	8.28	21600	5.0	KT 15 x 19 x 10
15	19	13	7.65	9.81	21600	7.0	KT 15 x 19 x 13
15	19	17	10.17	14.04	21600	9.5	KT 15 x 19 x 17
15	20	13	8.91	10.35	21600	7.0	KT 15 x 20 x 13
15	21	15	12.87	14.76	21600	11.0	KT 15 x 21 x 15
15	21	21	17.46	21.87	21600	17.0	KT 15 x 21 x 21
16	20	10	7.02	8.91	21600	5.5	KT 16 x 20 x 10
16	20	13	8.01	10.62	21600	7.5	KT 16 x 20 x 13
16	20	17	10.53	15.12	21600	10.0	KT 16 x 20 x 17
16	22	12	10.35	11.25	20700	10.0	KT 16 x 22 x 12
16	22	16	13.32	15.75	20700	12.0	KT 16 x 22 x 16
16	22	20	16.47	20.52	20700	17.0	KT 16 x 22 x 20
16	24	20	19.26	21.15	19800	22.0	KT 16 x 24 x 20
17	21	10	7.29	9.54	20700	5.5	KT 17 x 21 x 10
17	21	13	9.36	13.14	20700	6.5	KT 17 x 21 x 13
17	21	17	10.98	16.11	20700	9.5	KT 17 x 21 x 17
18	22	10	7.56	10.17	19800	6.0	KT 18 x 22 x 10
18	22	13	8.28	11.43	19800	8.0	KT 18 x 22 x 13
18	22	17	10.89	16.20	19800	11.0	KT 18 x 22 x 17
18	24	12	11.52	13.41	19800	12.0	KT 18 x 24 x 12
18	24	13	11.79	13.77	19800	13.0	KT 18 x 24 x 13
18	24	20	18.18	24.30	19800	18.0	KT 18 x 24 x 20
18	25	22	20.79	26.10	19800	23.0	KT 18 x 25 x 22
19	23	13	8.55	12.15	19800	8.0	KT 19 x 23 x 13
19	23	17	11.25	17.28	19800	11.0	KT 19 x 23 x 17
20	24	10	8.01	11.34	18900	6.5	KT 20 x 24 x 10
20	24	13	8.82	12.87	18900	9.0	KT 20 x 24 x 13
20	24	17	11.61	18.36	18900	12.0	KT 20 x 24 x 17

Needle Cage Assemblies



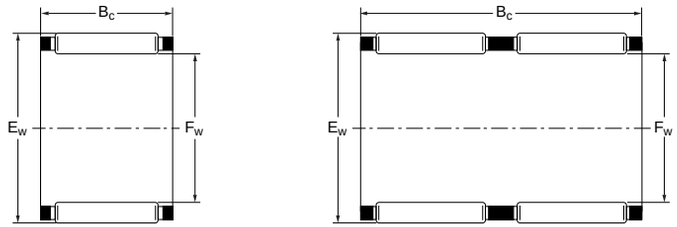
K..ZW



K..ZW

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
20	26	12	11.16	14.58	18900	11.0	KT 20 x 26 x 12
20	26	13	12.96	16.11	18900	12.0	KT 20 x 26 x 13
20	26	17	17.28	23.40	18900	16.0	KT 20 x 26 x 17
20	26	20	18.99	26.10	18900	19.0	KT 20 x 26 x 20
20	28	16	17.82	20.16	18000	20.0	KT 20 x 28 x 16
20	28	20	21.51	25.65	18000	27.0	KT 20 x 28 x 20
20	28	25	27.45	35.10	18000	32.0	KT 20 x 28 x 25
20	30	30	31.95	37.35	18000	49.0	KT 20 x 30 x 30
21	25	13	9.09	13.59	18900	9.0	KT 21 x 25 x 13
22	26	10	8.19	12.06	18000	7.5	KT 22 x 26 x 10
22	26	13	9.36	14.31	18000	9.5	KT 22 x 26 x 13
22	26	17	12.33	20.43	18000	12.0	KT 22 x 26 x 17
22	28	17	17.46	24.30	18000	18.0	KT 22 x 28 x 17
22	29	16	18.00	22.95	17100	16.0	KT 22 x 29 x 16
22	30	15	18.09	21.06	17100	18.0	KT 22 x 30 x 15
22	32	24	30.60	36.00	16200	43.0	KT 22 x 32 x 24
23	35	16	22.05	21.51	15300	29.0	KT 23 x 35 x 16
24	28	10	8.64	13.32	17100	8.5	KT 24 x 28 x 10
24	28	13	9.90	15.84	17100	10.0	KT 24 x 28 x 13
24	28	17	13.05	22.50	17100	13.0	KT 24 x 28 x 17
24	30	17	17.55	24.75	16200	19.0	KT 24 x 30 x 17
24	30	31	24.75	39.15	16200	32.0	KT 24 x 30 x 31 ZW
25	29	10	8.91	13.86	16200	8.5	KT 25 x 29 x 10
25	29	13	10.17	16.56	16200	11.0	KT 25 x 29 x 13
25	29	17	13.41	23.40	16200	14.0	KT 25 x 29 x 17
25	30	17	16.83	27.00	16200	16.0	KT 25 x 30 x 17
25	30	20	19.53	32.85	16200	18.0	KT 25 x 30 x 20
25	30	26	19.26	31.95	16200	19.0	KT 25 x 30 x 26 ZW
25	31	17	17.64	25.65	16200	19.0	KT 25 x 31 x 17
25	31	21	22.23	34.20	16200	20.0	KT 25 x 31 x 21
25	32	16	18.72	24.75	15300	21.0	KT 25 x 32 x 16
25	33	20	25.65	34.20	15300	33.0	KT 25 x 33 x 20

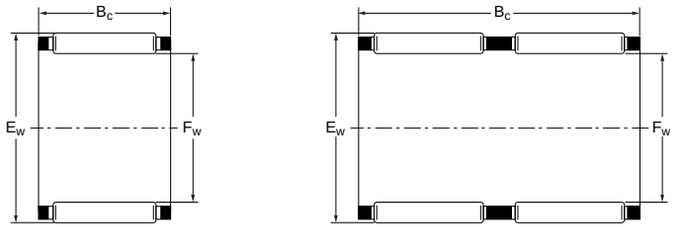
Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
25	33	24	30.60	42.30	15300	39.0	KT 25 x 33 x 24
25	35	30	42.30	55.80	14400	65.0	KT 25 x 35 x 30
26	30	13	10.44	17.28	16200	11.0	KT 26 x 30 x 13
26	30	17	13.68	24.75	16200	15.0	KT 26 x 30 x 17
26	30	22	14.13	25.65	16200	12.0	KT 26 x 30 x 22 ZW
28	33	13	13.77	21.78	14400	13.0	KT 28 x 33 x 13
28	33	17	17.73	30.15	14400	17.0	KT 28 x 33 x 17
28	34	17	19.62	30.15	14400	24.0	KT 28 x 34 x 17
28	35	16	19.35	26.55	14400	24.0	KT 28 x 35 x 16
28	35	18	21.60	30.60	14400	27.0	KT 28 x 35 x 18
28	40	25	40.95	49.50	12600	70.0	KT 28 x 40 x 25
30	34	13	11.07	19.53	13500	14.0	KT 30 x 34 x 13
30	35	13	14.04	22.95	13500	14.0	KT 30 x 35 x 13
30	35	17	17.64	30.60	13500	19.0	KT 30 x 35 x 17
30	35	27	27.45	53.10	13500	30.0	KT 30 x 35 x 27
30	37	16	20.79	30.15	13500	27.0	KT 30 x 37 x 16
30	37	18	23.40	34.65	13500	30.0	KT 30 x 37 x 18
30	40	18	28.80	36.00	12600	48.0	KT 30 x 40 x 18
30	40	30	44.10	62.10	13500	73.0	KT 30 x 40 x 30
32	37	13	13.95	22.95	12600	18.0	KT 32 x 37 x 13
32	37	17	17.91	31.95	12600	19.0	KT 32 x 37 x 17
32	37	27	27.00	54.00	12600	30.0	KT 32 x 37 x 27
32	38	20	23.85	40.50	12600	30.0	KT 32 x 38 x 20
32	39	16	21.42	31.95	12600	37.0	KT 32 x 39 x 16
32	39	18	23.85	36.90	12600	31.0	KT 32 x 39 x 18
32	40	25	33.75	52.20	12600	49.0	KT 32 x 40 x 25
32	40	42	45.00	75.60	12600	77.0	KT 32 x 40 x 42 ZW
32	46	32	59.40	75.60	11700	119.0	KT 32 x 46 x 32
35	40	13	14.58	25.20	11700	19.0	KT 35 x 40 x 13
35	40	17	18.72	34.65	11700	21.0	KT 35 x 40 x 17
35	40	25	26.55	54.00	11700	31.0	KT 35 x 40 x 25
35	40	27	43.65	5.58	11700	39.0	KT 35 x 40 x 27



K..ZW

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
35	42	16	21.96	33.75	11700	34.0	KT 35 x 42 x 16
35	42	18	24.75	38.70	11700	34.0	KT 35 x 42 x 18
35	42	20	27.00	44.10	11700	37.0	KT 35 x 42 x 20
35	42	30	35.10	61.20	11700	67.0	KT 35 x 42 x 30
35	45	20	33.30	45.00	10800	56.0	KT 35 x 45 x 20
35	45	30	47.70	71.10	10800	80.0	KT 35 x 45 x 30
37	42	17	20.16	38.70	10800	22.0	KT 37 x 42 x 17
38	43	17	18.45	34.65	10800	29.0	KT 38 x 43 x 17
38	43	27	28.35	61.20	10800	43.0	KT 38 x 43 x 27
38	46	20	31.95	51.30	10800	47.0	KT 38 x 46 x 20
38	46	32	49.50	89.10	10800	76.0	KT 38 x 46 x 32
39	44	26	24.75	50.40	10800	45.0	KT 39 x 44 x 26 ZW
40	45	13	15.84	29.25	10800	22.0	KT 40 x 45 x 13
40	45	17	19.26	37.35	10800	31.0	KT 40 x 45 x 17
40	45	27	29.70	65.70	10800	46.0	KT 40 x 45 x 27
40	47	18	26.55	45.00	9900	39.0	KT 40 x 47 x 18
40	47	20	29.25	51.30	9900	42.0	KT 40 x 47 x 20
40	48	20	32.40	53.10	9900	49.0	KT 40 x 48 x 20
42	47	13	16.02	30.15	9900	18.0	KT 42 x 47 x 13
42	47	17	19.53	38.70	9900	32.0	KT 42 x 47 x 17
42	47	30	30.15	68.40	9900	54.0	KT 42 x 47 x 30 ZW
42	50	20	31.50	51.30	9900	53.0	KT 42 x 50 x 20
43	48	17	19.44	38.70	9900	30.0	KT 43 x 48 x 17
43	48	27	30.15	67.50	9900	50.0	KT 43 x 48 x 27
45	50	17	20.25	41.40	9000	34.0	KT 45 x 50 x 17
45	50	27	31.05	72.00	9000	51.0	KT 45 x 50 x 27
45	52	18	28.35	51.30	9000	42.0	KT 45 x 52 x 18
45	53	20	35.10	60.30	9000	55.0	KT 45 x 53 x 20
45	53	21	34.65	60.30	9000	60.0	KT 45 x 53 x 21
45	53	28	46.80	88.20	9000	81.0	KT 45 x 53 x 28
45	59	18	39.60	48.60	8550	72.0	KT 45 x 59 x 18
45	59	32	65.70	92.70	8550	148.0	KT 45 x 59 x 32

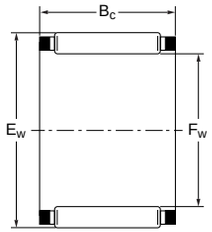
Needle Cage Assemblies

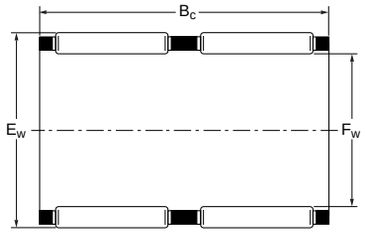


K..ZW

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
47	52	17	20.97	44.10	9000	35.0	KT 47 x 52 x 17
47	52	27	31.50	74.70	9000	51.0	KT 47 x 52 x 27
50	55	13.5	16.38	32.85	8550	30.0	KT 50 x 55 x 13.5
50	55	17	19.89	42.30	8550	35.0	KT 50 x 55 x 17
50	55	20	23.85	54.00	8550	43.0	KT 50 x 55 x 20
50	55	30	35.10	87.30	8550	65.0	KT 50 x 55 x 30
50	57	18	30.15	56.70	8100	47.0	KT 50 x 57 x 18
50	58	20	31.95	55.80	8100	75.0	KT 50 x 58 x 20
50	58	25	39.60	72.90	8100	90.0	KT 50 x 58 x 25
52	57	12	16.20	32.85	8100	24.0	KT 52 x 57 x 12
55	60	20	25.65	59.40	7650	40.0	KT 55 x 60 x 20
55	60	27	34.20	87.30	7650	60.0	KT 55 x 60 x 27
55	60	30	36.90	97.20	7650	71.0	KT 55 x 60 x 30
55	62	18	31.95	63.00	7650	52.0	KT 55 x 62 x 18
55	63	20	36.00	66.60	7650	67.0	KT 55 x 63 x 20
55	63	25	45.90	90.90	7650	80.0	KT 55 x 63 x 25
55	63	32	55.80	117.00	7650	102.0	KT 55 x 63 x 32
58	65	18	31.50	63.00	7200	52.0	KT 58 x 65 x 18
58	65	36	44.10	96.30	7200	127.0	KT 58 x 65 x 36 ZW
60	65	20	26.55	64.80	7200	52.0	KT 60 x 65 x 20
60	65	30	38.25	104.40	7200	77.0	KT 60 x 65 x 30
60	66	33	41.40	100.80	7200	104.0	KT 60 x 66 x 33 ZW
60	66	40	52.20	135.90	7200	116.0	KT 60 x 66 x 40 ZW
60	68	20	39.15	76.50	6750	71.0	KT 60 x 68 x 20
60	68	23	44.55	90.90	6750	94.0	KT 60 x 68 x 23
60	68	25	47.70	99.90	6750	89.0	KT 60 x 68 x 25
60	68	30	40.05	79.20	6750	129.0	KT 60 x 68 x 30 ZW
60	75	42	106.20	179.10	6750	240.0	KT 60 x 75 x 42
62	70	40	59.40	131.40	6750	174.0	KT 62 x 70 x 40 ZW
64	70	16	25.20	54.00	6750	53.0	KT 64 x 70 x 16
65	70	20	27.45	69.30	6750	56.0	KT 65 x 70 x 20
65	70	30	39.60	111.60	6750	83.0	KT 65 x 70 x 30

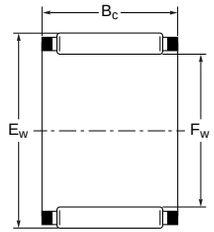
Needle Cage Assemblies

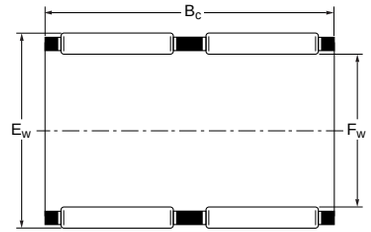




K..ZW

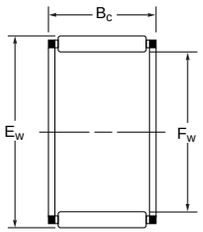
Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
65	73	23	41.40	84.60	6300	108.0	KT 65 x 73 x 23
65	73	30	51.30	110.70	6300	141.0	KT 65 x 73 x 30
68	74	20	31.95	75.60	6300	71.0	KT 68 x 74 x 20
68	74	30	41.85	106.20	6300	100.0	KT 68 x 74 x 30
68	74	35	43.65	112.50	6300	120.0	KT 68 x 74 x 35 ZW
70	76	20	32.40	77.40	5850	71.0	KT 70 x 76 x 20
70	76	30	46.80	125.10	5850	110.0	KT 70 x 76 x 30
70	78	30	54.00	121.50	5850	148.0	KT 70 x 78 x 30
72	80	20	37.35	76.50	5850	98.0	KT 72 x 80 x 20
73	79	20	33.30	81.00	5850	75.0	KT 73 x 79 x 20
75	81	20	33.75	84.60	5850	79.0	KT 75 x 81 x 20
75	81	30	46.80	128.70	5850	114.0	KT 75 x 81 x 30
75	83	23	45.00	98.10	5400	124.0	KT 75 x 83 x 23
75	83	30	55.80	128.70	5400	147.0	KT 75 x 83 x 30
75	83	35	56.70	132.30	5400	182.0	KT 75 x 83 x 35 ZW
75	83	40	65.70	159.30	5400	211.0	KT 75 x 83 x 40
80	86	20	34.65	88.20	5400	60.0	KT 80 x 86 x 20
80	88	30	63.90	158.40	5400	138.0	KT 80 x 88 x 30
80	88	40	68.40	172.80	5400	227.0	KT 80 x 88 x 40 ZW
80	88	46	79.20	207.90	5400	260.0	KT 80 x 88 x 46 ZW
85	92	20	40.05	97.20	4950	102.0	KT 85 x 92 x 20
90	97	20	40.50	101.70	4500	109.0	KT 90 x 97 x 20
90	98	27	54.90	135.00	4500	150.0	KT 90 x 98 x 27
90	98	30	61.20	154.80	4500	172.0	KT 90 x 98 x 30
95	103	30	62.10	162.00	4410	165.0	KT 95 x 103 x 30
95	103	40	74.70	205.20	4410	266.0	KT 95 x 103 x 40 ZW
100	107	21	43.20	114.30	4230	120.0	KT 100 x 107 x 21
100	108	27	51.30	128.70	4230	185.0	KT 100 x 108 x 27
100	108	30	63.90	169.20	4230	180.0	KT 100 x 108 x 30
105	112	21	42.75	114.30	4050	129.0	KT 105 x 112 x 21
110	117	24	50.40	142.20	3870	172.0	KT 110 x 117 x 24
110	118	30	70.20	197.10	3870	217.0	KT 110 x 118 x 30





K..ZW

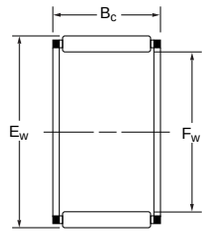
Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
			Dynamic	Static			
F_w mm	E_w mm	B_c mm	kN	kN	r/min	g	
115	123	27	56.70	153.00	3690	200.0	KT 115 x 123 x 27
120	127	24	53.10	156.60	3600	165.0	KT 120 x 127 x 24
125	133	35	77.40	234.00	3420	275.0	KT 125 x 133 x 35
130	137	24	54.90	167.40	3330	170.0	KT 130 x 137 x 24
135	143	35	81.90	261.00	3150	300.0	KT 135 x 143 x 35
145	153	26	66.60	202.50	2970	262.0	KT 145 x 153 x 26
150	160	46	132.30	423.00	2880	570.0	KT 150 x 160 x 46
155	163	26	67.50	212.40	2790	265.0	KT 155 x 163 x 26
160	170	46	136.80	459.00	2700	550.0	KT 160 x 170 x 46
165	173	26	72.90	238.50	2610	320.0	KT 165 x 173 x 26
175	183	32	89.10	315.00	2430	400.0	KT 175 x 183 x 32
185	195	37	115.20	382.50	2340	607.0	KT 185 x 195 x 37
195	205	37	119.70	405.00	2250	620.0	KT 195 x 205 x 37
210	220	42	138.60	504.00	2070	740.0	KT 210 x 220 x 42
220	230	42	142.20	531.00	1980	790.0	KT 220 x 230 x 42
240	250	42	147.60	567.00	1800	850.0	KT 240 x 250 x 42
265	280	50	229.50	774.00	1620	1810.0	KT 265 x 280 x 50



WJ and WJC

Basic Dimensions						Basic Load Ratings		Limiting Speed	Mass Approx.	Assembly Designation
						Dynamic	Static	Oil		
d		D		B		C	C_0			
inch	mm	inch	mm	inch	mm	kN	kN	r/min	g	
5/8	15.8750	7/8	22.2250	5/8	15.8750	3510	3990	29000	13.17	WJ 101410
5/8	15.8750	7/8	22.2250	7/8	22.2250	4780	5940	29000	18.16	WJ 101414
3/4	19.0500	1	25.4000	1	25.4000	6020	8370	24000	24.97	WJ 121616
13/16	20.6375	1 1/16	26.9875	7/8	22.2250	5650	7880	22000	20.88	WJ 131714
7/8	22.2250	1 1/8	28.5750	1	25.4000	6570	9770	20000	28.15	WJ 141816
1	25.4000	1 5/16	33.3375	3/4	19.0500	6320	8340	18000	34.96	WJ 162112
1	25.4000	1 5/16	33.3375	1	25.4000	8270	11800	18000	43.13	WJ 162116
1	25.4000	1 5/16	33.3375	1 1/4	31.7500	10000	15100	18000	55.84	WJ 162120
1 1/8	28.5750	1 1/2	38.1000	1	25.4000	9520	13000	16000	40.86	WJ 182416
1 1/8	28.5750	1 1/2	38.1000	1 1/4	31.7500	11700	16800	16000	71.73	WJ 182420
1 1/4	31.7500	1 5/8	41.2750	3/4	19.0500	7520	9830	14000	50.85	WJ 202612
1 1/4	31.7500	1 5/8	41.2750	1	25.4000	9910	14000	14000	60.84	WJ 202616
1 1/4	31.7500	1 5/8	41.2750	1 1/4	31.7500	12100	18200	14000	73.09	WJ 202620
1 1/4	31.7500	1 5/8	41.2750	1 1/2	38.1000	14300	22400	14000	105.78	WJ 202624
1 3/8	34.9250	1 3/4	44.4500	1	25.4000	10300	15100	13000	66.74	WJ 222816
1 3/8	34.9250	1 3/4	44.4500	1 1/4	31.7500	12600	19600	13000	83.08	WJ 222820
1 1/2	38.1000	1 7/8	47.6250	1	25.4000	10600	16100	12000	78.09	WJ 243016
1 1/2	38.1000	1 7/8	47.6250	1 1/4	31.7500	13000	20900	12000	89.89	WJ 243020
1 1/2	38.1000	1 7/8	47.6250	1 1/2	38.1000	15300	25800	12000	119.86	WJ 243024
1 1/2	38.1000	1 7/8	47.6250	1 3/4	44.4500	17400	30500	12000	133.93	WJ 243028
1 3/4	44.4500	2 1/8	53.9750	3/4	19.0500	8870	13400	9900	61.74	WJ 283412
1 3/4	44.4500	2 1/8	53.9750	1	25.4000	11700	19100	9900	83.99	WJ 283416
1 3/4	44.4500	2 1/8	53.9750	1 1/2	38.1000	16800	30600	9900	143.01	WJ 283424
2	50.8000	2 3/8	60.3250	3/4	19.0500	9610	15500	8600	84.90	WJ 323812
2	50.8000	2 3/8	60.3250	1	25.4000	12700	22100	8600	104.87	WJ 323816
2	50.8000	2 3/8	60.3250	1 1/4	31.7500	15500	28700	8600	124.85	WJ 323820
2	50.8000	2 3/8	60.3250	1 1/2	38.1000	18200	35300	8600	143.01	WJ 323824
2 1/16	52.3875	2 7/16	61.9125	1	25.4000	13000	23100	8300	98.97	WJ 333916
2 1/8	53.9750	2 1/2	63.5000	1	25.4000	11800	20700	8000	99.88	WJ 344016
2 1/8	53.9750	2 1/2	63.5000	1 1/2	38.1000	17600	34500	8000	165.71	WJ 344024
2 3/16	55.5625	2 9/16	65.0875	3/4	19.0500	10000	16900	7800	84.90	WJ 354112
2 3/16	55.5625	2 9/16	65.0875	1	25.4000	13000	24100	7800	103.06	WJ 354116

Needle Cage Assemblies - Inch Sizes



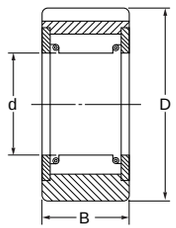
WJ and WJC

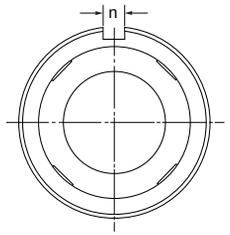
Basic Dimensions						Basic Load Ratings		Limiting Speed	Mass Approx.	Assembly Designation
						Dynamic	Static	Oil		
d		D		B		C	C_0			
inch	mm	inch	mm	inch	mm	kN	kN	r/min	g	
2 1/4	57.1500	2 5/8	66.6750	1	25.4000	12100	21600	7500	105.78	WJ 364216
2 1/4	57.1500	2 5/8	66.6750	1 1/4	31.7500	15200	28900	7500	132.11	WJ 364220
2 3/8	60.3250	2 3/4	69.8500	1 1/2	38.1000	18300	37600	7100	185.69	WJ 384424
2 1/2	63.5000	2 7/8	73.0250	1	25.4000	12500	23400	6700	136.65	WJ 404616
2 1/2	63.5000	2 7/8	73.0250	1 1/4	31.7500	15700	31400	6700	160.26	WJ 404620
2 1/2	63.5000	2 7/8	73.0250	1 1/2	38.1000	18700	39100	6700	179.78	WJ 404624
2 3/4	69.8500	3 1/8	79.3750	1	25.4000	13000	25300	6100	125.76	WJ 445016
3	76.2000	3 3/8	85.7250	1	25.4000	13400	27100	5600	159.81	WJ 485416
3	76.2000	3 3/8	85.7250	1 1/2	38.1000	19200	43100	5600	212.93	WJ 485424
3 1/4	82.5500	3 5/8	92.0750	1	25.4000	13800	28900	5100	146.64	WJ 525816
3 1/4	82.5500	3 5/8	92.0750	1 1/2	38.1000	19800	46000	5100	220.64	WJ 525824
3 1/2	88.9000	3 7/8	98.4250	1	25.4000	14200	30700	4700	173.88	WJ 566216
3 1/2	88.9000	4	101.6000	1	25.4000	17900	33800	4800	214.74	WJ 566416
3 1/2	88.9000	4	101.6000	1 1/2	38.1000	25600	53400	4800	359.57	WJ 566424
4	101.6000	4 1/2	114.3000	1	25.4000	18800	37450	4200	239.71	WJ 647216
4	101.6000	4 1/2	114.3000	1 1/2	38.1000	26800	59200	4200	369.56	WJ 647224
5	127.0000	6	152.4000	1 1/2	38.1000	47600	82100	3400	1018.78	WJ 809624

OID MECHANICAL PARTS BEARINGS

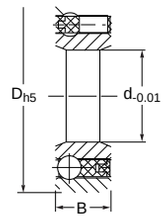


One Way Clutch Bearings

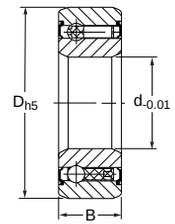




Basic Dimensions				Limiting Speed	Mass	Designation	Bearings Series
B mm	D mm	d mm	n mm	r/min	kg		
25	40 - 0.014	16.510	4 X 2.5	2400	0.230	B 203	6203
25	40 - 0.039	16.510	4 X 2.5	2400	0.230	B 203	6203
25	47 - 0.014	18.796	5 X 3	2400	0.340	B 204	6204
25	47 - 0.039	18.796	5 X 3	2400	0.340	B 204	6204
25	52 - 0.017	23.622	5 X 3	1800	0.450	B 205	6205
25	52 - 0.042	23.622	5 X 3	1800	0.450	B 205	6205
28	62 - 0.017	32.766	7 X 4	1800	0.680	B 206	6206
28	62 - 0.042	32.766	7 X 4	1800	0.680	B 206	6206
28	72 - 0.017	42.088	7 X 4	1800	0.800	B 207	6207
28	72 - 0.042	42.088	7 X 4	1800	0.800	B 207	6207
32	80 - 0.017	46.761	10 X 4.5	1800	0.910	B 208	6207
32	80 - 0.042	46.761	10 X 4.5	1800	0.910	B 208	6207
32	85 - 0.020	46.761	10 X 4.5	1800	0.950	B 209	6209
32	85 - 0.045	46.761	10 X 4.5	1800	0.950	B 209	6209
32	90 - 0.020	56.109	10 X 4.5	1200	1.000	B 210	6210
32	90 - 0.045	56.109	10 X 4.5	1200	1.000	B 210	6210
32	100 - 0.020	56.109	10 X 4.5	1200	1.400	B 211	6211
32	100 - 0.045	56.109	10 X 4.5	1200	1.400	B 211	6211
42	110 - 0.020	70.029	10 X 4.5	1200	1.800	B 212	6212
42	110 - 0.045	70.029	10 X 4.5	1200	1.800	B 212	6212
42	120 - 0.020	70.029	10 X 4.5	1200	2.300	B 213	6213
42	120 - 0.045	70.029	10 X 4.5	1200	2.300	B 213	6213
42	125 - 0.024	79.356	12 X 4.5	1000	2.400	B 214	6214
42	125 - 0.060	79.356	12 X 4.5	1000	2.400	B 214	6214



CSK



CSK..2RS

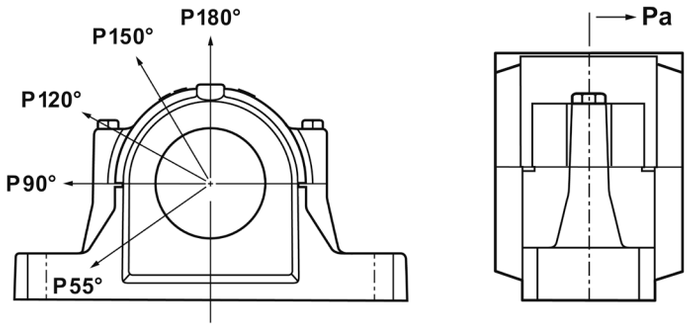
Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	Designation	Bearing Series
					Dynamic	Static				
d mm	D mm	L mm	b mm	t mm	C kN	C_0 kN	r/min	kg		
15	35	11	-	-	7.40	3.42	8400	0.06	CSK 15 P	6202
15	35	11	2	0.60	7.40	3.42	8400	0.06	CSK 15 PP	6202
17	40	12	-	-	7.90	3.80	7350	0.07	CSK 17 P	6203
17	40	12	2	1.00	7.90	3.80	7350	0.07	CSK 17 PP	6203
20	47	14	-	-	9.40	4.46	6000	0.11	CSK 20 P	6204
20	47	14	3	1.50	9.40	4.46	6000	0.11	CSK 20 PP	6204
25	52	15	-	-	10.70	5.46	5200	0.14	CSK 25 P	6205
25	52	15	6	2.00	10.70	5.46	5200	0.14	CSK 25 PP	6205
30	62	16	-	-	11.70	6.45	4200	0.21	CSK 30 P	6206
30	62	16	6	2.00	11.70	6.45	4200	0.21	CSK 30 PP	6206
35	72	17	-	-	12.60	7.28	3600	0.30	CSK 35 P	6207
35	72	17	8	2.50	12.60	7.28	3600	0.30	CSK 35 PP	6207

OID MECHANICAL PARTS BEARINGS



Plummer Block

Breaking Loads for SNN Housings



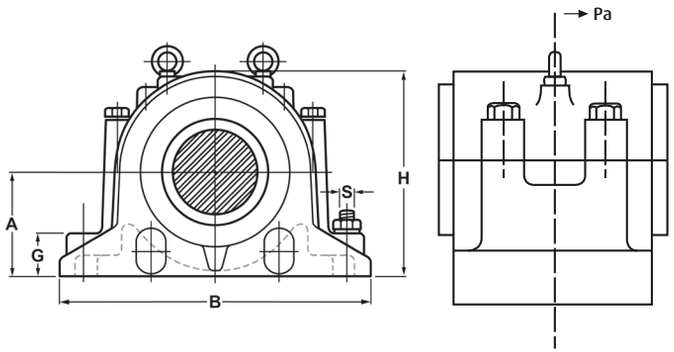
Housing No.		Breaking Load (kN)						Max. Loads of the two cap bolts (kN)
		Pa	P55°	P90°	P120°	P150°	P180°	P180°
SNN	505	52	155	95	70	60	80	25
SNN	506-605	55	170	100	80	65	85	25
SNN	507-606	60	190	115	85	80	95	25
SNN	508-607	70	215	130	95	85	110	25
SNN	509	75	230	140	100	90	115	25
SNN	510-608	85	265	155	120	110	130	25
SNN	511-609	90	275	170	125	115	140	40
SNN	512-610	100	300	180	130	120	150	40
SNN	513-611	110	340	205	150	130	170	40
SNN	515-612	135	410	250	185	160	205	40
SNN	516-613	140	430	260	190	175	215	40
SNN	517	155	480	290	205	190	240	40
SNN	518-615	180	550	340	250	215	275	85
SNN	519-616	190	580	350	260	230	290	85
SNN	520-617	200	620	370	280	250	310	130
SNN	522-619	220	680	410	310	275	340	130
SNN	524-620	260	790	470	350	320	400	130
SNN	526	295	900	540	410	360	450	190
SNN	528	345	1050	630	470	430	530	190
SNN	530	390	1200	730	540	480	600	190
SNN	532	470	1450	860	640	570	720	190

Cap bolt material: Grade 8.8
Reference values only

Cap & Fixing Bolts Sizes – Recommended Tightening Torques

SNN Housing	Cap Bolt Size Grade 8.8	Recommended max. Tightening Torque	Base Bolts Size Grade 8.8	Recommended max. Tightening Torque
		Nm		Nm
SNN505	M10	50	M12	80
SNN506-605	M10	50	M12	80
SNN507-606	M10	50	M12	80
SNN508-607	M10	50	M12	80
SNN509	M10	50	M12	80
SNN510-608	M10	50	M12	80
SNN511-609	M12	80	M16	200
SNN512-610	M12	80	M16	200
SNN513-609	M12	80	M16	200
SNN515-612	M12	80	M16	200
SNN516-613	M16	150	M20	385
SNN517	M16	150	M20	385
SNN518-615	M16	150	M20	385
SNN519-616	M16	150	M20	385
SNN520-617	M20	200	M24	665
SNN522-619	M20	200	M24	665
SNN524-620	M20	200	M24	665
SNN526	M24	350	M24	665
SNN528	M24	350	M30	1310
SNN530	M24	350	M30	1310
SNN532	M24	350	M30	1310

Plummer blocks of series SD3100 are used with large spherical roller bearings of series 23100 with tapered bore on adapter sleeves.



Material: Cast Iron Grade 200
Colour: Dark Blue 533C
Cap bolts grade: 8.8

Supplied with 1 straight grease nipple

Tolerance of bearing seating: H7
Draining hole: 1/4PT

SD 3100 Bolt Size

Housing	Bolt Size
SD3134TS/TAC	M20*2.5P*140LG
SD3136TS/TAC	M24*3.0P*140LG
SD3138TS/TAC	M24*3.0P*140LG
SD3140TS/TAC	M24*3.0P*170LG
SD3144TS/TAC	M24*3.0P*170LG
SD3148TS/TAC	M30*3.5P*200LG
SD3152TS/TAC	M30*3.5P*200LG
SD3156TS/TAC	M30*3.5P*210LG
SD3160TS/TAC	M30*3.5P*220LG
SD3164TS/TAC	M30*3.5P*220LG
SD3168TS/TAC	M36*4.0P*260LG
SD3172TS/TAC	M36*4.0P*280LG
SD3176TS/TAC	M36*4.0P*280LG
SD3180TS/TAC	M36*4.0P*310LG

Breaking Loads of SD Housings

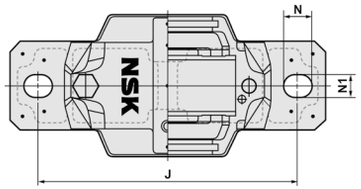
Housing No.		Breaking Load (kN)					Max. Load of Cap Bolts (kN)
		P55°	P90°	P120°	P150°	P180°	P180°
SD	3134	2273	1016	762	747	846	380
SD	3136	2540	1150	850	835	946	380
SD	3138	2941	1300	1020	966	1095	380
SD	3140	3476	1600	1165	1143	1296	380
SD	3144	4280	1900	1435	1407	1594	380
SD	3148	4548	2000	1524	1495	1694	620
SD	3152	5083	2300	1703	1670	1893	620
SD	3156	5350	2400	1810	1760	1993	620
SD	3160	6420	2900	2215	2110	2390	620
SD	3164	7490	3400	2525	2400	2790	620
SD	3168	9320	4200	3260	3050	3490	800
SD	3172	9750	4400	3370	3200	3690	800
SD	3176	10230	4550	3500	3320	3710	800
SD	3180	10720	4800	3770	3560	4000	800

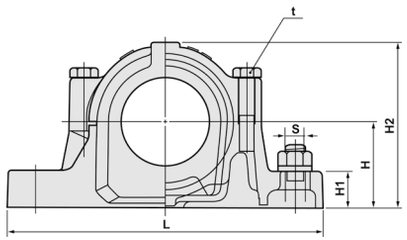
Reference values only

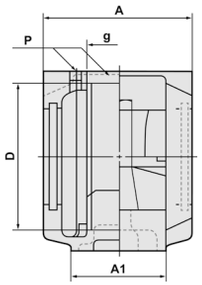
Note Housings for Taconite seals (TAC) on request

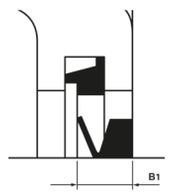
Plummer Blocks SNN 500 - 600 Series

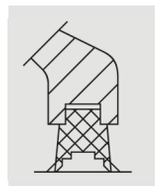
Shaft Diameter 20 – 65 mm



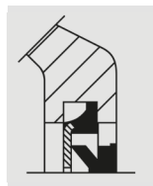


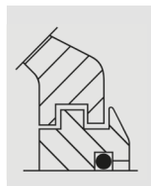


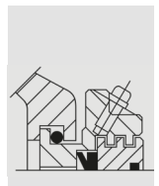



G Seals


C Seals


V Seals


TS-U Seals

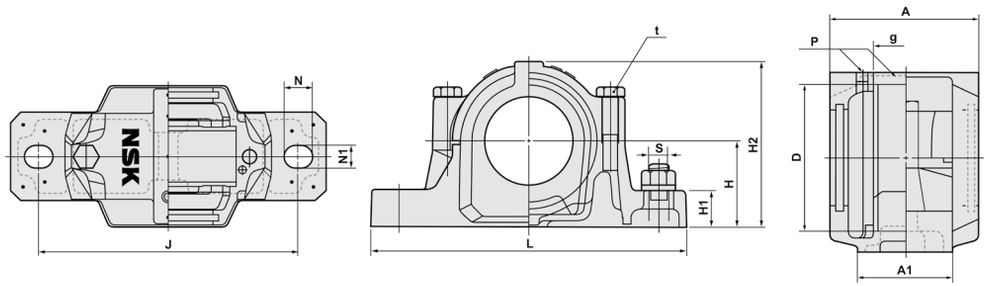

TACK Seals

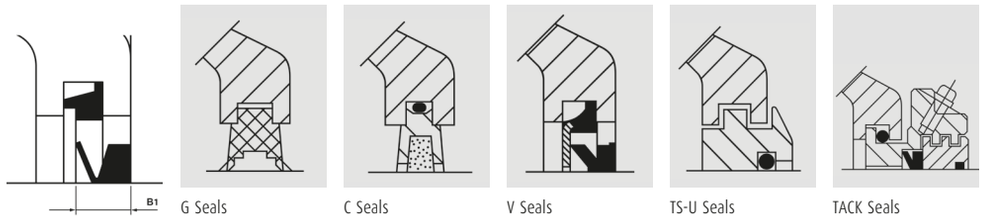
Shaft Diam. D (mm)	Bearing		Adapter Sleeve	Locating Ring Kit (2 rings)	Housing Designation	D (mm)	H (mm)	J (mm)	A (mm)	L (mm)	A1 (mm)	H1 (mm)	H2 (mm)
	Ball	Roller											
20	1205K	–	H205	SR52x5	SNN505	52	40	130	70	165	46	22	73
	2205K	22205K	H305	SR52x3.5	SNN505	52	40	130	70	165	46	22	73
	1305K	21305K	H305	SR62x7.5	SNN506-605	62	50	150	80	185	52	22	88
	2305K	–	H2305	SR62x4	SNN506-605	62	50	150	80	185	52	22	88
25	1206K	–	H206	SR62x8	SNN506-605	62	50	150	80	185	52	22	88
	2206K	22206K	H306	SR62x6	SNN506-605	62	50	150	80	185	52	22	88
	1306K	21306K	H306	SR72x7.5	SNN507-606	72	50	150	85	185	52	22	93
	2306K	–	H2306	SR72x3.5	SNN507-606	72	50	150	85	185	52	22	93
30	1207K	–	H207	SR72x8.5	SNN507-606	72	50	150	85	185	52	22	93
	2207K	22207K	H307	SR72x5.5	SNN507-606	72	50	150	85	185	52	22	93
	1307K	21307K	H307	SR80x9	SNN508-607	80	60	170	90	205	60	25	107
	2307K	–	H2307	SR80x4	SNN508-607	80	60	170	90	205	60	25	107
35	1208K	–	H208	SR80x10.5	SNN508-607	80	60	170	90	205	60	25	107
	2208K	22208K	H308	SR80x8	SNN508-607	80	60	170	90	205	60	25	107
	1308K	21308K	H308	SR90x9	SNN510-608	90	60	170	95	205	60	25	113
	2308K	22308K	H2308	SR90x4	SNN510-608	90	60	170	95	205	60	25	113
40	1209K	–	H209	SR85x5.5	SNN509	85	60	170	90	205	60	25	111
	2209K	22209K	H309	SR85x3.5	SNN509	85	60	170	90	205	60	25	111
	1309K	21309K	H309	SR100x9.5	SNN511-609	100	70	210	100	255	70	28	129
	2309K	22309K	H2309	SR100x4	SNN511-609	100	70	210	100	255	70	28	129
45	1210K	–	H210	SR90x10.5	SNN510-608	90	60	170	95	205	60	25	113
	2210K	22210K	H310	SR90x9	SNN510-608	90	60	170	95	205	60	25	113
	1310K	21310K	H310	SR110x10.5	SNN512-610	110	70	210	110	255	70	30	134
	2310K	22310K	H2310	SR110x4	SNN512-610	110	70	210	110	255	70	30	134
50	1211K	–	H211	SR100x11.5	SNN511-609	100	70	210	100	255	70	28	129
	2211K	22211K	H311	SR100x9.5	SNN511-609	100	70	210	100	255	70	28	129
	1311K	21311K	H311	SR120x11	SNN513-611	120	80	230	115	275	80	30	150
	2311K	22311K	H2311	SR120x4	SNN513-611	120	80	230	115	275	80	30	150
55	1212K	–	H212	SR110x13	SNN512-610	110	70	210	110	255	70	30	134
	2212K	22212K	H312	SR110x10	SNN512-610	110	70	210	110	255	70	30	134
	1312K	21312K	H312	SR130x12.5	SNN515-612	130	80	230	120	280	80	30	155
	2312K	22312K	H2312	SR130x5	SNN515-612	130	80	230	120	280	80	30	155
60	1213K	–	H213	SR120x14	SNN513-611	120	80	230	115	275	80	30	150
	2213K	22213K	H313	SR120x10	SNN513-611	120	80	230	115	275	80	30	150
	1313K	21313K	H313	SR140x12.5	SNN516-613	140	95	260	130	315	90	32	175
	2313K	22313K	H2313	SR140x5	SNN516-613	140	95	260	130	315	90	32	175
65	1215K	–	H215	SR130x15.5	SNN515-612	130	80	230	120	280	80	30	155
	2215K	22215K	H315	SR130x12.5	SNN515-612	130	80	230	120	280	80	30	155
	1315K	21315K	H315	SR160x14	SNN518-615	160	100	290	145	345	100	35	193
	2315K	22315K	H2315	SR160x5	SNN518-615	160	100	290	145	345	100	35	193

g (mm)	t (mm)	N (mm)	N1 (mm)	s (mm)	P	G Seals KIT	C Seals KIT	V Seals KIT (B1: Fitted Width)	TS-U Seals	TACK Seals	End Cover	Mass (kg)
25	M10	20	15	M12	R1/8	G505-KIT	C505-KIT	V505-KIT (6 ±0.8)	TS505U	TACK505	505A	1.45
25	M10	20	15	M12	R1/8	G505-KIT	C505-KIT	V505-KIT (6 ±0.8)	TS505U	TACK505	505A	1.45
32	M10	20	15	M12	R1/8	G605-KIT	C605-KIT	V605-KIT (6 ±0.8)	TS605U	TACK605	505A	2.00
32	M10	20	15	M12	R1/8	G605-KIT	C605-KIT	V605-KIT (6 ±0.8)	TS605U	TACK605	505A	2.00
32	M10	20	15	M12	R1/8	G506-KIT	C506-KIT	V506-KIT (6 ±0.8)	TS506U	TACK506	506A	2.00
32	M10	20	15	M12	R1/8	G506-KIT	C506-KIT	V506-KIT (6 ±0.8)	TS506U	TACK506	506A	2.00
34	M10	20	15	M12	R1/8	G606-KIT	C606-KIT	V606-KIT (6 ±0.8)	TS606U	TACK606	507A	2.20
34	M10	20	15	M12	R1/8	G606-KIT	C606-KIT	V606-KIT (6 ±0.8)	TS606U	TACK606	507A	2.20
34	M10	20	15	M12	R1/8	G507-KIT	C507-KIT	V507-KIT (6 ±0.8)	TS507U	TACK507	507A	2.20
34	M10	20	15	M12	R1/8	G507-KIT	C507-KIT	V507-KIT (6 ±0.8)	TS507U	TACK507	507A	2.20
39	M10	20	15	M12	R1/8	G607-KIT	C607-KIT	V607-KIT (6 ±0.8)	TS607U	TACK607	508A	2.90
39	M10	20	15	M12	R1/8	G607-KIT	C607-KIT	V607-KIT (6 ±0.8)	TS607U	TACK607	508A	2.90
39	M10	20	15	M12	R1/8	G508-KIT	C508-KIT	V508-KIT (6 ±0.8)	TS508U	TACK508	508A	2.90
39	M10	20	15	M12	R1/8	G508-KIT	C508-KIT	V508-KIT (6 ±0.8)	TS508U	TACK508	508A	2.90
41	M10	20	15	M12	R1/8	G608-KIT	C608-KIT	V608-KIT (6 ±0.8)	TS608U	TACK608	510A	3.10
41	M10	20	15	M12	R1/8	G608-KIT	C608-KIT	V608-KIT (6 ±0.8)	TS608U	TACK608	510A	3.10
30	M10	20	15	M12	R1/8	G509-KIT	C509-KIT	V509-KIT (7 ±1)	TS509U	TACK509	509A	3.00
30	M10	20	15	M12	R1/8	G509-KIT	C509-KIT	V509-KIT (7 ±1)	TS509U	TACK509	509A	3.00
44	M12	24	18	M16	R1/8	G609-KIT	C609-KIT	V609-KIT (7 ±1)	TS609U	TACK609	511A	4.80
44	M12	24	18	M16	R1/8	G609-KIT	C609-KIT	V609-KIT (7 ±1)	TS609U	TACK609	511A	4.80
41	M10	20	15	M12	R1/8	G510-KIT	C510-KIT	V510-KIT (7 ±1)	TS510U	TACK510	510A	3.10
41	M10	20	15	M12	R1/8	G510-KIT	C510-KIT	V510-KIT (7 ±1)	TS510U	TACK510	510A	3.10
48	M12	24	18	M16	R1/8	G610-KIT	C610-KIT	V610-KIT (7 ±1)	TS610U	TACK610	512A	5.40
48	M12	24	18	M16	R1/8	G610-KIT	C610-KIT	V610-KIT (7 ±1)	TS610U	TACK610	512A	5.40
44	M12	24	18	M16	R1/8	G511-KIT	C511-KIT	V511-KIT (7 ±1)	TS511U	TACK511	511A	4.80
44	M12	24	18	M16	R1/8	G511-KIT	C511-KIT	V511-KIT (7 ±1)	TS511U	TACK511	511A	4.80
51	M12	24	18	M16	R1/8	G611-KIT	C611-KIT	V611-KIT (7 ±1)	TS611U	TACK611	513A	6.60
51	M12	24	18	M16	R1/8	G611-KIT	C611-KIT	V611-KIT (7 ±1)	TS611U	TACK611	513A	6.60
48	M12	24	18	M16	R1/8	G512-KIT	C512-KIT	V512-KIT (7 ±1)	TS512U	TACK512	512A	5.40
48	M12	24	18	M16	R1/8	G512-KIT	C512-KIT	V512-KIT (7 ±1)	TS512U	TACK512	512A	5.40
56	M12	24	18	M16	R1/8	G612-KIT	C612-KIT	V612-KIT (7 ±1)	TS612U	TACK612	515A	6.80
56	M12	24	18	M16	R1/8	G612-KIT	C612-KIT	V612-KIT (7 ±1)	TS612U	TACK612	515A	6.80
51	M12	24	18	M16	R1/8	G513-KIT	C513-KIT	V513-KIT (7 ±1)	TS513U	TACK513	513A	6.60
51	M12	24	18	M16	R1/8	G513-KIT	C513-KIT	V513-KIT (7 ±1)	TS513U	TACK513	513A	6.60
58	M16	28	22	M20	R1/4	G613-KIT	C613-KIT	V613-KIT (7 ±1)	TS613U	TACK613	516A	10.20
58	M16	28	22	M20	R1/4	G613-KIT	C613-KIT	V613-KIT (7 ±1)	TS613U	TACK613	516A	10.20
56	M12	24	18	M16	R1/8	G515-KIT	C515-KIT	V515-KIT (7 ±1)	TS515U	TACK515	515A	6.80
56	M12	24	18	M16	R1/8	G515-KIT	C515-KIT	V515-KIT (7 ±1)	TS515U	TACK515	515A	6.80
65	M16	28	22	M20	R1/4	G615-KIT	C615-KIT	V615-KIT (7 ±1)	TS615U	TACK615	518A	13.00
65	M16	28	22	M20	R1/4	G615-KIT	C615-KIT	V615-KIT (7 ±1)	TS615U	TACK615	518A	13.00

Plummer Blocks SNN 500 - 600 Series

Shaft Diameter 70 – 140 mm

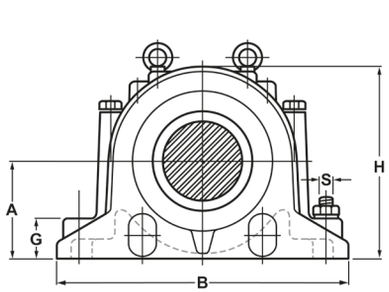


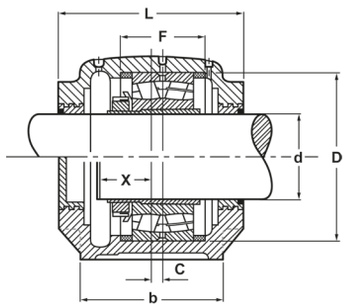


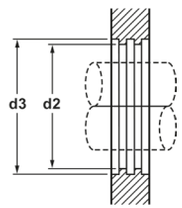
Shaft Diam. D (mm)	Bearing		Adapter Sleeve	Locating Ring Kit (2 rings)	Housing Designation	D (mm)	H (mm)	J (mm)	A (mm)	L (mm)	A1 (mm)	H1 (mm)	H2 (mm)
	Ball	Roller											
70	1216K	–	H216	SR140x16	SNN516-613	140	95	260	130	315	90	32	175
	2216K	22216K	H316	SR140x12.5	SNN516-613	140	95	260	130	315	90	32	175
	1316K	21316K	H316	SR170x14.5	SNN519-616	170	112	290	145	345	100	35	210
	2316K	22316K	H2316	SR170x5	SNN519-616	170	112	290	145	345	100	35	210
75	1217K	–	H217	SR150x16.5	SNN517	150	95	260	135	320	90	32	183
	2217K	22217K	H317	SR150x12.5	SNN517	150	95	260	135	320	90	32	183
	1317K	21317K	H317	SR180x14.5	SNN520-617	180	112	320	160	380	110	40	215
	2317K	22317K	H2317	SR180x5	SNN520-617	180	112	320	160	380	110	40	215
80	1218K	–	H218	SR160x17.5	SNN518-615	160	100	290	145	345	100	35	193
	2218K	22218K	H318	SR160x12.5	SNN518-615	160	100	290	145	345	100	35	193
	–	23218K	H2318	SR160x6.25	SNN518-615	160	100	290	145	345	100	35	193
85	1219K	–	H219	SR170x18	SNN519-616	170	112	290	145	345	100	35	210
	2219K	22219K	H319	SR170x12.5	SNN519-616	170	112	290	145	345	100	35	210
	1319K	21319K	H319	SR200x17.5	SNN522-619	200	125	350	175	410	120	45	240
	2319K	22319K	H2319	SR200x6.5	SNN522-619	200	125	350	175	410	120	45	240
90	1220K	–	H220	SR180x18	SNN520-617	180	112	320	160	380	110	40	215
	2220K	22220K	H320	SR180x12	SNN520-617	180	112	320	160	380	110	40	215
	–	23220K	H2320	SR180x4.75	SNN520-617	180	112	320	160	380	110	40	215
	1320K	21320K	H320	SR215x19.5	SNN524-620	215	140	350	185	410	120	45	271
	2320K	22320K	H2320	SR215x6.5	SNN524-620	215	140	350	185	410	120	45	271
100	1222K	–	H222	SR200x21	SNN522-619	200	125	350	175	410	120	45	240
	2222K	22222K	H322	SR200x13.5	SNN522-619	200	125	350	175	410	120	45	240
	–	23222K	H2322	SR200x5	SNN522-619	200	125	350	175	410	120	45	240
110	–	22224K	H3124	SR215x14	SNN524-620	215	140	350	185	410	120	45	271
	–	23224K	H2324	SR215x5	SNN524-620	215	140	350	185	410	120	45	271
115	–	22226K	H3126	SR230x13	SNN526	230	150	380	190	445	130	50	288
	–	23226K	H2326	SR230x5	SNN526	230	150	380	190	445	130	50	288
125	–	22228K	H3128	SR250x15	SNN528	250	150	420	205	500	150	50	298
	–	23228K	H2328	SR250x5	SNN528	250	150	420	205	500	150	50	298
135	–	22230K	H3130	SR270x16.5	SNN530	270	160	450	220	530	160	60	322
	–	23230K	H2330	SR270x5	SNN530	270	160	450	220	530	160	60	322
140	–	22232K	H3132	SR290x17	SNN532	290	170	470	235	550	160	60	342
	–	23232K	H2332	SR290x5	SNN532	290	170	470	235	550	160	60	342

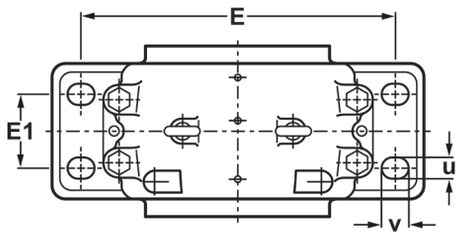
g (mm)	t (mm)	N (mm)	N1 (mm)	s (mm)	P	G Seals KIT	C Seals KIT	V Seals KIT (B1: Fitted Width)	TS-U Seals	TACK Seals	End Cover	Mass (kg)
58	M16	28	22	M20	R1/4	G516-KIT	C516-KIT	V516-KIT (9 ±1.2)	TS516U	TACK516	516A	10.20
58	M16	28	22	M20	R1/4	G516-KIT	C516-KIT	V516-KIT (9 ±1.2)	TS516U	TACK516	516A	10.20
68	M16	28	22	M20	R1/4	G616-KIT	C616-KIT	V616-KIT (9 ±1.2)	TS616U	TACK616	519A	14.50
68	M16	28	22	M20	R1/4	G616-KIT	C616-KIT	V616-KIT (9 ±1.2)	TS616U	TACK616	519A	14.50
61	M16	28	22	M20	R1/4	G517-KIT	C517-KIT	V517-KIT (9 ±1.2)	TS517U	TACK517	517A	11.20
61	M16	28	22	M20	R1/4	G517-KIT	C517-KIT	V517-KIT (9 ±1.2)	TS517U	TACK517	517A	11.20
70	M20	32	26	M24	R1/4	G617-KIT	C617-KIT	V617-KIT (9 ±1.2)	TS617U	TACK617	520A	18.30
70	M20	32	26	M24	R1/4	G617-KIT	C617-KIT	V617-KIT (9 ±1.2)	TS617U	TACK617	520A	18.30
65	M16	28	22	M20	R1/4	G518-KIT	C518-KIT	V518-KIT (9 ±1.2)	TS518U	TACK518	518A	13.00
65	M16	28	22	M20	R1/4	G518-KIT	C518-KIT	V518-KIT (9 ±1.2)	TS518U	TACK518	518A	13.00
65	M16	28	22	M20	R1/4	G518-KIT	C518-KIT	V518-KIT (9 ±1.2)	TS518U	TACK518	518A	13.00
68	M16	28	22	M20	R1/4	G519-KIT	C519-KIT	V519-KIT (9 ±1.2)	TS519U	TACK519	519A	14.50
68	M16	28	22	M20	R1/4	G519-KIT	C519-KIT	V519-KIT (9 ±1.2)	TS519U	TACK519	519A	14.50
80	M20	32	26	M24	R1/4	G619-KIT	C619-KIT	V619-KIT (9 ±1.2)	TS619U	TACK619	522A	24.00
80	M20	32	26	M24	R1/4	G619-KIT	C619-KIT	V619-KIT (9 ±1.2)	TS619U	TACK619	522A	24.00
70	M20	32	26	M24	R1/4	G520-KIT	C520-KIT	V520-KIT (9 ±1.2)	TS520U	TACK520	520A	18.30
70	M20	32	26	M24	R1/4	G520-KIT	C520-KIT	V520-KIT (9 ±1.2)	TS520U	TACK520	520A	18.30
70	M20	32	26	M24	R1/4	G520-KIT	C520-KIT	V520-KIT (9 ±1.2)	TS520U	TACK520	520A	18.30
86	M20	32	26	M24	R3/8	G620-KIT	C620-KIT	V620-KIT (9 ±1.2)	TS620U	TACK620	524A	26.20
86	M20	32	26	M24	R3/8	G620-KIT	C620-KIT	V620-KIT (9 ±1.2)	TS620U	TACK620	524A	26.20
80	M20	32	26	M24	R1/4	G522-KIT	C522-KIT	V522-KIT (9 ±1.2)	TS522U	TACK522	522A	24.00
80	M20	32	26	M24	R1/4	G522-KIT	C522-KIT	V522-KIT (9 ±1.2)	TS522U	TACK522	522A	24.00
80	M20	32	26	M24	R1/4	G522-KIT	C522-KIT	V522-KIT (9 ±1.2)	TS522U	TACK522	522A	24.00
86	M20	32	26	M24	R3/8	G524-KIT	C524-KIT	V524-KIT (9 ±1.2)	TS524U	TACK524	524A	26.20
86	M20	32	26	M24	R3/8	G524-KIT	C524-KIT	V524-KIT (9 ±1.2)	TS524U	TACK524	524A	26.20
90	M24	35	28	M24	R3/8	G526-KIT	C526-KIT	V526-KIT (9 ±1.2)	TS526U	TACK526	526A	33.00
90	M24	35	28	M24	R3/8	G526-KIT	C526-KIT	V526-KIT (9 ±1.2)	TS526U	TACK526	526A	33.00
98	M24	42	35	M30	R3/8	G528-KIT	C528-KIT	V528-KIT (9 ±1.2)	TS528U	TACK528	528A	40.00
98	M24	42	35	M30	R3/8	G528-KIT	C528-KIT	V528-KIT (9 ±1.2)	TS528U	TACK528	528A	40.00
106	M24	42	35	M30	R3/8	G530-KIT	C530-KIT	V530-KIT (9 ±1.2)	TS530U	TACK530	530A	49.00
106	M24	42	35	M30	R3/8	G530-KIT	C530-KIT	V530-KIT (9 ±1.2)	TS530U	TACK530	530A	49.00
114	M24	42	35	M30	R3/8	G532-KIT	C532-KIT	V532-KIT (9 ±1.2)	TS532U	TACK532	532A	55.00
114	M24	42	35	M30	R3/8	G532-KIT	C532-KIT	V532-KIT (9 ±1.2)	TS532U	TACK532	532A	55.00

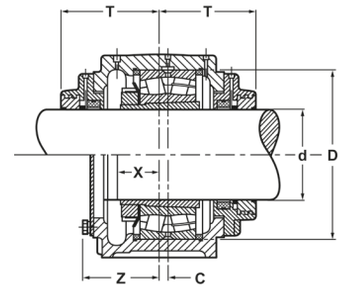
Plummer Blocks SD 3100 Series











Housing	Shaft Diameter (d)		Dimensions mm																	
	Metric	Inch	D	d2 (H12)	d3 (H12)	A	B	F	E	b	G	H	L	C	E1	X	T	Z	U	V
SD3134	150	6	280	187	197	170	510	108	430	180	70	335	230	14	100	76	154	120	28	35
SD3136	160	6.1/2	300	195	205	180	530	116	450	190	75	355	240	15	110	81	159	130	30	38
SD3138	170	6.3/4	320	217	230	190	560	124	480	210	80	375	260	10	120	86	168	140	35	48
SD3140	180	7	340	222	237	210	610	132	510	230	85	410	280	10	130	91	178	150	35	42
SD3144	200	8	370	246	265	220	640	140	540	240	90	435	290	12	140	96	184	155	36	46
SD3148	220	9	400	265	285	240	700	148	600	260	95	475	310	12	150	102	194	160	38	46
SD3152	240	9.1/2	440	285	305	260	770	164	650	280	100	515	320	13	160	112	200	170	45	60
SD3156	260	10	460	307	327	280	790	166	670	280	105	550	330	16	160	115	200	170	45	60
SD3160	280	11	500	325	345	300	830	180	710	310	110	590	350	22	190	124	213	190	45	64
SD3164	300	–	540	345	365	320	880	196	750	330	115	630	370	23	200	135	224	200	45	72
SD3168	320	–	580	368	390	340	965	210	840	380	120	670	390	25	240	155	244	220	52	70
SD3172	340	–	600	388	408	360	1040	212	890	390	130	720	400	22	255	159	249	225	60	77
SD3176	360	–	620	408	428	380	1120	214	980	400	135	750	405	22	255	162	260	240	68	88
SD3180	380	–	650	428	448	400	1245	220	1050	420	140	790	425	22	270	167	276	260	75	96

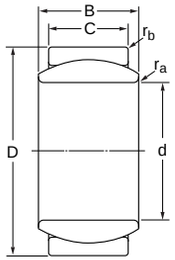
Bolt Diameter	Spherical Roller Bearing	Adapter Sleeve		Weight	Locating Ring	Housing	Labyrinth Seal	End Cover
S		Metric	Inch	kg	Dim.			
M24	23134K	H3134	HE3134	66	280x10	SD3134	TS34	**TSA34**
M24	23136K	H3136	HE3136	75	300x10	SD3136	TS36	**TSA36**
M24	23138K	H3138	HE3138	87	320x10	SD3138	TS38	**TSA38**
M30	23140K	H3140	HE3140	113	340x10	SD3140	TS40	**TSA40**
M30	23144K	H3144	–	129	370x10	SD3144	TS44	**TSA44**
M30	23148K	H3148	–	163	400x10	SD3148	TS48	**TSA48**
M36	23152K	H3152	–	199	440x10	SD3152	TS52	**TSA52**
M36	23156K	H3156	–	226	460x10	SD3156	TS56	**TSA56**
M36	23160K	H3160	–	283	500x10	SD3160	TS60	**TSA60**
M36	23164K	H3164	–	346	540x10	SD3164	TS64	**TSA64**
M36	23168K	H3168	–	514	580x10	SD3168	TS68	**TSA68**
M48	23172K	H3172	–	594	600x10	SD3172	TS72	**TSA72**
M56	23176K	H3176	–	702	620x10	SD3176	TS76	**TSA76**
M64	23180K	H3180	–	740	650x10	SD3180	TS80	**TSA80**

OID MECHANICAL PARTS BEARINGS

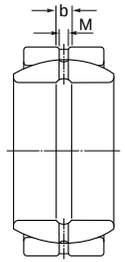


Spherical Plain Bearings

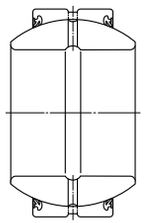
Spherical Plain Bearing, Steel/Steel

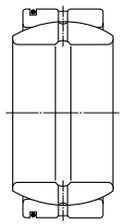


GE .. E



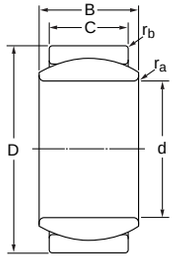
GE .. ES


GEH .. ES-2RS

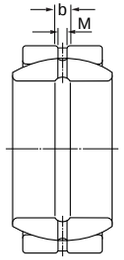

GE .. XS/K

Basic Dimensions						Basic Load Ratings		Chamfer Dimension		Mass	Designation
d mm	D mm	B mm	C mm	b mm	M mm	Dynamic C kN	Static C_O kN	r_a max	r_b max	kg	
4	12	5	3	-	-	1.938	9.690	0.3	0.3	0.003	GE 4 E
5	14	6	4	-	-	3.230	16.150	0.3	0.3	0.004	GE 5 E
6	14	6	4	-	-	3.230	16.150	0.3	0.3	0.034	GE 6 E
8	16	8	5	-	-	5.225	26.125	0.3	0.3	0.008	GE 8 E
10	19	9	6	-	-	7.743	38.475	0.3	0.3	0.012	GE 10 E
12	22	10	7	-	-	10.260	51.300	0.3	0.3	0.017	GE 12 E
12	22	11	9	-	-	10.400	54.400	0.5	0.5	0.019	GE 12 XS/K
15	26	12	9	2.3	1.5	16.150	80.750	0.3	0.3	0.032	GE 15 ES
15	26	12	9	2.3	1.5	16.150	80.750	0.3	0.3	0.032	GE 15 ES2RS
15	26	13	11	2.3	1.5	16.000	81.600	0.5	0.5	0.028	GE 15 XS/K
17	30	14	10	2.3	1.5	20.140	100.700	0.3	0.3	0.050	GE 17 ES
17	30	14	10	2.3	1.5	20.140	100.700	0.3	0.3	0.050	GE 17 ES2RS
20	32	16	14	2.3	1.5	26.400	132.800	0.5	0.5	0.053	GE 20 XS/K
20	35	16	12	3.1	2	28.500	138.700	0.3	0.3	0.065	GE 20 ES
20	35	16	12	3.1	2	28.500	138.700	0.3	0.3	0.065	GE 20 ES2RS
20	42	25	16	3.1	2	45.600	228.000	0.3	0.6	0.160	GEH 20 ES2RS
22	37	19	16	3.1	2	34.400	173.600	0.5	0.5	0.085	GE 22 XS/K
25	42	20	16	3.1	2	45.600	228.000	0.6	0.6	0.120	GE 25 ES
25	42	20	16	3.1	2	45.600	228.000	0.6	0.6	0.120	GE 25 ES2RS
25	42	21	18	3.9	2.5	44.000	220.000	0.5	0.5	0.116	GE25 XS/K
25	47	28	18	3.1	2	58.900	294.500	0.6	0.6	0.200	GEH 25 ES2RS
30	47	22	18	3.1	2	58.900	294.500	0.6	0.6	0.160	GE 30 ES
30	47	22	18	3.1	2	58.900	294.500	0.6	0.6	0.160	GE 30 ES2RS
30	50	27	23	4.6	3	69.600	351.200	1.0	1.0	0.225	GE 30 XS/K
30	55	32	20	3.9	2.5	76.000	380.000	0.6	1.0	0.350	GEH 30 ES2RS
35	55	25	20	3.9	2.5	76.000	380.000	0.6	1.0	0.230	GE 35 ES
35	55	25	20	3.9	2.5	76.000	380.000	0.6	1.0	0.230	GE 35 ES2RS
35	55	30	26	4.6	3	88.000	441.600	1.0	1.0	0.302	GE 35 XS/K
35	62	35	22	3.9	2.5	95.000	475.000	0.6	1.0	0.470	GEH 35 ES2RS
40	62	28	22	3.9	2.5	95.000	475.000	0.6	1.0	0.320	GE 40 ES
40	62	28	22	3.9	2.5	95.000	475.000	0.6	1.0	0.320	GE 40 ES2RS
40	62	33	28	4.6	3	104.000	523.200	1.0	1.0	0.375	GE 40 XS/K

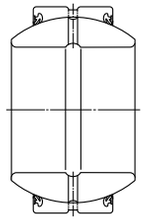
Spherical Plain Bearing, Steel/Steel

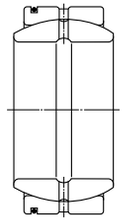


GE .. E

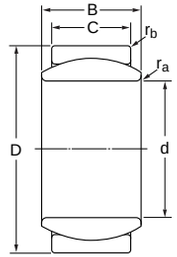


GE .. ES

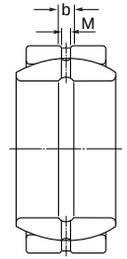

GEH .. ES-2RS


GE .. XS/K

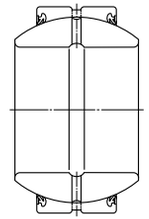
Basic Dimensions						Basic Load Ratings		Chamfer Dimension		Mass	Designation
d	D	B	C	b	M	Dynamic C	Static C_0	r_a max	r_b max		
mm	mm	mm	mm	mm	mm	kN	kN			kg	
40	68	40	25	4.6	3	120.650	608.000	0.6	1.0	0.610	GEH 40 ES2RS
45	68	32	25	4.6	3	120.650	608.000	0.6	1.0	0.460	GE 45 ES
45	68	32	25	4.6	3	120.650	608.000	0.6	1.0	0.460	GE 45 ES2RS
45	72	36	31	4.6	3	130.400	652.800	1.0	1.0	0.598	GE45 XS/K
45	75	43	28	4.6	3	148.200	741.000	0.6	1.0	0.800	GEH 45 ES2RS
50	75	35	28	4.6	3	148.200	741.000	0.6	1.0	0.560	GE 50 ES
50	75	35	28	4.6	3	148.200	741.000	0.6	1.0	0.560	GE 50 ES2RS
50	80	42	36	6.2	4	176.000	880.000	1.0	1.0	0.869	GE 50 XS/K
50	90	56	36	6.2	4	232.750	1159.000	0.6	1.0	1.600	GEH 50 ES2RS
55	90	47	40	6.2	4	275.200	1376.000	1.0	1.0	1.260	GE 55 XS/K
60	90	44	36	6.2	4	232.750	1159.000	1.0	1.0	1.100	GE 60 ES
60	90	44	36	6.2	4	232.750	1159.000	1.0	1.0	1.100	GE 60 ES2RS
60	100	53	45	7.7	4	275.200	1376.000	1.0	1.0	1.720	GE 60 XS/K
60	105	63	40	7.7	4	299.250	1482.000	1.0	1.0	2.400	GEH 60 ES2RS
65	105	55	47	7.7	4	300.000	1496.000	1.0	1.0	2.050	GE 65 XS/K
70	105	49	40	7.7	4	299.250	1482.000	1.0	1.0	1.550	GE 70 ES
70	105	49	40	7.7	4	299.250	1482.000	1.0	1.0	1.550	GE 70 ES2RS
70	110	58	50	7.7	4	340.000	1700.000	1.0	1.0	2.230	GE 70 XS/K
70	120	70	45	7.7	4	380.000	1900.000	1.0	1.0	3.400	GEH 70 ES2RS
75	120	64	55	9.5	5	408.000	2056.000	1.0	1.0	3.010	GE 75 XS/K
80	120	55	45	7.7	4	380.000	1900.000	1.0	1.0	2.300	GE 80 ES
80	120	55	45	7.7	4	380.000	1900.000	1.0	1.0	2.300	GE 80 ES2RS
80	130	70	60	11.3	5	488.000	2448.000	1.0	1.0	3.980	GE 80 XS/K
80	130	75	50	9.5	5	465.500	2327.500	1.0	1.0	4.100	GEH 80 ES2RS
85	135	74	63	11.5	5	535.200	2672.000	1.0	1.0	4.310	GE 85 XS/K
90	130	60	50	9.5	5	465.500	2327.500	1.0	1.0	2.750	GE 90 ES
90	130	60	50	9.5	5	465.500	2327.500	1.0	1.0	2.750	GE 90 ES2RS
90	140	76	65	11.5	5	574.400	2872.000	1.0	1.0	4.720	GE 90 XS/K
90	150	85	55	11.3	5	579.500	2897.500	1.0	1.0	6.300	GEH 90 ES2RS
95	150	82	70	11.5	5	666.400	3332.000	1.0	1.0	6.050	GE 95 XS/K
100	150	70	55	11.3	5	579.500	2897.500	1.0	1.0	4.400	GE 100 ES
100	150	70	55	11.3	5	579.500	2897.500	1.0	1.0	4.400	GE 100 ES2RS

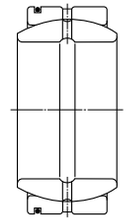


GE .. E



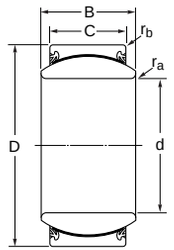
GE .. ES


GEH .. ES-2RS

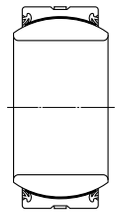

GE .. XS/K

Basic Dimensions						Basic Load Ratings		Chamfer Dimension		Mass	Designation
d	D	B	C	b	M	Dynamic C	Static C_0	r_a max	r_b max		
mm	mm	mm	mm	mm	mm	kN	kN			kg	
100	160	85	55	11.5	5	622.250	3087.500	1.0	1.0	6.800	GEH 100 ES2RS
100	160	88	75	13.5	6	764.800	3824.000	1.5	1.5	7.430	GE 100 XS/K
110	160	70	55	11.5	5	622.250	3087.500	1.0	1.0	4.800	GE 110 ES
110	160	70	55	11.5	5	622.250	3087.500	1.0	1.0	4.800	GE 110 ES2RS
110	170	93	80	13.5	6	864.000	4352.000	1.5	1.5	8.540	GE 110 XS/K
110	180	100	70	13.5	6	902.500	4512.500	1.0	1.0	11.000	GEH 110 ES2RS
115	180	98	85	13.5	6	952.000	4768.000	1.5	1.5	10.300	GE 115 XS/K
120	180	85	70	13.5	6	902.500	4512.500	1.0	1.0	8.250	GE 120 ES
120	180	85	70	13.5	6	902.500	4512.500	1.0	1.0	8.250	GE 120 ES2RS
120	190	105	90	13.5	6	1064.000	5352.000	1.5	1.5	12.400	GE120 XS/K
120	210	115	70	13.5	6	1026.000	5130.000	1.0	1.0	15.000	GEH 120 ES2RS
130	200	110	95	13.5	6	1192.000	5968.000	1.5	1.5	13.800	GE 130 XS/K
140	210	90	70	13.5	6	1026.000	5130.000	1.0	1.0	11.000	GE 140 ES
140	210	90	70	13.5	6	1026.000	5130.000	1.0	1.0	11.000	GE 140 ES2RS
150	220	120	105	13.5	6	1456.000	7312.000	1.5	1.5	17.100	GE 150 XS/K
160	230	105	80	13.5	6	1301.500	6460.000	1.0	1.0	14.000	GE 160 ES
160	230	105	80	13.5	6	1301.500	6460.000	1.0	1.0	14.000	GE 160 ES2RS
180	260	105	80	13.5	6	1453.500	7267.500	1.0	1.0	18.500	GE 180 ES
180	260	105	80	13.5	6	1453.500	7267.500	1.0	1.0	18.500	GE 180 ES2RS
200	290	130	100	15.5	7	2014.000	10070.000	1.0	1.0	28.000	GE 200 ES
200	290	130	100	15.5	7	2014.000	10070.000	1.0	1.0	28.000	GE 200 ES2RS
220	320	135	100	15.5	7	2204.000	11020.000	1.0	1.0	35.500	GE 220 ES2RS
240	340	140	100	15.5	7	2422.500	12065.000	1.0	1.0	40.000	GE 240 ES2RS
260	370	150	110	15.5	7	2897.500	14535.000	1.0	1.0	51.500	GE 260 ES2RS
280	400	155	120	15.5	7	3372.500	17100.000	1.0	1.0	65.000	GE 280 ES2RS
300	430	165	120	15.5	7	3610.000	18050.000	1.0	1.0	78.500	GE 300 ES2RS

Maintenance-Free Spherical Plain Bearings, Steel/PTFE Fabric



GE .. TE-2RS


GE .. TA-2RS

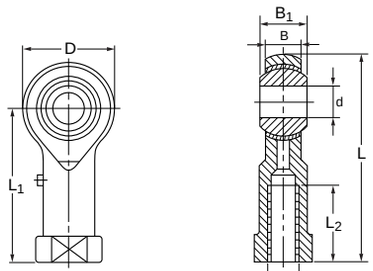
Basic Dimensions				Basic Load Ratings		Chamfer Dimension		Mass	Designation
				Dynamic	Static				
d mm	D mm	B mm	C mm	C kN	C_0 kN	r_a max	r_b max	kg	
25	42	20	16	64.600	130.150	0.6	0.6	0.120	GE 25 TE 2RS
30	47	22	18	83.600	167.200	0.6	0.6	0.160	GE 30 TE 2RS
35	55	25	20	106.400	212.800	0.6	1.0	0.230	GE 35 TE 2RS
40	62	28	22	133.000	266.000	0.6	1.0	0.320	GE 40 TE 2RS
45	68	32	25	171.000	342.000	0.6	1.0	0.460	GE 45 TE 2RS
50	75	35	28	209.000	418.000	0.6	1.0	0.560	GE 50 TE 2RS
60	90	44	36	327.750	660.250	1.0	1.0	1.100	GE 60 TE 2RS
70	105	49	40	418.000	836.000	1.0	1.0	1.550	GE 70 TE 2RS
80	120	55	45	541.500	1083.000	1.0	1.0	2.300	GE 80 TE 2RS
90	130	60	50	660.250	1301.500	1.0	1.0	2.750	GE 90 TE 2RS
100	150	70	55	821.750	1643.500	1.0	1.0	4.400	GE 100 TA 2RS
110	160	70	55	883.500	1767.000	1.0	1.0	4.800	GE 110 TA 2RS
120	180	85	70	1273.000	2565.000	1.0	1.0	8.250	GE 120 TA 2RS
140	210	90	70	1425.000	2850.000	1.0	1.0	11.000	GE 140 TA 2RS
160	230	105	80	1833.500	3610.000	1.0	1.0	14.000	GE 160 TA 2RS
180	260	105	80	2052.000	4085.000	1.0	1.0	18.500	GE 180 TA 2RS
200	290	130	100	2850.000	5700.000	1.0	1.0	28.000	GE 200 TA 2RS
220	320	135	100	3182.500	6222.500	1.0	1.0	35.500	GE 220 TA 2RS
240	340	140	100	3420.000	6840.000	1.0	1.0	40.000	GE 240 TA 2RS
260	370	150	110	4085.000	8217.500	1.0	1.0	51.500	GE 260 TA 2RS
280	400	155	120	4750.000	9500.000	1.0	1.0	65.000	GE 280 TA 2RS
300	430	165	120	5130.000	10260.000	1.0	1.0	78.500	GE 300 TA 2RS

OID MECHANICAL PARTS BEARINGS



Rod End

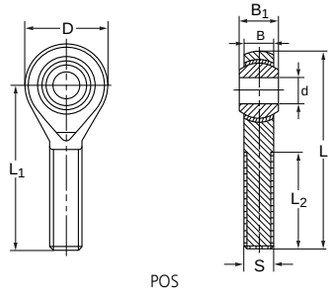
Rod End with Female Thread, Steel/Steel



PHS

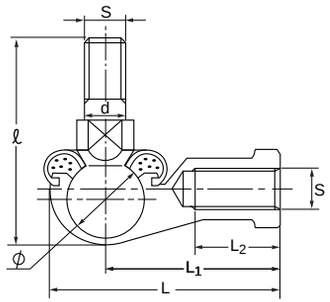
Basic Dimensions								Basic Load Ratings		Mass	Designation	
d mm	D mm	B mm	B1 mm	L mm	L1 mm	L2 mm	Thread S mm	C kN	C_0 kN	g	Right hand thread	Left hand thread
5	16	6	8	35	27	14	M5 X 0.8	313.500	551.000	16.500	PHS 5	PHS 5 L
6	18	6.75	9	39	30	14	M6 X 1	408.500	674.500	25.000	PHS 6	PHS 6 L
8	22	9	12	47	36	17	M8 X 1.25	674.500	988.000	43.000	PHS 8	PHS 8 L
10	26	10.5	14	56	43	21	M10 X 1.5	950.000	1292.000	72.000	PHS 10	PHS 10 L
12	30	12	16	65	50	24	M12 X 1.75	1263.500	1643.500	107.000	PHS 12	PHS 12 L
14	34	13.5	19	74	57	27	M14 X 2	1624.500	2023.500	160.000	PHS 14	PHS 14 L
16	38	15	21	83	64	33	M16 X 2	2033.000	2460.500	210.000	PHS 16	PHS 16 L
18	42	16.5	23	92	71	36	M18 X 1.5	2489.000	2926.000	295.000	PHS 18	PHS 18 L
20	46	18	25	100	77	40	M20 X 1.5	2983.000	3439.000	380.000	PHS 20	PHS 20 L
22	50	20	28	109	84	43	M22 X 1.5	3619.500	4047.000	490.000	PHS 22	PHS 22 L
25	60	22	31	124	94	48	M24 X 2	4474.500	7039.500	750.000	PHS 25	PHS 25 L
28	66	25	35	136	103	53	M27 X 2	5652.500	8426.500	950.000	PHS 28	PHS 28 L
30	70	25	37	145	110	56	M30 X 2	6032.500	8930.000	1130.000	PHS 30	PHS 30 L

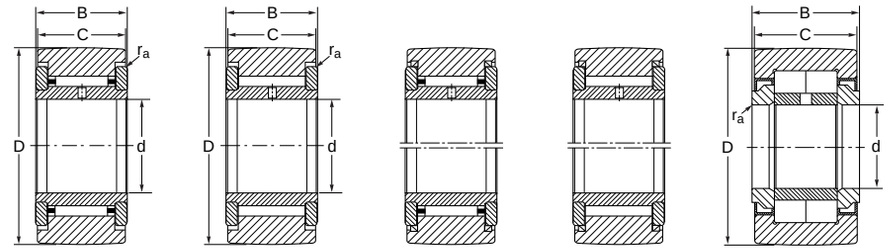
Rod End with Male Thread, Steel/Steel



POS

Basic Dimensions								Basic Load Ratings		Mass	Designation	
d mm	D mm	B mm	B1 mm	L mm	L1 mm	L2 mm	Thread S mm	C kN	C_0 kN	g	Right hand thread	Left hand thread
5	16	6	8	41	33	20	M5 X 0.8	313.500	323.000	12.500	POS 5	POS 5 L
6	18	6.75	9	45	36	22	M6 X 1	408.500	456.000	19.000	POS 6	POS 6 L
8	22	9	12	53	42	25	M8 X 1.25	674.500	836.000	32.000	POS 8	POS 8 L
10	26	10.5	14	61	48	29	M10 X 1.5	950.000	1292.000	54.000	POS 10	POS 10 L
12	30	12	16	69	54	33	M12 X 1.75	1263.500	1643.500	85.000	POS 12	POS 12 L
14	34	13.5	19	77	60	36	M14 X 2	1624.500	2023.500	126.000	POS 14	POS 14 L
16	38	15	21	85	66	40	M16 X 2	2033.000	2460.500	185.000	POS 16	POS 16 L
18	42	16.5	23	93	72	44	M18 X 1.5	2489.000	2926.000	260.000	POS 18	POS 18 L
20	46	18	25	101	78	47	M20 X 1.5	2983.000	3439.000	340.000	POS 20	POS 20 L
22	50	20	28	109	84	51	M22 X 1.5	3619.500	4047.000	435.000	POS 22	POS 22 L
25	60	22	31	124	94	57	M24 X 2	4474.500	7039.500	650.000	POS 25	POS 25 L
28	66	25	35	136	103	62	M27 X 2	5652.500	8426.500	875.000	POS 28	POS 28 L
30	70	25	37	145	110	66	M30 X 2	6032.500	8930.000	1070.000	POS 30	POS 30 L

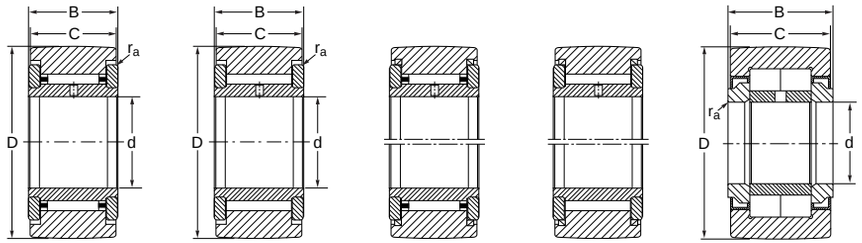




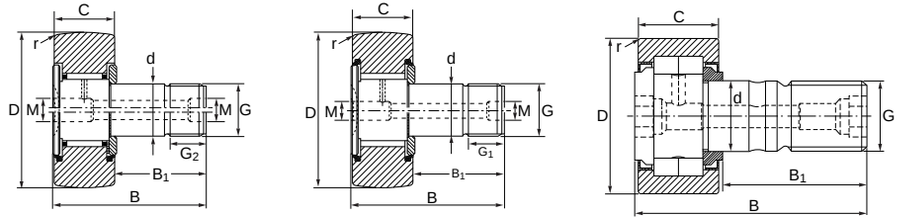
Basic Dimensions							Basic Load Ratings	Mass	Designation	
d mm	L mm	ℓ mm	ø mm	S mm	L1 mm	L2 mm	C_0 kN	g	Right hand thread	Left hand thread
5	35	29	11.112	M5 X 0.8	27	14	8.759	24.000	RBL 5D	RBL 5DL
6	40	35.5	12.700	M6 X 1	30	14	11.495	37.000	RBL 6D	RBL 6DL
8	48	42.5	15.875	M8 X 1.25	36	17	18.145	67.000	RBL 8D	RBL 8DL
10	57	50.5	19.050	M10 X 1.25	43	21	26.125	110.000	RBL 10D	RBL 10DL
10	57	56.5	19.050	M10 X 1.5	43	21	26.125	113.000	RBL 10BD	RBL 10BDL
12	66	57.5	22.225	M12 X 1.25	50	25	35.625	165.000	RBL 12D	RBL 12DL
12	66	64.5	22.225	M12 X 1.75	50	25	35.625	170.000	RBL 12BD	RBL 12BDL
14	75	73.5	25.400	M14 X 1.5	57	26	46.455	255.000	RBL 14D	RBL 14DL
14	75	79.5	25.400	M14 X 2	57	26	46.455	260.000	RBL 14BD	RBL 14BDL
16	84	79.5	25.400	M16 X 1.5	64	32	46.455	335.000	RBL 16D	RBL 16DL
16	84	85.5	25.4	M16 X 2	64	32	46.455	340.000	RBL 16BD	RBL 16BDL
18	93	90	28.575	M18 X 1.5	71	34	58.805	465.000	RBL 18D	RBL 18DL
20	99	90	28.575	M20 X 1.5	77	35	58.805	540.000	RBL 20D	RBL 20DL
22	109	95	31.75	M22 X 1.5	84	41	71.630	715.000	RBL 22D	RBL 22DL

Note:
Suffix B represents a thicker thread
Suffix D represents a rubber boot

Basic Dimensions				Basic Load Ratings		Limiting Speed	Chamfer Dimension	Mass	Designation	
d mm	D mm	C mm	B mm	Dynamic C kN	Static C_0 kN	r/min	r_a max	g		
5	16	11	12	2.993	3.135	13,300	0.15	14.000	NATR 5	NATR 5 PP
5	16	11	12	4.608	6.175	3,610	0.15	15.000	NATV 5	NATV 5 PP
6	19	11	12	3.325	3.705	10,450	0.15	20.000	NATR 6	NATR 6 PP
6	19	11	12	5.225	7.505	2,945	0.15	21.000	NATV 6	NATV 6 PP
8	24	14	15	5.225	6.080	7,125	0.30	41.000	NATR 8	NATR 8 PP
8	24	14	15	7.410	10.830	2,375	0.30	42.000	NATV 8	NATV 8 PP
10	30	14	15	6.460	7.980	5,225	0.60	64.000	NATR 10	NATR 10 PP
10	30	14	15	9.025	13.870	1,995	0.60	65.000	NATV 10	NATV 10 PP
12	32	14	15	6.555	8.360	4,275	0.60	71.000	NATR 12	NATR 12 PP
12	32	14	15	9.215	14.630	1,710	0.60	72.000	NATV 12	NTAV 12 PP
15	35	18	19	9.215	13.395	3,420	0.60	103.000	NATR 15	NATR 15 PP
15	35	18	19	12.160	21.850	1,520	0.60	105.000	NATV 15	NATV 15 PP
15	35	18	19	14.250	15.960	6,175	0.30	99.000	NUTR 15	-
15	42	18	19	17.195	20.805	6,175	0.30	158.000	NUTR 15 42	-
17	40	20	21	10.355	14.725	2,755	1.00	144.000	NATR 17	NATR 17 PP
17	40	20	21	14.060	25.175	1,330	1.00	152.000	NATV 17	NATR 17 PP
17	40	20	21	17.480	21.470	5,225	0.50	147.000	NUTR 17	-
17	47	20	21	20.235	26.600	5,225	0.50	220.000	NUTR 17 47	-
20	47	24	25	14.725	24.225	2,280	1.00	246.000	NATR 20	NATR 20 PP
20	47	24	25	19.570	39.900	1,235	1.00	254.000	NATV 20	NATV 20 PP
20	47	24	25	26.600	33.250	3,990	0.50	245.000	NUTR 20	-
20	52	24	25	29.925	38.950	3,990	0.50	321.000	NUTR 20 52	-
25	52	24	25	14.630	25.175	1,710	1.00	275.000	NATR 25	NATR 25 PP
25	52	24	25	19.475	41.800	950	1.00	285.000	NATV 25	NATV 25 PP
25	52	24	25	27.550	35.625	3,230	0.50	281.000	NUTR 25	-
25	62	24	25	33.725	47.500	3,230	0.50	450.000	NUTR 25 62	-
30	62	28	29	22.420	36.575	1,235	1.00	470.000	NATR 30	NATR 30 PP
30	62	28	29	28.975	58.900	808	1.00	481.000	NATV 30	NATV 30 PP
30	62	28	29	38.000	47.500	2,470	1.00	465.000	NUTR 30	-
30	72	28	29	45.125	60.800	2,470	0.50	697.000	NUTR 30 72	-
35	72	28	29	24.225	42.275	950	1.10	635.000	-	NATR 35 PP
35	72	28	29	31.350	69.350	713	1.10	647.000	-	NATV 35 PP



NATR NATV NATR..PP NATV..PP NUTR



KR KR..PP KRV..PP NUKR

Basic Dimensions				Basic Load Ratings		Limiting Speed	Chamfer Dimension	Mass	Designation	
d	D	C	B	Dynamic C	Static C_0		r_a max			
mm	mm	mm	mm	kN	kN	r/min		g		
35	72	28	29	42.275	57.000	1,995	0.60	630.000	NUTR 35	-
35	80	28	29	48.450	68.400	1,995	0.60	836.000	NUTR 35 80	-
40	80	30	32	31.350	56.050	808	1.10	805.000	-	NATR 40 PP
40	80	30	32	38.950	85.500	618	1.10	890.000	-	NATV 40 PP
40	80	30	32	52.250	71.250	1,520	0.60	816.000	NUTR 40	-
40	90	30	32	62.700	90.250	1,520	0.60	1129.000	NUTR 40 90	-
45	85	30	32	53.200	74.100	1,330	0.60	883.000	NUTR 45	-
45	100	30	32	67.450	101.650	1,330	0.60	1396.000	NUTR 45 100	-
50	90	30	32	30.400	56.050	618	1.10	960.000	-	NATR 50 PP
50	90	30	32	38.475	88.350	523	1.10	990.000	-	NATV 50 PP
50	90	30	32	54.150	76.950	1,235	0.60	950.000	NUTR 50	-
50	110	30	32	72.200	114.000	1,235	0.60	1690.000	NUTR 50 110	-

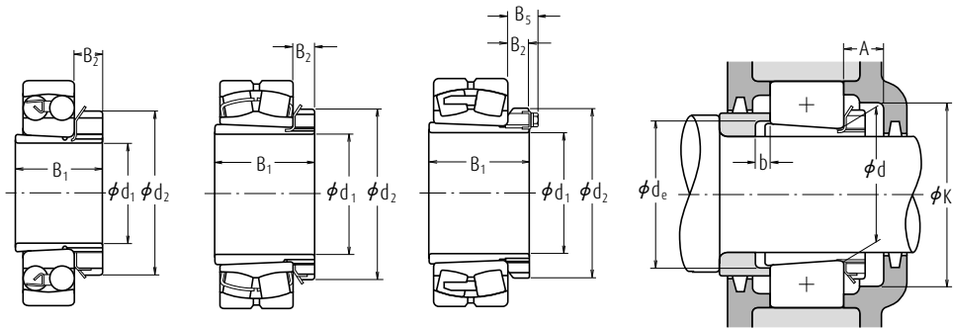
Basic Dimensions								Basic Load Ratings		Limiting Speed	Chamfer Dimension	Mass	Designation
D	d	C	B	B_1	G	G_1	M	Dynamic C	Static C_0		r_a max		
mm	mm	mm	mm	mm	mm	mm	mm	kN	kN	r/min		g	
16	6	11	28	16	M6 X 1	8	4	2.993	3.135	13,300	0.15	18.000	KR 16
16	6	11	28	16	M6 X 1	8	4	2.993	3.135	13,300	0.15	18.000	KR 16 PP
16	6	11	28	16	M6 X 1	8	4	4.608	6.175	3,610	0.15	20.000	KRV 16 PP
19	8	11	32	20	M8 X 1.25	10	4	3.325	3.705	10,450	0.15	28.000	KR 19
19	8	11	32	20	M8 X 1.25	10	4	3.325	3.705	10,450	0.15	28.000	KR 19 PP
19	8	11	32	20	M8 X 1.25	10	4	5.225	7.505	2,945	0.15	32.000	KRV 19 PP
22	10	12	36	23	M10 X 1	12	4	4.228	4.940	7,600	0.30	48.000	KR 22
22	10	12	36	23	M10 X 1	12	4	4.228	4.940	7,600	0.30	48.000	KR 22 PP
22	10	12	36	23	M10 X 1	12	4	5.985	8.645	2,470	0.30	49.000	KRV22 PP
26	10	12	36	23	M10 X 1	12	4	4.845	5.890	7,600	0.30	58.000	KR 26
26	10	12	36	23	M10 X 1	12	4	4.845	5.890	7,600	0.30	58.000	KR 26 PP
26	10	12	36	23	M10 X 1	12	4	6.935	10.735	2,470	0.30	61.000	KRV 26 PP
30	12	14	40	25	M12 X 1.5	13	6	6.460	7.980	5,225	0.60	87.000	KR 30
30	12	14	40	25	M12 X 1.5	13	6	6.460	7.980	5,225	0.60	87.000	KR 30 PP
30	12	14	40	25	M12 X 1.5	13	6	9.025	13.870	1,995	0.60	95.000	KRV 30 PP
32	12	14	40	25	M12 X 1.5	13	6	6.745	8.550	5,225	0.60	98.000	KR 32
32	12	14	40	25	M12 X 1.5	13	6	6.745	8.550	5,225	0.60	98.000	KR 32 PP
32	12	14	40	25	M12 X 1.5	13	6	9.500	15.010	1,995	0.60	100.000	KRV 32 PP
35	16	18	52	32.5	M16 X 1.5	17	6	9.215	13.395	3,420	0.60	169.000	KR 35
35	16	18	52	32.5	M16 X 1.5	17	6	9.215	13.395	3,420	0.60	169.000	KR 35 PP
35	16	18	52	32.5	M16 X 1.5	17	6	12.160	21.850	1,520	0.60	171.000	KRV 35 PP
35	16	18	52	32.5	M16 X 1.5	17	6	14.250	15.960	6,175	0.60	164.000	NUKR 35
40	18	20	58	36.5	M18 X 1.5	19	6	10.355	14.725	2,755	1.00	247.000	KR 40
40	18	20	58	36.5	M18 X 1.5	19	6	10.355	14.725	2,755	1.00	247.000	KR 40 PP
40	18	20	58	36.5	M18 X 1.5	19	6	14.060	25.175	1,330	1.00	249.000	KRV 40 PP
40	18	20	58	36.5	M18 X 1.5	19	8	17.480	21.470	5,225	1.00	242.000	NUKR 40
47	20	24	66	40.5	M20 X 1.5	21	8	14.725	24.225	2,280	1.00	386.000	KR 47
47	20	24	66	40.5	M20 X 1.5	21	8	14.725	24.225	2,280	1.00	386.000	KR 47 PP
47	20	24	66	40.5	M20 X 1.5	21	10	26.600	33.250	3,990	1.00	380.000	NUKR 47
52	20	24	66	40.5	M20 X 1.5	21	8	15.960	27.550	2,280	1.00	461.000	KR 52
52	20	24	66	40.5	M20 X 1.5	21	8	15.960	27.550	2,280	1.00	481.000	KR 52 PP
52	20	24	66	40.5	M20 X 1.5	21	10	27.550	35.625	3,230	1.00	450.000	NUKR 52

OID MECHANICAL PARTS BEARINGS



Accessories

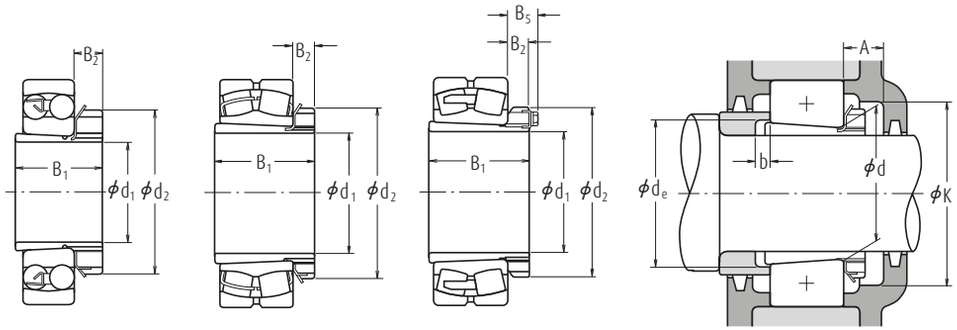
Shaft Diameter 17 – 40 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
17	20	1204K	**+ H204X**	24	32	7	–	A204X	14	39	23	5	0.045
	20	2204K	**+ H304X**	28	32	7	–	A304X	14	39	24	5	0.045
	20	1304K	**+ H304X**	28	32	7	–	A304X	14	39	24	8	0.045
	20	2304K	**+ H2304X**	31	32	7	–	A2304X	14	39	24	5	0.050
20	25	1205K	**+ H205X**	26	38	8	–	A205X	15	45	28	5	0.065
	25	2205K	**+ H305X**	29	38	8	–	A305X	15	45	29	5	0.075
	25	1305K	**+ H305X**	29	38	8	–	A305X	15	45	29	6	0.075
	25	21305C DKE4	**+ H305X**	29	38	8	–	A305X	15	45	29	6	0.075
	25	2305K	**+ H2305X**	35	38	8	–	A2305X	15	45	29	5	0.090
25	30	1206K	**+ H206X**	27	45	8	–	A206X	15	50	33	5	0.10
	30	2206K	**+ H306X**	31	45	8	–	A306X	15	50	34	5	0.11
	30	1306K	**+ H306X**	31	45	8	–	A306X	15	50	34	6	0.11
	30	21306C DKE4	**+ H306X**	31	45	8	–	A306X	15	50	34	6	0.11
	30	2306K	**+ H2306X**	38	45	8	–	A2306X	15	50	35	5	0.125
30	35	1207K	**+ H207X**	29	52	9	–	A207X	17	58	38	5	0.125
	35	2207K	**+ H307X**	35	52	9	–	A307X	17	58	39	5	0.145
	35	1307K	**+ H307X**	35	52	9	–	A307X	17	58	39	7	0.145
	35	21307C DKE4	**+ H307X**	35	52	9	–	A307X	17	58	39	7	0.145
	35	2307K	**+ H2307X**	43	52	9	–	A2307X	17	58	40	5	0.16
35	40	1208K	**+ H208X**	31	58	10	–	A208X	17	65	44	5	0.175
	40	2208K	**+ H308X**	36	58	10	–	A308X	17	65	44	5	0.19
	40	1308K	**+ H308X**	36	58	10	–	A308X	17	65	44	5	0.19
	40	21308E AKE4	**+ H308X**	36	58	10	–	A308X	17	65	44	5	0.19
	40	2308K	**+ H2308X**	46	58	10	–	A2308X	17	65	45	5	0.225
	40	22308E AKE4	**+ H2308X**	46	58	10	–	A2308X	17	65	45	5	0.225
40	45	1209K	**+ H209X**	33	65	11	–	A209X	17	72	49	5	0.225
	45	2209K	**+ H309X**	39	65	11	–	A309X	17	72	49	8	0.26
	45	1309K	**+ H309X**	39	65	11	–	A309X	17	72	49	5	0.26
	45	21309E AKE4	**+ H309X**	39	65	11	–	A309X	17	72	49	5	0.26
	45	2309K	**+ H2309X**	50	65	11	–	A2309X	17	72	50	5	0.30
	45	22309E AKE4	**+ H2309X**	50	65	11	–	A2309X	17	72	50	5	0.30

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

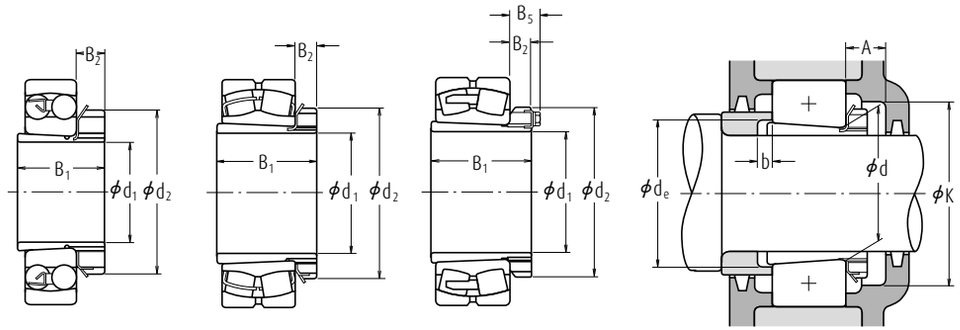
Shaft Diameter 45 – 60 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
45	50	1210K	**+ H210X**	35	70	12	–	A210X	19	76	53	5	0.275
	50	2210K	**+ H310X**	42	70	12	–	A310X	19	76	54	10	0.30
	50	1310K	**+ H310X**	42	70	12	–	A310X	19	76	54	5	0.30
	50	21310E AKE4	**+ H310X**	42	70	12	–	A310X	19	76	54	5	0.30
	50	2310K	**+ H2310X**	55	70	12	–	A2310X	19	76	56	5	0.35
	50	22310E AKE4	**+ H2310X**	55	70	12	–	A2310X	19	76	56	5	0.35
50	55	1211K	**+ H211X**	37	75	12	–	A211X	19	85	60	6	0.305
	55	2211K	**+ H311X**	45	75	12	–	A311X	19	85	60	11	0.35
	55	22211E AKE4	**+ H311X**	45	75	12	–	A311X	19	85	60	11	0.35
	55	1311K	**+ H311X**	45	75	12	–	A311X	19	85	60	6	0.35
	55	21311E AKE4	**+ H311X**	45	75	12	–	A311X	19	85	60	6	0.35
	55	2311K	**+ H2311X**	59	75	12	–	A2311X	19	85	61	6	0.40
	55	22311E AKE4	**+ H2311X**	59	75	12	–	A2311X	19	85	61	6	0.40
55	60	1212K	**+ H212X**	38	80	13	–	A212X	20	90	64	5	0.365
	60	2212K	**+ H312X**	47	80	13	–	A312X	20	90	65	9	0.40
	60	22212E AKE4	**+ H312X**	47	80	13	–	A312X	20	90	65	9	0.40
	60	1312K	**+ H312X**	47	80	13	–	A312X	20	90	65	5	0.40
	60	21312E AKE4	**+ H312X**	47	80	13	–	A312X	20	90	65	5	0.40
	60	2312K	**+ H2312X**	62	80	13	–	A2312X	20	90	66	5	0.45
	60	22312E AKE4	**+ H2312X**	62	80	13	–	A2312X	20	90	66	5	0.45
60	65	1213K	**+ H213X**	40	85	14	–	A213X	21	96	70	5	0.40
	65	2213K	**+ H313X**	50	85	14	–	A313X	21	96	70	8	0.45
	65	22213E AKE4	**+ H313X**	50	85	14	–	A313X	21	96	70	8	0.45
	65	1313K	**+ H313X**	50	85	14	–	A313X	21	96	70	5	0.45
	65	21313E AKE4	**+ H313X**	50	85	14	–	A313X	21	96	70	5	0.45
	65	2313K	**+ H2313X**	65	85	14	–	A2313X	21	96	72	5	0.55
	65	22313E AKE4	**+ H2313X**	65	85	14	–	A2313X	21	96	72	5	0.55
	70	22214E AKE4	**+ H314X**	52	92	14	–	A314X	21	96	70	8	0.65
	70	21314E AKE4	**+ H314X**	52	92	14	–	A314X	21	96	70	5	0.65
	70	22314E AKE4	**+ H2314X**	68	92	14	–	A2314X	21	96	72	5	0.80

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

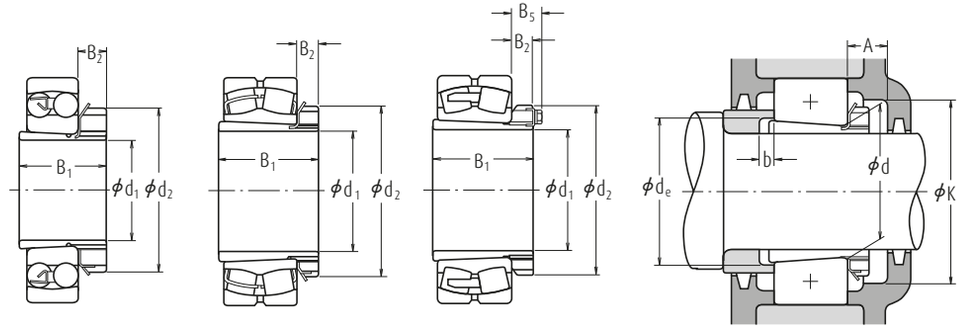
Shaft Diameter 65 – 80 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
65	75	1215K	**+ H215X**	43	98	15	–	A215X	23	110	80	5	0.70
	75	2215K	**+ H315X**	55	98	15	–	A315X	23	110	80	12	0.85
	75	22215E AKE4	**+ H315X**	55	98	15	–	A315X	23	110	80	12	0.85
	75	1315K	**+ H315X**	55	98	15	–	A315X	23	110	80	5	0.85
	75	21315E AKE4	**+ H315X**	55	98	15	–	A315X	23	110	80	5	0.85
	75	2315K	**+ H2315X**	73	98	15	–	A2315X	23	110	82	5	1.05
	75	22315E AKE4	**+ H2315X**	73	98	15	–	A2315X	23	110	82	5	1.05
70	80	1216K	**+ H216X**	46	105	17	–	A216X	25	120	85	5	0.85
	80	2216K	**+ H316X**	59	105	17	–	A316X	25	120	86	12	1.05
	80	22216E AKE4	**+ H316X**	59	105	17	–	A316X	25	120	86	12	1.05
	80	1316K	**+ H316X**	59	105	17	–	A316X	25	120	86	5	1.05
	80	21316E AKE4	**+ H316X**	59	105	17	–	A316X	25	120	86	5	1.05
	80	2316K	**+ H2316X**	78	105	17	–	A2316X	25	120	87	5	1.3
	80	22316E AKE4	**+ H2316X**	78	105	17	–	A2316X	25	120	87	5	1.3
75	85	1217K	**+ H217X**	50	110	18	–	A217X	27	128	90	6	1.0
	85	2217K	**+ H317X**	63	110	18	–	A317X	27	128	91	12	1.2
	85	22217E AKE4	**+ H317X**	63	110	18	–	A317X	27	128	91	12	1.2
	85	1317K	**+ H317X**	63	110	18	–	A317X	27	128	91	6	1.2
	85	21317E AKE4	**+ H317X**	63	110	18	–	A317X	27	128	91	6	1.2
	85	2317K	**+ H2317X**	82	110	18	–	A2317X	27	128	94	6	1.45
	85	22317E AKE4	**+ H2317X**	82	110	18	–	A2317X	27	128	94	6	1.45
80	90	1218K	**+ H218X**	52	120	18	–	A218X	28	139	95	6	1.15
	90	2218K	**+ H318X**	65	120	18	–	A318X	28	139	96	10	1.4
	90	22218E AKE4	**+ H318X**	65	120	18	–	A318X	28	139	96	10	1.4
	90	1318K	**+ H318X**	65	120	18	–	A318X	28	139	96	6	1.4
	90	21318E AKE4	**+ H318X**	65	120	18	–	A318X	28	139	96	6	1.4
	90	2318K	**+ H2318X**	86	120	18	–	A2318X	28	139	99	6	1.7
	90	23218C KE4	**+ H2318X**	86	120	18	–	A2318X	28	139	99	6	1.7
	90	22318E AKE4	**+ H2318X**	86	120	18	–	A2318X	28	139	99	6	1.7

Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

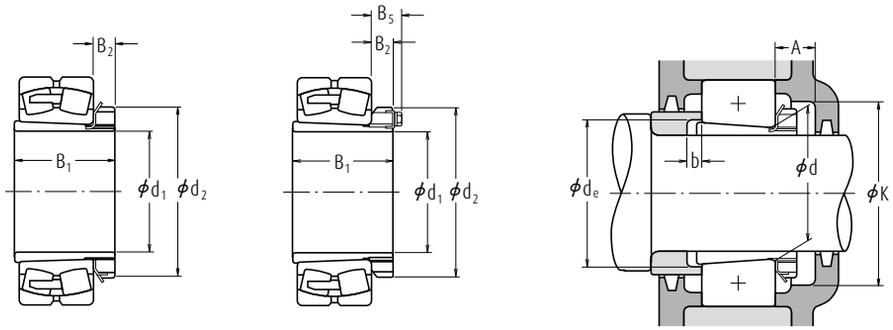
Shaft Diameter 85 – 115 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
85	95	1219K	**+ H219X**	55	125	19	–	A219X	29	145	101	7	1.35
	95	2219K	**+ H319X**	68	125	19	–	A319X	29	145	102	9	1.55
	95	22219E AKE4	**+ H319X**	68	125	19	–	A319X	29	145	102	9	1.55
	95	1319K	**+ H319X**	68	125	19	–	A319X	29	145	102	7	1.55
	95	21319C KE4	**+ H319X**	68	125	19	–	A319X	29	145	102	7	1.55
	95	2319K	**+ H2319X**	90	125	19	–	A2319X	29	145	105	7	1.9
	95	22319E AKE4	**+ H2319X**	90	125	19	–	A2319X	29	145	105	7	1.9
90	100	1220K	**+ H220X**	58	130	20	–	A220X	30	150	106	7	1.45
	100	2220K	**+ H320X**	71	130	20	–	A320X	30	150	107	8	1.7
	100	22220E AKE4	**+ H320X**	71	130	20	–	A320X	30	150	107	8	1.7
	100	1320K	**+ H320X**	71	130	20	–	A320X	30	150	107	7	1.7
	100	21320C KE4	**+ H320X**	71	130	20	–	A320X	30	150	107	7	1.7
	100	2320K	**+ H2320X**	97	130	20	–	A2320X	30	150	110	7	2.15
	100	23220C KE4	**+ H2320X**	97	130	20	–	A2320X	30	150	110	7	2.15
	100	22320E AKE4	**+ H2320X**	97	130	20	–	A2320X	30	150	110	7	2.15
100	110	23122C KE4	**+ H3122X**	81	145	21	–	A3122X	32	170	117	7	2.25
	110	1222K	**+ H222X**	63	145	21	–	A222X	32	170	116	7	1.95
	110	2222K	**+ H322X**	77	145	21	–	A322X	32	170	117	6	2.3
	110	22222E AKE4	**+ H322X**	77	145	21	–	A322X	32	170	117	6	2.3
	110	1322K	**+ H322X**	77	145	21	–	A322X	32	170	117	9	2.3
	110	2322K	**+ H2322X**	105	145	21	–	A2322X	32	170	121	7	2.75
	110	23222C KE4	**+ H2322X**	105	145	21	–	A2322X	32	170	121	17	2.75
	110	22322E AKE4	**+ H2322X**	105	145	21	–	A2322X	32	170	121	7	2.75
110	120	23024C DKE4	**+ H3024**	72	145	22	–	A3024	33	180	127	7	1.95
	120	23124C KE4	**+ H3124**	88	155	22	–	A3124	33	180	128	7	2.65
	120	22224E AKE4	**+ H3124**	88	155	22	–	A3124	33	180	128	11	2.65
	120	23224C KE4	**+ H2324**	112	155	22	–	A2324	33	180	131	17	3.2
	120	22324E AKE4	**+ H2324**	112	155	22	–	A2324	33	180	131	7	3.2
115	130	23026C DKE4	**+ H3026**	80	155	23	–	A3026	34	190	137	8	2.85
	130	23126C KE4	**+ H3126**	92	165	23	–	A3126	34	190	138	8	3.65
	130	22226E AKE4	**+ H3126**	92	165	23	–	A3126	34	190	138	8	3.65
	130	23226C KE4	**+ H2326**	121	165	23	–	A2326	34	190	142	21	4.6
	130	22326C KE4	**+ H2326**	121	165	23	–	A2326	34	190	142	8	4.6

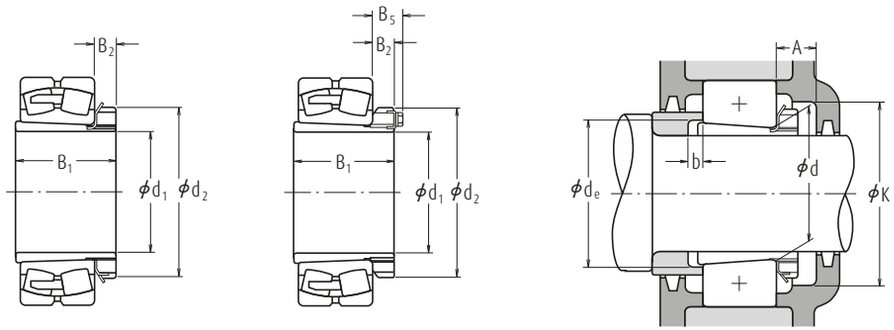
Remark The suffix X represents adapter sleeves having narrow slits, for which washers with straight tabs should be used.

Shaft Diameter 125 – 170 mm



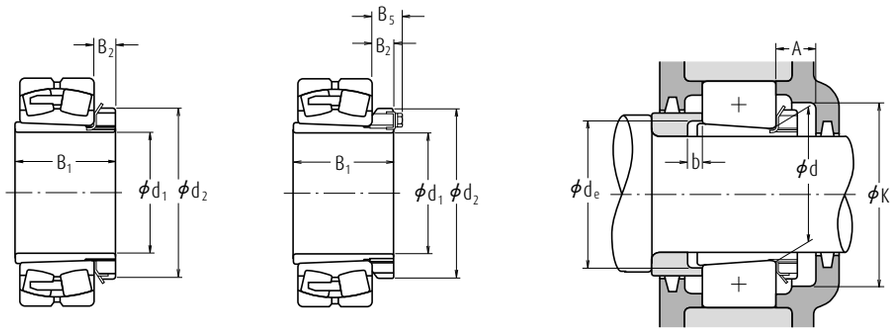
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
125	140	23028C DKE4 **+ H3028**	82	165	24	–	A3028	36	205	147	8	3.15
	140	23128C KE4 **+ H3128**	97	180	24	–	A3128	36	205	149	8	4.35
	140	22228C DKE4 **+ H3128**	97	180	24	–	A3128	36	205	149	8	4.35
	140	23228C KE4 **+ H2328**	131	180	24	–	A2328	36	205	152	22	5.55
	140	22328C KE4 **+ H2328**	131	180	24	–	A2328	36	205	152	8	5.55
135	150	23030C DKE4 **+ H3030**	87	180	26	–	A3030	37	220	158	8	3.9
	150	23130C KE4 **+ H3130**	111	195	26	–	A3130	37	220	160	8	5.5
	150	22230C DKE4 **+ H3130**	111	195	26	–	A3130	37	220	160	15	5.5
	150	23230C KE4 **+ H2330**	139	195	26	–	A2330	37	220	163	20	6.6
	150	22330C AKE4 **+ H2330**	139	195	26	–	A2330	37	220	163	8	6.6
140	160	23932C AKE4 **+ H3932**	78	190	28	–	A3932	39	205	168	8	4.64
	160	23032C DKE4 **+ H3032**	93	190	28	–	A3032	39	230	168	8	5.2
	160	23132C KE4 **+ H3132**	119	210	28	–	A3132	39	230	170	8	7.65
	160	22232C DKE4 **+ H3132**	119	210	28	–	A3132	39	230	170	14	7.65
	160	23232C KE4 **+ H2332**	147	210	28	–	A2332	39	230	174	18	9.15
	160	22332C AKE4 **+ H2332**	147	210	28	–	A2332	39	230	174	8	9.15
150	170	23934B CAKE4 **+ H3934**	79	200	29	–	A3934	40	215	179	8	5.07
	170	23034C DKE4 **+ H3034**	101	200	29	–	A3034	40	250	179	8	6.0
	170	23134C KE4 **+ H3134**	122	220	29	–	A3134	40	250	180	8	8.4
	170	22234C DKE4 **+ H3134**	122	220	29	–	A3134	40	250	180	10	8.4
	170	23234C KE4 **+ H2334**	154	220	29	–	A2334	40	250	185	18	10
	170	22334C AKE4 **+ H2334**	154	220	29	–	A2334	40	250	185	8	10
160	180	23936C AKE4 **+ H3936**	87	210	30	–	A3936	41	230	189	8	5.87
	180	23036C DKE4 **+ H3036**	109	210	30	–	A3036	41	260	189	8	6.85
	180	23136C KE4 **+ H3136**	131	230	30	–	A3136	41	260	191	8	9.5
	180	22236C DKE4 **+ H3136**	131	230	30	–	A3136	41	260	191	18	9.5
	180	23236C KE4 **+ H2336**	161	230	30	–	A2336	41	260	195	22	11.5
	180	22336C AKE4 **+ H2336**	161	230	30	–	A2336	41	260	195	8	11.5
170	190	23938C AKE4 **+ H3938**	89	220	31	–	A3938	43	240	199	9	6.35
	190	23038C AKE4 **+ H3038**	112	220	31	–	A3038	43	270	199	9	7.45
	190	23138C KE4 **+ H3138**	141	240	31	–	A3138	43	270	202	9	11
	190	22238C AKE4 **+ H3138**	141	240	31	–	A3138	43	270	202	21	11
	190	23238C KE4 **+ H2338**	169	240	31	–	A2338	43	270	206	21	12.5
	190	22338C AKE4 **+ H2338**	169	240	31	–	A2338	43	270	206	9	12.5

Shaft Diameter 180 – 260 mm



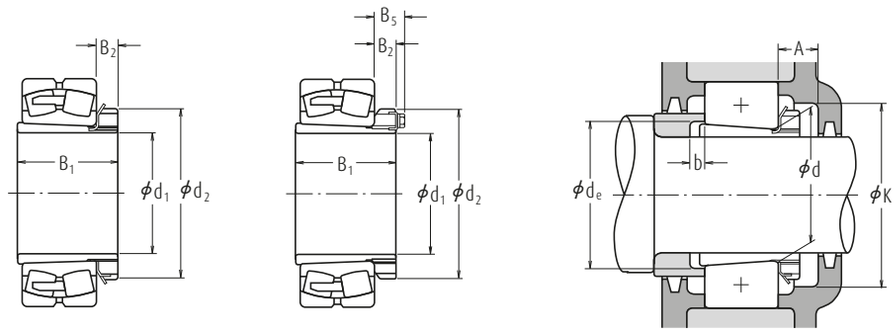
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
180	200	23940C AKE4 **+ H3940**	98	240	32	–	A3940	46	260	210	10	8.0
	200	23040C AKE4 **+ H3040**	120	240	32	–	A3040	46	280	210	10	9.2
	200	23140C KE4 **+ H3140**	150	250	32	–	A3140	46	280	212	10	12
	200	22240C AKE4 **+ H3140**	150	250	32	–	A3140	46	280	212	24	12
	200	23240C KE4 **+ H2340**	176	250	32	–	A2340	46	280	216	20	14
	200	22340C AKE4 **+ H2340**	176	250	32	–	A2340	46	280	216	10	14
200	220	23944C AKE4 **+ H3944**	96	260	30	41	A3944	55	280	231	10	8.32
	220	23044C AKE4 **+ H3044**	128	260	30	41	A3044	55	320	231	12	10.5
	220	23144C KE4 **+ H3144**	158	280	32	44	A3144	55	320	233	10	14.5
	220	22244C AKE4 **+ H3144**	158	280	32	44	A3144	55	320	233	22	14.5
	220	23244C KE4 **+ H2344**	183	280	32	44	A2344	55	320	236	11	16.5
	220	22344C AKE4 **+ H2344**	183	280	32	44	A2344	55	320	236	10	16.5
220	240	23948C AKE4 **+ H3948**	101	290	34	46	A3948	60	300	251	11	11.2
	240	23048C AKE4 **+ H3048**	133	290	34	46	A3048	60	340	251	11	13
	240	23148C KE4 **+ H3148**	169	300	34	46	A3148	60	340	254	11	17.5
	240	22248C AKE4 **+ H3148**	169	300	34	46	A3148	60	340	254	19	17.5
	240	23248C AKE4 **+ H2348**	196	300	34	46	A2348	60	340	257	6	19.5
	240	22348C AKE4 **+ H2348**	196	300	34	46	A2348	60	340	257	11	19.5
240	260	23952C AKE4 **+ H3952**	116	310	34	46	A3952	60	330	272	11	13.4
	260	23052C AKE4 **+ H3052**	147	310	34	46	A3052	60	370	272	13	15.5
	260	23152C AKE4 **+ H3152**	187	330	36	49	A3152	60	370	276	11	22
	260	22252C AKE4 **+ H3152**	187	330	36	49	A3152	60	370	276	25	22
	260	23252C AKE4 **+ H2352**	208	330	36	49	A2352	60	370	278	2	24
	260	22352C AKE4 **+ H2352**	208	330	36	49	A2352	60	370	278	11	24
260	280	23956C AKE4 **+ H3956**	121	330	38	50	A3956	65	350	292	12	15.5
	280	23056C AKE4 **+ H3056**	152	330	38	50	A3056	65	390	292	12	17.5
	280	23156C AKE4 **+ H3156**	192	350	38	51	A3156	65	390	296	12	24.5
	280	22256C AKE4 **+ H3156**	192	350	38	51	A3156	65	390	296	28	24.5
	280	23256C AKE4 **+ H2356**	221	350	38	51	A2356	65	390	299	11	28
	280	22356C AKE4 **+ H2356**	221	350	38	51	A2356	65	390	299	12	28

Shaft Diameter 280 – 410 mm



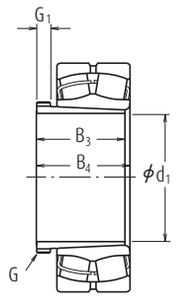
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
280	300	23960C AKE4 **+ H3960**	140	360	42	54	A3960	69	380	313	12	20.7
	300	23060C AKE4 **+ H3060**	168	360	42	54	A3060	69	430	313	12	23
	300	23160C AKE4 **+ H3160**	208	380	40	53	A3160	69	430	317	12	30
	300	22260C AKE4 **+ H3160**	208	380	40	53	A3160	69	430	317	32	30
	300	23260C AKE4 **+ H3260**	240	380	40	53	A3260	69	430	321	12	34
300	320	23964C AKE4 **+ H3964**	140	380	42	55	A3964	72	400	334	13	21.8
	320	23064C AKE4 **+ H3064**	171	380	42	55	A3064	72	450	334	13	24.5
	320	23164C AKE4 **+ H3164**	226	400	42	56	A3164	72	450	339	13	35
	320	22264C AKE4 **+ H3164**	226	400	42	56	A3164	72	450	339	39	35
	320	23264C AKE4 **+ H3264**	258	400	42	56	A3264	72	450	343	13	39.5
320	340	23968C AKE4 **+ H3968**	144	400	45	58	A3968	75	430	354	14	24.6
	340	23068C AKE4 **+ H3068**	187	400	45	58	A3068	75	490	355	14	28.5
	340	23168C AKE4 **+ H3168**	254	440	55	72	A3168	75	490	360	14	49.5
	340	23268C AKE4 **+ H3268**	288	440	55	72	A3268	75	490	364	14	54.5
340	360	23972C AKE4 **+ H3972**	144	420	45	58	A3972	75	450	374	14	25.7
	360	23072C AKE4 **+ H3072**	188	420	45	58	A3072	75	510	375	14	30.5
	360	23172C AKE4 **+ H3172**	259	460	58	75	A3172	75	510	380	14	54
	360	23272C AKE4 **+ H3272**	299	460	58	75	A3272	75	510	385	14	60.5
360	380	23976C AKE4 **+ H3976**	164	450	48	62	A3976	82	480	396	15	31.9
	380	23076C AKE4 **+ H3076**	193	450	48	62	A3076	82	540	396	15	36
	380	23176C AKE4 **+ H3176**	264	490	60	77	A3176	82	540	401	15	61.5
	380	23276C AKE4 **+ H3276**	310	490	60	77	A3276	82	540	405	15	69.5
380	400	23980C AKE4 **+ H3980**	168	470	52	66	A3980	86	500	417	15	35.2
	400	23080C AKE4 **+ H3080**	210	470	52	66	A3080	86	580	417	15	41.5
	400	23180C AKE4 **+ H3180**	272	520	62	82	A3180	86	580	421	15	70.5
	400	23280C AKE4 **+ H3280**	328	520	62	82	A3280	86	580	427	15	81
400	420	23984C AKE4 **+ H3984**	168	490	52	66	A3984	86	520	437	16	36.6
	420	23084C AKE4 **+ H3084**	212	490	52	66	A3084	86	600	437	16	43.5
	420	23184C AKE4 **+ H3184**	304	540	70	90	A3184	86	600	443	16	84
	420	23284C AKE4 **+ H3284**	352	540	70	90	A3284	86	600	448	16	94
410	440	23988C AKE4 **+ H3988**	189	520	60	77	A3988	99	550	458	17	58.6
	440	23088C AKE4 **+ H3088**	228	520	60	77	A3088	99	620	458	17	65
	440	23188C AKE4 **+ H3188**	307	560	70	90	A3188	99	620	464	17	104
	440	23288C AKE4 **+ H3288**	361	560	70	90	A3288	99	620	469	17	118

Shaft Diameter 430 – 470 mm



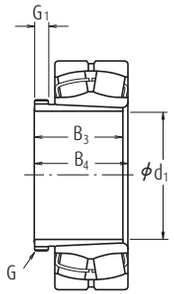
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings	Dimensions (mm) B_1	d_2	B_2	B_5	Adapter Sleeve Numbers	Abutment Dimensions (mm) A min.	K min.	d_e min.	b min.	Mass (kg) approx.
430	460	23992C AKE4 **+ H3992**	189	540	60	77	A3992	99	570	478	17	62
	460	23092C AKE4 **+ H3092**	234	540	60	77	A3092	99	650	478	17	69.5
	460	23192C AKE4 **+ H3192**	326	580	75	95	A3192	99	650	485	17	116
	460	23292C AKE4 **+ H3292**	382	580	75	95	A3292	99	650	491	17	132
450	480	23996C AKE4 **+ H3996**	200	560	60	77	A3996	99	600	499	18	67.5
	480	23096C AKE4 **+ H3096**	237	560	60	77	A3096	99	690	499	18	73.5
	480	23196C AKE4 **+ H3196**	335	620	75	95	A3196	99	690	505	18	133
	480	23296C AKE4 **+ H3296**	397	620	75	95	A3296	99	690	512	18	152
470	500	239/500C AKE4 **+ H39/500**	208	580	68	85	A39/500	109	620	519	18	74.6
	500	230/500C AKE4 **+ H30/500**	247	580	68	85	A30/500	109	700	519	18	82
	500	231/500C AKE4 **+ H31/500**	356	630	80	100	A31/500	109	700	527	18	143
	500	232/500C AKE4 **+ H32/500**	428	630	80	100	A32/500	109	700	534	18	166

Shaft Diameter 35 – 85 mm



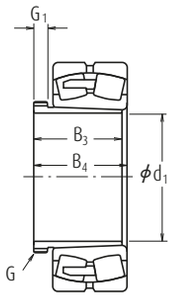
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Screw Thread G	Dimensions (mm) B_3	G_1	B_4	Mass (kg) approx.
35	40	21308EAKE4	+ **AH308**	M 45 × 1.5	29	6	32	0.09
	40	22308EAKE4	+ **AH2308**	M 45 × 1.5	40	7	43	0.13
40	45	21309EAKE4	+ **AH309**	M 50 × 1.5	31	6	34	0.11
	45	22309EAKE4	+ **AH2309**	M 50 × 1.5	44	7	47	0.165
45	50	21310EAKE4	+ **AHX310**	M 55 × 2	35	7	38	0.16
	50	22310EAKE4	+ **AHX2310**	M 55 × 2	50	9	53	0.235
50	55	22211EAKE4	+ **AHX311**	M 60 × 2	37	7	40	0.19
	55	21311EAKE4	+ **AHX311**	M 60 × 2	37	7	40	0.19
	55	22311EAKE4	+ **AHX2311**	M 60 × 2	54	10	57	0.285
55	60	22212EAKE4	+ **AHX312**	M 65 × 2	40	8	43	0.215
	60	21312EAKE4	+ **AHX312**	M 65 × 2	40	8	43	0.215
	60	22312EAKE4	+ **AHX2312**	M 65 × 2	58	11	61	0.34
60	65	22213EAKE4	+ **AH313**	M 75 × 2	42	8	45	0.255
	65	21313EAKE4	+ **AH313**	M 75 × 2	42	8	45	0.255
	65	22313EAKE4	+ **AH2313**	M 75 × 2	61	12	64	0.395
65	70	22214EAKE4	+ **AH314**	M 80 × 2	43	8	47	0.28
	70	21314EAKE4	+ **AH314**	M 80 × 2	43	8	47	0.28
	70	22314EAKE4	+ **AHX2314**	M 80 × 2	64	12	68	0.53
70	75	22215EAKE4	+ **AH315**	M 85 × 2	45	8	49	0.315
	75	21315EAKE4	+ **AH315**	M 85 × 2	45	8	49	0.315
	75	22315EAKE4	+ **AHX2315**	M 85 × 2	68	12	72	0.605
75	80	22216EAKE4	+ **AH316**	M 90 × 2	48	8	52	0.365
	80	21316EAKE4	+ **AH316**	M 90 × 2	48	8	52	0.365
	80	22316EAKE4	+ **AHX2316**	M 90 × 2	71	12	75	0.665
80	85	22217EAKE4	+ **AHX317**	M 95 × 2	52	9	56	0.48
	85	21317EAKE4	+ **AHX317**	M 95 × 2	52	9	56	0.48
	85	22317EAKE4	+ **AHX2317**	M 95 × 2	74	13	78	0.745
85	90	22218EAKE4	+ **AHX318**	M 100 × 2	53	9	57	0.52
	90	21318EAKE4	+ **AHX318**	M 100 × 2	53	9	57	0.52
	90	23218CKE4	+ **AHX3218**	M 100 × 2	63	10	67	0.58
	90	22318EAKE4	+ **AHX2318**	M 100 × 2	79	14	83	0.845

Shaft Diameter 90 – 135 mm



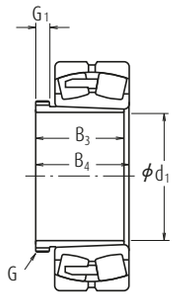
Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Screw Thread G	Dimensions (mm) B_3	G_1	B_4	Mass (kg) approx.
90	95	22219EAKE4	+ **AHX319**	M 105 × 2	57	10	61	0.595
	95	21319CKE4	+ **AHX319**	M 105 × 2	57	10	61	0.595
	95	22319EAKE4	+ **AHX2319**	M 105 × 2	85	16	89	0.89
95	100	21320CKE4	+ **AHX3120**	M 110 × 2	64	11	68	0.70
	100	22220EAKE4	+ **AHX320**	M 110 × 2	59	10	63	0.66
	100	21320CKE4	+ **AHX320**	M 110 × 2	59	10	63	0.66
	100	23220CKE4	+ **AHX3220**	M 110 × 2	73	11	77	0.77
	100	22320EAKE4	+ **AHX2320**	M 110 × 2	90	16	94	1.0
105	110	23122CKE4	+ **AHX3122**	M 120 × 2	68	11	72	0.76
	110	22222EAKE4	+ **AHX3122**	M 120 × 2	68	11	72	0.76
	110	24122CK30E4	+ **AH24122**	M 115 × 2	82	13	91	0.73
	110	23222CKE4	+ **AHX3222**	M 125 × 2	82	11	86	1.04
	110	22322EAKE4	+ **AHX2322**	M 125 × 2	98	16	102	1.35
115	120	23024CDKE4	+ **AHX3024**	M 130 × 2	60	13	64	0.75
	120	24024CK30E4	+ **AH24024**	M 125 × 2	73	13	82	0.70
	120	23124CKE4	+ **AHX3124**	M 130 × 2	75	12	79	0.95
	120	22224EAKE4	+ **AHX3124**	M 130 × 2	75	12	79	0.95
	120	24124CK30E4	+ **AH24124**	M 130 × 2	93	13	102	1.02
	120	23224CKE4	+ **AHX3224**	M 135 × 2	90	13	94	1.3
	120	22324EAKE4	+ **AHX2324**	M 135 × 2	105	17	109	1.6
125	130	23026CDKE4	+ **AHX3026**	M 140 × 2	67	14	71	0.95
	130	24026CK30E4	+ **AH24026**	M 135 × 2	83	14	93	0.89
	130	23126CKE4	+ **AHX3126**	M 140 × 2	78	12	82	1.08
	130	22226EAKE4	+ **AHX3126**	M 140 × 2	78	12	82	1.08
	130	24126CK30E4	+ **AH24126**	M 140 × 2	94	14	104	1.14
	130	23226CKE4	+ **AHX3226**	M 145 × 2	98	15	102	1.58
	130	22326CKE4	+ **AHX2326**	M 145 × 2	115	19	119	1.97
135	140	23028CDKE4	+ **AHX3028**	M 150 × 2	68	14	73	1.01
	140	24028CK30E4	+ **AH24028**	M 145 × 2	83	14	93	0.96
	140	23128CKE4	+ **AHX3128**	M 150 × 2	83	14	88	1.28
	140	22228CDKE4	+ **AHX3128**	M 150 × 2	83	14	88	1.28
	140	24128CK30E4	+ **AH24128**	M 150 × 2	99	14	109	1.3
	140	23228CKE4	+ **AHX3228**	M 155 × 3	104	15	109	1.84
	140	22328CKE4	+ **AHX2328**	M 155 × 3	125	20	130	2.33

Shaft Diameter 145 – 180 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Screw Thread G	Dimensions (mm) B_3	G_1	B_4	Mass (kg) approx.
145	150	23030CDKE4	+ **AHX3030**	M 160 × 3	72	15	77	1.15
	150	24030CK30E4	+ **AH24030**	M 155 × 3	90	15	101	1.11
	150	23130CKE4	+ **AHX3130**	M 165 × 3	96	15	101	1.79
	150	22230CDKE4	+ **AHX3130**	M 165 × 3	96	15	101	1.79
	150	24130CK30E4	+ **AH24130**	M 160 × 3	115	15	126	1.63
	150	23230CKE4	+ **AHX3230**	M 165 × 3	114	17	119	2.22
	150	22330CAKE4	+ **AHX2330**	M 165 × 3	135	24	140	2.82
150	160	23032CDKE4	+ **AH3032**	M 170 × 3	77	16	82	2.05
	160	24032CK30E4	+ **AH24032**	M 170 × 3	95	15	106	2.28
	160	23132CKE4	+ **AH3132**	M 180 × 3	103	16	108	3.2
	160	22232CDKE4	+ **AH3132**	M 180 × 3	103	16	108	3.2
	160	24132CK30E4	+ **AH24132**	M 170 × 3	124	15	135	3.03
	160	23232CKE4	+ **AH3232**	M 180 × 3	124	20	130	4.1
	160	22332CAKE4	+ **AH2332**	M 180 × 3	140	24	146	4.7
160	170	23034CDKE4	+ **AH3034**	M 180 × 3	85	17	90	2.45
	170	24034CK30E4	+ **AH24034**	M 180 × 3	106	16	117	2.74
	170	23134CKE4	+ **AH3134**	M 190 × 3	104	16	109	3.4
	170	22234CDKE4	+ **AH3134**	M 190 × 3	104	16	109	3.4
	170	24134CK30E4	+ **AH24134**	M 180 × 3	125	16	136	3.26
	170	23234CKE4	+ **AH3234**	M 190 × 3	134	24	140	4.8
	170	22334CAKE4	+ **AH2334**	M 190 × 3	146	24	152	5.25
170	180	23036CDKE4	+ **AH3036**	M 190 × 3	92	17	98	2.8
	180	24036CK30E4	+ **AH24036**	M 190 × 3	116	16	127	3.19
	180	23136CKE4	+ **AH3136**	M 200 × 3	116	19	122	4.2
	180	24136CK30E4	+ **AH24136**	M 190 × 3	134	16	145	3.74
	180	22236CDKE4	+ **AH2236**	M 200 × 3	105	17	110	3.75
	180	23236CKE4	+ **AH3236**	M 200 × 3	140	24	146	5.3
	180	22336CAKE4	+ **AH2336**	M 200 × 3	154	26	160	5.85
180	190	23038CAKE4	+ **AH3038**	Tr 205 × 4	96	18	102	3.35
	190	24038CK30E4	+ **AH24038**	M 200 × 3	118	18	131	3.47
	190	23138CKE4	+ **AH3138**	Tr 210 × 4	125	20	131	4.9
	190	24138CK30E4	+ **AH24138**	M 200 × 3	146	18	159	4.38
	190	22238CAKE4	+ **AH2238**	Tr 210 × 4	112	18	117	4.25
	190	23238CKE4	+ **AH3238**	Tr 210 × 4	145	25	152	5.9
	190	22338CAKE4	+ **AH2338**	Tr 210 × 4	160	26	167	6.65

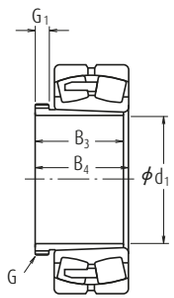
Shaft Diameter 190 – 260 mm



Shaft Diameter (mm) d_1	Nominal Bearing Bore Dia. (mm) d	Nominal Numbers Applicable Bearings		Screw Thread G	Dimensions (mm) B_3	G_1	B_4	Mass (kg) approx.
190	200	23040CAKE4	+ **AH3040**	Tr 215 × 4	102	19	108	3.8
	200	24040CK30E4	+ **AH24040**	Tr 210 × 4	127	18	140	3.92
	200	23140CKE4	+ **AH3140**	Tr 220 × 4	134	21	140	5.5
	200	24140CK30E4	+ **AH24140**	Tr 210 × 4	158	18	171	5.0
	200	22240CAKE4	+ **AH2240**	Tr 220 × 4	118	19	123	4.7
	200	23240CKE4	+ **AH3240**	Tr 220 × 4	153	25	160	6.7
	200	22340CAKE4	+ **AH2340**	Tr 220 × 4	170	30	177	7.55
200	220	23044CAKE4	+ **AH3044**	Tr 235 × 4	111	20	117	7.4
	220	24044CK30E4	+ **AH24044**	Tr 230 × 4	138	20	152	8.23
	220	23144CKE4	+ **AH3144**	Tr 240 × 4	145	23	151	10.5
	220	24144CK30E4	+ **AH24144**	Tr 230 × 4	170	20	184	10.3
	220	22244CAKE4	+ **AH2244**	Tr 240 × 4	130	20	136	9.1
	220	23244CKE4	+ **AH2344**	Tr 240 × 4	181	30	189	13.5
	220	22344CAKE4	+ **AH2344**	Tr 240 × 4	181	30	189	13.5
220	240	23048CAKE4	+ **AH3048**	Tr 260 × 4	116	21	123	8.75
	240	24048CK30E4	+ **AH24048**	Tr 250 × 4	138	20	153	9.0
	240	23148CKE4	+ **AH3148**	Tr 260 × 4	154	25	161	12
	240	24148CK30E4	+ **AH24148**	Tr 260 × 4	180	20	195	12.6
	240	22248CAKE4	+ **AH2248**	Tr 260 × 4	144	21	150	11
	240	23248CAKE4	+ **AH2348**	Tr 260 × 4	189	30	197	15.5
	240	22348CAKE4	+ **AH2348**	Tr 260 × 4	189	30	197	15.5
240	260	23052CAKE4	+ **AH3052**	Tr 280 × 4	128	23	135	10.5
	260	24052CAK30E4	+ **AH24052**	Tr 270 × 4	162	22	178	11.7
	260	23152CAKE4	+ **AH3152**	Tr 290 × 4	172	26	179	16
	260	24152CAK30E4	+ **AH24152**	Tr 280 × 4	202	22	218	15.5
	260	22252CAKE4	+ **AH2252**	Tr 290 × 4	155	23	161	14
	260	23252CAKE4	+ **AH2352**	Tr 290 × 4	205	30	213	19.5
	260	22352CAKE4	+ **AH2352**	Tr 290 × 4	205	30	213	19.5
260	280	23056CAKE4	+ **AH3056**	Tr 300 × 4	131	24	139	12
	280	24056CAK30E4	+ **AH24056**	Tr 290 × 4	162	22	179	12.6
	280	23156CAKE4	+ **AH3156**	Tr 310 × 5	175	28	183	17.5
	280	24156CAK30E4	+ **AH24156**	Tr 300 × 4	202	22	219	16.8
	280	22256CAKE4	+ **AH2256**	Tr 310 × 5	155	24	163	15
	280	23256CAKE4	+ **AH2356**	Tr 310 × 5	212	30	220	21.5
	280	22356CAKE4	+ **AH2356**	Tr 310 × 5	212	30	220	21.5

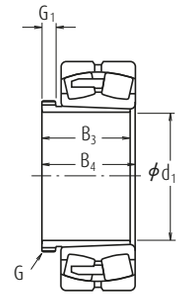
Withdrawal Sleeves for Rolling Bearings

Shaft Diameter 280 – 380 mm



Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers		Screw Thread	Dimensions (mm)			Mass (kg)
d_1	d	Applicable Bearings		G	B_3	G_1	B_4	approx.
280	300	23060CAKE4	+ **AH3060**	Tr 320 × 5	145	26	153	14.5
	300	24060CAK30E4	+ **AH24060**	Tr 310 × 5	184	24	202	15.5
	300	23160CAKE4	+ **AH3160**	Tr 330 × 5	192	30	200	21
	300	24160CAK30E4	+ **AH24160**	Tr 320 × 5	224	24	242	20.3
	300	22260CAKE4	+ **AH2260**	Tr 330 × 5	170	26	178	18
	300	23260CAKE4	+ **AH3260**	Tr 330 × 5	228	34	236	20
300	320	23064CAKE4	+ **AH3064**	Tr 345 × 5	149	27	157	16
	320	24064CAK30E4	+ **AH24064**	Tr 330 × 5	184	24	202	16.4
	320	23164CAKE4	+ **AH3164**	Tr 350 × 5	209	31	217	24.5
	320	24164CAK30E4	+ **AH24164**	Tr 340 × 5	242	24	260	23.5
	320	23264CAKE4	+ **AH3264**	Tr 350 × 5	246	36	254	25
320	340	23068CAKE4	+ **AH3068**	Tr 365 × 5	162	28	171	19.5
	340	24068CAK30E4	+ **AH24068**	Tr 360 × 5	206	26	225	21.2
	340	23168CAKE4	+ **AH3168**	Tr 370 × 5	225	33	234	29
	340	24168CAK30E4	+ **AH24168**	Tr 360 × 5	269	26	288	28.3
	340	23268CAKE4	+ **AH3268**	Tr 370 × 5	264	38	273	35.5
340	360	23072CAKE4	+ **AH3072**	Tr 385 × 5	167	30	176	21
	360	24072CAK30E4	+ **AH24072**	Tr 380 × 5	206	26	226	22.5
	360	23172CAKE4	+ **AH3172**	Tr 400 × 5	229	35	238	33
	360	24172CAK30E4	+ **AH24172**	Tr 380 × 5	269	26	289	30
	360	23272CAKE4	+ **AH3272**	Tr 400 × 5	274	40	283	41.5
360	380	23076CAKE4	+ **AH3076**	Tr 410 × 5	170	31	180	23.5
	380	24076CAK30E4	+ **AH24076**	Tr 400 × 5	208	28	228	24.1
	380	23176CAKE4	+ **AH3176**	Tr 420 × 5	232	36	242	35.5
	380	24176CAK30E4	+ **AH24176**	Tr 400 × 5	271	28	291	32.1
	380	23276CAKE4	+ **AH3276**	Tr 420 × 5	284	42	294	45.5
380	400	23080CAKE4	+ **AH3080**	Tr 430 × 5	183	33	193	27.5
	400	24080CAK30E4	+ **AH24080**	Tr 420 × 5	228	28	248	28
	400	23180CAKE4	+ **AH3180**	Tr 440 × 5	240	38	250	39.5
	400	24180CAK30E4	+ **AH24180**	Tr 420 × 5	278	28	298	34.8
	400	23280CAKE4	+ **AH3280**	Tr 440 × 5	302	44	312	51.5

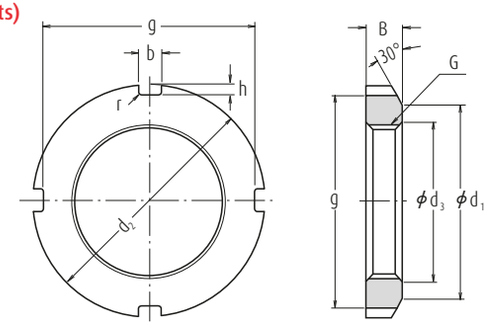
Shaft Diameter 400 – 480 mm



Shaft Diameter (mm)	Nominal Bearing Bore Dia. (mm)	Nominal Numbers		Screw Thread	Dimensions (mm)			Mass (kg)
d_1	d	Applicable Bearings		G	B_3	G_1	B_4	approx.
400	420	23084CAKE4	+ **AH3084**	Tr 450 × 5	186	34	196	29
	420	24084CAK30E4	+ **AH24084**	Tr 440 × 5	230	30	252	29.8
	420	23184CAKE4	+ **AH3184**	Tr 460 × 5	266	40	276	46.5
	420	24184CAK30E4	+ **AH24184**	Tr 440 × 5	310	30	332	41.4
	420	23284CAKE4	+ **AH3284**	Tr 460 × 5	321	46	331	59
420	440	23088CAKE4	+ **AHX3088**	Tr 470 × 5	194	35	205	42
	440	24088CAK30E4	+ **AH24088**	Tr 460 × 5	242	30	264	33
	440	23188CAKE4	+ **AHX3188**	Tr 480 × 5	270	42	281	50
	440	24188CAK30E4	+ **AH24188**	Tr 460 × 5	310	30	332	43.5
	440	23288CAKE4	+ **AHX3288**	Tr 480 × 5	330	48	341	64
440	460	23092CAKE4	+ **AHX3092**	Tr 490 × 5	202	37	213	46
	460	24092CAK30E4	+ **AH24092**	Tr 480 × 5	250	32	273	35.9
	460	23192CAKE4	+ **AHX3192**	Tr 510 × 6	285	43	296	58
	460	24192CAK30E4	+ **AH24192**	Tr 480 × 5	332	32	355	49.7
	460	23292CAKE4	+ **AHX3292**	Tr 510 × 6	349	50	360	74.5
460	480	23096CAKE4	+ **AHX3096**	Tr 520 × 6	205	38	217	51
	480	24096CAK30E4	+ **AH24096**	Tr 500 × 5	250	32	273	37.5
	480	23196CAKE4	+ **AHX3196**	Tr 530 × 6	295	45	307	63
	480	24196CAK30E4	+ **AH24196**	Tr 500 × 5	340	32	363	53
	480	23296CAKE4	+ **AHX3296**	Tr 530 × 6	364	52	376	82
480	500	230/500CAKE4	+ **AHX30/500**	Tr 540 × 6	209	40	221	54.5
	500	240/500CAK30E4	+ **AH240/500**	Tr 530 × 6	253	35	276	41.9
	500	231/500CAKE4	+ **AHX31/500**	Tr 550 × 6	313	47	325	71
	500	241/500CAK30E4	+ **AH241/500**	Tr 530 × 6	360	35	383	61.2
	500	232/500CAKE4	+ **AHX32/500**	Tr 550 × 6	393	54	405	94.5

Nuts for Rolling Bearings

(For Adapters and Shafts)



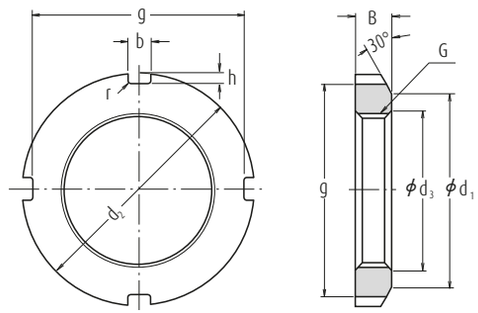
Nut with Washer

Units : mm

Nominal Numbers	Nut Series AN										Reference		
	Screw Threads	Basic Dimensions								Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Washer Numbers	Shaft Dia.
	G	d_2	d_1	g	b	h	d_3	B	r max.	approx.			
AN 02	M 15×1	25	21	21	4	2	15.5	5	0.4	0.010	—	**AW 02 X**	15
AN 03	M 17×1	28	24	24	4	2	17.5	5	0.4	0.013	—	**AW 03 X**	17
AN 04	M 20×1	32	26	28	4	2	20.5	6	0.4	0.019	04	**AW 04 X**	20
AN 05	M 25×1.5	38	32	34	5	2	25.8	7	0.4	0.025	05	**AW 05 X**	25
AN 06	M 30×1.5	45	38	41	5	2	30.8	7	0.4	0.043	06	**AW 06 X**	30
AN 07	M 35×1.5	52	44	48	5	2	35.8	8	0.4	0.053	07	**AW 07 X**	35
AN 08	M 40×1.5	58	50	53	6	2.5	40.8	9	0.5	0.085	08	**AW 08 X**	40
AN 09	M 45×1.5	65	56	60	6	2.5	45.8	10	0.5	0.119	09	**AW 09 X**	45
AN 10	M 50×1.5	70	61	65	6	2.5	50.8	11	0.5	0.148	10	**AW 10 X**	50
AN 11	M 55×2	75	67	69	7	3	56	11	0.5	0.158	11	**AW 11 X**	55
AN 12	M 60×2	80	73	74	7	3	61	11	0.5	0.174	12	**AW 12 X**	60
AN 13	M 65×2	85	79	79	7	3	66	12	0.5	0.203	13	**AW 13 X**	65
AN 14	M 70×2	92	85	85	8	3.5	71	12	0.5	0.242	14	**AW 14 X**	70
AN 15	M 75×2	98	90	91	8	3.5	76	13	0.5	0.287	15	**AW 15 X**	75
AN 16	M 80×2	105	95	98	8	3.5	81	15	0.6	0.395	16	**AW 16 X**	80
AN 17	M 85×2	110	102	103	8	3.5	86	16	0.6	0.45	17	**AW 17 X**	85
AN 18	M 90×2	120	108	112	10	4	91	16	0.6	0.555	18	**AW 18 X**	90
AN 19	M 95×2	125	113	117	10	4	96	17	0.6	0.66	19	**AW 19 X**	95
AN 20	M 100×2	130	120	122	10	4	101	18	0.6	0.70	20	**AW 20 X**	100
AN 21	M 105×2	140	126	130	12	5	106	18	0.7	0.845	21	**AW 21 X**	105
AN 22	M 110×2	145	133	135	12	5	111	19	0.7	0.965	22	**AW 22 X**	110
AN 23	M 115×2	150	137	140	12	5	116	19	0.7	1.01	—	**AW 23**	115
AN 24	M 120×2	155	138	145	12	5	121	20	0.7	1.08	24	**AW 24**	120
AN 25	M 125×2	160	148	150	12	5	126	21	0.7	1.19	—	**AW 25**	125

Note (1) Applicable to adapter sleeve Series A31, A2, A3, and A23.

Remark The basic design and dimensions of screw threads are in accordance with JIS B 0205.



Nut with Washer

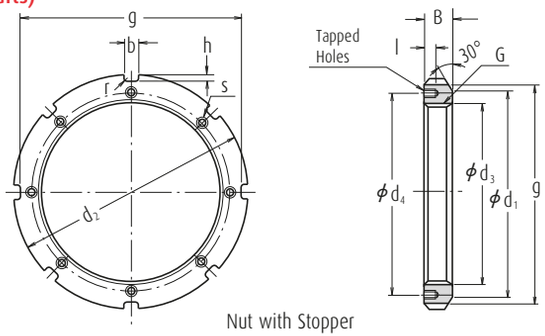
Units : mm

Nominal Numbers	Nut Series AN										Reference		
	Screw Threads	Basic Dimensions								Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Washer Numbers	Shaft Dia.
	G	d_2	d_1	g	b	h	d_3	B	r max.	approx.			
AN 26	M 130×2	165	149	155	12	5	131	21	0.7	1.25	26	**AW 26**	130
AN 27	M 135×2	175	160	163	14	6	136	22	0.7	1.55	—	**AW 27**	135
AN 28	M 140×2	180	160	168	14	6	141	22	0.7	1.56	28	**AW 28**	140
AN 29	M 145×2	190	172	178	14	6	146	24	0.7	2.0	—	**AW 29**	145
AN 30	M 150×2	195	171	183	14	6	151	24	0.7	2.03	30	**AW 30**	150
AN 31	M 155×3	200	182	186	16	7	156.5	25	0.7	2.21	—	—	—
AN 32	M 160×3	210	182	196	16	7	161.5	25	0.7	2.59	32	**AW 32**	160
AN 33	M 165×3	210	193	196	16	7	166.5	26	0.7	2.43	—	—	—
AN 34	M 170×3	220	193	206	16	7	171.5	26	0.7	2.8	34	**AW 34**	170
AN 36	M 180×3	230	203	214	18	8	181.5	27	0.7	3.05	36	**AW 36**	180
AN 38	M 190×3	240	214	224	18	8	191.5	28	0.7	3.4	38	**AW 38**	190
AN 40	M 200×3	250	226	234	18	8	201.5	29	0.7	3.7	40	**AW 40**	200
	Nut Series ANL												
ANL 24	M 120×2	145	133	135	12	5	121	20	0.7	0.78	24	**AWL 24**	120
ANL 26	M 130×2	155	143	145	12	5	131	21	0.7	0.88	26	**AWL 26**	130
ANL 28	M 140×2	165	151	153	14	6	141	22	0.7	0.99	28	**AWL 28**	140
ANL 30	M 150×2	180	164	168	14	6	151	24	0.7	1.38	30	**AWL 30**	150
ANL 32	M 160×3	190	174	176	16	7	161.5	25	0.7	1.56	32	**AWL 32**	160
ANL 34	M 170×3	200	184	186	16	7	171.5	26	0.7	1.72	34	**AWL 34**	170
ANL 36	M 180×3	210	192	194	18	8	181.5	27	0.7	1.95	36	**AWL 36**	180
ANL 38	M 190×3	220	202	204	18	8	191.5	28	0.7	2.08	38	**AWL 38**	190
ANL 40	M 200×3	240	218	224	18	8	201.5	29	0.7	2.98	40	**AWL 40**	200

Note (1) Series AN is applicable to adapter sleeve Series A31 and A23.
Series ANL is applicable to adapter sleeve Series A30.

Remark The basic design and dimensions of screw threads are in accordance with JIS B 0205.

(For Adapters and Shafts)



Nut with Stopper

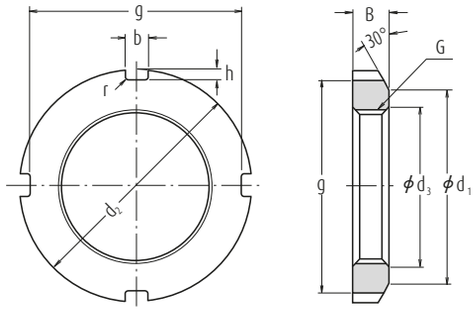
Units : mm

Nominal Numbers	Nut Series AN												Reference		
	Screw Threads	Basic Dimensions								Tapped Holes			Mass (kg)	Adapter (1) Sleeve Bore Dia. Numbers	Stopper Numbers	Shaft Dia.
	G	d_2	d_1	g	b	h	d_3	B	r max.	l	Screw Threads (S)	d_4	approx.			
AN 44	Tr 220×4	280	250	260	20	10	222	32	0.8	15	M 8×1.25	238	5.2	44	**AL 44**	220
AN 48	Tr 240×4	300	270	280	20	10	242	34	0.8	15	M 8×1.25	258	5.95	48	**AL 44**	240
AN 52	Tr 260×4	330	300	306	24	12	262	36	0.8	18	M 10×1.5	281	8.05	52	**AL 52**	260
AN 56	Tr 280×4	350	320	326	24	12	282	38	0.8	18	M 10×1.5	301	9.05	56	**AL 52**	280
AN 60	Tr 300×4	380	340	356	24	12	302	40	0.8	18	M 10×1.5	326	11.8	60	**AL 60**	300
AN 64	Tr 320×5	400	360	376	24	12	322.5	42	0.8	18	M 10×1.5	345	13.1	64	**AL 64**	320
AN 68	Tr 340×5	440	400	410	28	15	342.5	55	1	21	M 12×1.75	372	23.1	68	**AL 68**	340
AN 72	Tr 360×5	460	420	430	28	15	362.5	58	1	21	M 12× 1.75	392	25.1	72	**AL 68**	360
AN 76	Tr 380×5	490	450	454	32	18	382.5	60	1	21	M 12×1.75	414	31	76	**AL 76**	380
AN 80	Tr 400×5	520	470	484	32	18	402.5	62	1	27	M 16×2	439	37	80	**AL 80**	400
AN 84	Tr 420×5	540	490	504	32	18	422.5	70	1	27	M 16×2	459	43.5	84	**AL 80**	420
AN 88	Tr 440×5	560	510	520	36	20	442.5	70	1	27	M 16×2	477	45	88	**AL 88**	440
AN 92	Tr 460×5	580	540	540	36	20	462.5	75	1	27	M 16×2	497	50.5	92	**AL 88**	460
AN 96	Tr 480×5	620	560	580	36	20	482.5	75	1	27	M 16×2	527	62	96	**AL 96**	480
AN 100	Tr 500×5	630	580	584	40	23	502.5	80	1	27	M 16×2	539	63.5	/500	**AL 100**	500
	Nut Series ANL															
ANL 44	Tr 220×4	260	242	242	20	9	222	30	0.8	12	M 6×1	229	3.1	44	**ALL 44**	220
ANL 48	Tr 240×4	290	270	270	20	10	242	34	0.8	15	M 8×1.25	253	5.15	48	**ALL 48**	240
ANL 52	Tr 260×4	310	290	290	20	10	262	34	0.8	15	M 8×1.25	273	5.65	52	**ALL 48**	260
ANL 56	Tr 280×4	330	310	310	24	10	282	38	0.8	15	M 8×1.25	293	6.8	56	**ALL 56**	280
ANL 60	Tr 300×4	360	336	336	24	12	302	42	0.8	15	M 8×1.25	316	9.6	60	**ALL 60**	300
ANL 64	Tr 320×5	380	356	356	24	12	322.5	42	0.8	15	M 8×1.25	335	9.95	64	**ALL 64**	320
ANL 68	Tr 340×5	400	376	376	24	12	342.5	45	1	15	M 8×1.25	355	11.7	68	**ALL 64**	340
ANL 72	Tr 360×5	420	394	394	28	13	362.5	45	1	15	M 8×1.25	374	12	72	**ALL 72**	360
ANL 76	Tr 380×5	450	422	422	28	14	382.5	48	1	18	M 10×1.5	398	14.9	76	**ALL 76**	380
ANL 80	Tr 400×5	470	442	442	28	14	402.5	52	1	18	M 10×1.5	418	16.9	80	**ALL 76**	400
ANL 84	Tr 420×5	490	462	462	32	14	422.5	52	1	18	M 10×1.5	438	17.4	84	**ALL 84**	420
ANL 88	Tr 440×5	520	490	490	32	15	442.5	60	1	21	M 12×1.75	462	26.2	88	**ALL 88**	440
ANL 92	Tr 460×5	540	510	510	32	15	462.5	60	1	21	M 12×1.75	482	28	92	**ALL 88**	460
ANL 96	Tr 480×5	560	530	530	36	15	482.5	60	1	21	M 12×1.75	502	29.5	96	**ALL 96**	480
ANL 100	Tr 500×5	580	550	550	36	15	502.5	68	1	21	M 12×1.75	522	33.5	/500	**ALL 96**	500

Note (1) Series AN is applicable to adapter sleeve Series A31, A32 and A23. Series ANL is applicable to adapter sleeve Series A30.

Remarks
1. The basic design and dimensions of screw threads are in accordance with JIS B 0216.
2. The basic design and dimensions of threads in tapped holes are in accordance with JIS B 0205.

(For Withdrawal Sleeves)



Units : mm

Nominal Numbers	Nut Series HN										Reference			
	Screw Threads	Basic Dimensions								Mass (kg)	Withdrawal Sleeve Numbers			
	G	d_2	d_1	g	b	h	d_3	B	r max.	approx.	AH 31	AH 22	AH 32	AH 23
HN 42	Tr 210×4	270	238	250	20	10	212	30	0.8	4.75	**AH 3138**	**AH 2238**	**AH 3238**	**AH 2338**
HN 44	Tr 220×4	280	250	260	20	10	222	32	0.8	5.35	**AH 3140**	**AH 2240**	**AH 3240**	**AH 2340**
HN 48	Tr 240×4	300	270	280	20	10	242	34	0.8	6.2	**AH 3144**	**AH 2244**	—	**AH 2344**
HN 52	Tr 260×4	330	300	306	24	12	262	36	0.8	8.55	**AH 3148**	**AH 2248**	—	**AH 2348**
HN 58	Tr 290×4	370	330	346	24	12	292	40	0.8	11.8	**AH 3152**	**AH 2252**	—	**AH 2352**
HN 62	Tr 310×5	390	350	366	24	12	312.5	42	0.8	13.4	**AH 3156**	**AH 2256**	—	**AH 2356**
HN 66	Tr 330×5	420	380	390	28	15	332.5	52	1	20.4	**AH 3160**	**AH 2260**	**AH 3260**	—
HN 70	Tr 350×5	450	410	420	28	15	352.5	55	1	25.2	**AH 3164**	**AH 2264**	**AH 3264**	—
HN 74	Tr 370×5	470	430	440	28	15	372.5	58	1	28.2	**AH 3168**	—	**AH 3268**	—
HN 80	Tr 400×5	520	470	484	32	18	402.5	62	1	40	**AH 3172**	—	**AH 3272**	—
HN 84	Tr 420×5	540	490	504	32	18	422.5	70	1	46.9	**AH 3176**	—	**AH 3276**	—
HN 88	Tr 440×5	560	510	520	36	20	442.5	70	1	48.5	**AH 3180**	—	**AH 3280**	—
HN 92	Tr 460×5	580	540	540	36	20	462.5	75	1	55	**AH 3184**	—	**AH 3284**	—
HN 96	Tr 480×5	620	560	580	36	20	482.5	75	1	67	**AHX 3188**	—	**AHX 3288**	—
HN 102	Tr 510×6	650	590	604	40	23	513	80	1	75	**AHX 3192**	—	**AHX 3292**	—
HN 106	Tr 530×6	670	610	624	40	23	533	80	1	78	**AHX 3196**	—	**AHX 3296**	—
HN 110	Tr 550×6	700	640	654	40	23	553	80	1	92.5	**AHX 31/500**	—	**AHX 32/500**	—
	Nut Series HNL										**AH 30**	**AH 2**		
HNL 41	Tr 205×4	250	232	234	18	8	207	30	0.8	3.45	**AH 3038**	**AH 238**		
HNL 43	Tr 215×4	260	242	242	20	9	217	30	0.8	3.7	**AH 3040**	**AH 240**		
HNL 47	Tr 235×4	280	262	262	20	9	237	34	0.8	4.6	**AH 3044**	**AH 244**		
HNL 52	Tr 260×4	310	290	290	20	10	262	34	0.8	5.8	**AH 3048**	**AH 248**		
HNL 56	Tr 280×4	330	310	310	24	10	282	38	0.8	6.7	**AH 3052**	**AH 252**		
HNL 60	Tr 300×4	360	336	336	24	12	302	42	0.8	9.6	**AH 3056**	**AH 256**		
HNL 64	Tr 320×5	380	356	356	24	12	322.5	42	1	10.3	**AH 3060**	—		
HNL 69	Tr 345×5	410	384	384	28	13	347.5	45	1	11.5	**AH 3064**	—		
HNL 73	Tr 365×5	430	404	404	28	13	367.5	48	1	14.2	**AH 3068**	—		
HNL 77	Tr 385×5	450	422	422	28	14	387.5	48	1	15	**AH 3072**	—		
HNL 82	Tr 410×5	480	452	452	32	14	412.5	52	1	19	**AH 3076**	—		
HNL 86	Tr 430×5	500	472	472	32	14	432.5	52	1	19.8	**AH 3080**	—		
HNL 90	Tr 450×5	520	490	490	32	15	452.5	60	1	23.8	**AH 3084**	—		
HNL 94	Tr 470×5	540	510	510	32	15	472.5	60	1	25	**AHX 3088**	—		
HNL 98	Tr 490×5	580	550	550	36	15	492.5	60	1	34	**AHX 3092**	—		
HNL 104	Tr 520×6	600	570	570	36	15	523	68	1	37	**AHX 3096**	—		
HNL 108	Tr 540×6	630	590	590	40	20	543	68	1	43.5	**AHX 30/500**	—		

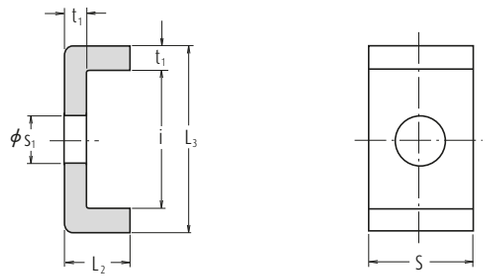
Remarks
1. The basic design and dimensions of screw threads are in accordance with JIS B 0216.
2. The number of notches in the nut may be bigger than that shown in the above figure.

Nuts for Rolling Bearings

(Combination of Withdrawal Sleeves and Nuts)

Nominal Numbers	Reference						
	Withdrawal Sleeve Numbers						
	AH 30	AH 31	AH 2	AH 22	AH 32	AH 3	AH 23
AN 09	—	—	AH 208	—	—	AH 308	AH 2308
AN 10	—	—	AH 209	—	—	AH 309	AH 2309
AN 11	—	—	AH 210	—	—	AHX 310	AHX 2310
AN 12	—	—	AH 211	—	—	AHX 311	AHX 2311
AN 13	—	—	AH 212	—	—	AHX 312	AHX 2312
AN 14	—	—	—	—	—	—	—
AN 15	—	—	AH 213	—	—	AH 313	AH 2313
AN 16	—	—	AH 214	—	—	AH 314	AHX 2314
AN 17	—	—	AH 215	—	—	AH 315	AHX 2315
AN 18	—	—	AH 216	—	—	AH 316	AHX 2316
AN 19	—	—	AH 217	—	—	AHX 317	AHX 2317
AN 20	—	—	AH 218	—	AHX 3218	AHX 318	AHX 2318
AN 21	—	—	AH 219	—	—	AHX 319	AHX 2319
AN 22	—	—	AH 220	—	AHX 3220	AHX 320	AHX 2320
AN 23	—	—	AH 221	—	—	AHX 321	—
AN 24	—	AHX 3122	AH 222	—	—	AHX 322	—
AN 25	—	—	—	—	AHX 3222	—	AHX 2322
AN 26	AHX 3024	AHX 3124	AH 224	—	—	AHX 324	—
AN 27	—	—	—	—	AHX 3224	—	AHX 2324
AN 28	AHX 3026	AHX 3126	AH 226	—	—	AHX 326	—
AN 29	—	—	—	—	AHX 3226	—	AHX 2326
AN 30	AHX 3028	AHX 3128	AH 228	—	—	AHX 328	—
AN 31	—	—	—	—	AHX 3228	—	AHX 2328
AN 32	AHX 3030	—	AH 230	—	—	—	—
AN 33	—	AHX 3130	—	—	AHX 3230	AHX 330	AHX 2330
AN 34	AH 3032	—	AH 232	—	—	—	—
AN 36	AH 3034	AH 3132	AH 234	—	AH 3232	AH 332	AH 2332
AN 38	AH 3036	AH 3134	AH 236	—	AH 3234	AH 334	AH 2334
AN 40	—	AH 3136	—	AH 2236	AH 3236	—	AH 2336

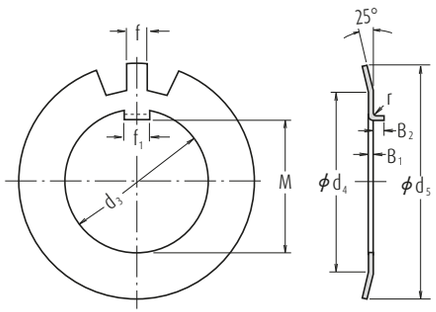
Stoppers for Nuts



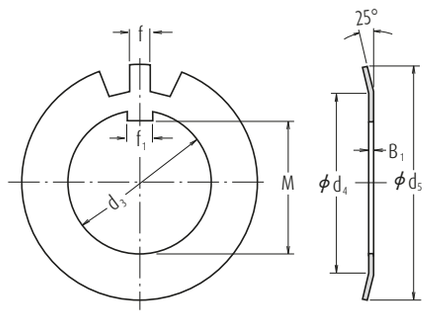
Units : mm

Nominal Numbers	Stopper Series AL							Reference
	Basic Dimensions						Mass (kg) per 100 pcs	Nut Numbers
	t_1	S	L_2	s_1	i	L_3	approx.	
AL 44	4	20	12	9	22.5	30.5	2.6	AN 44, AN 48
AL 52	4	24	12	12	25.5	33.5	3.4	AN 52, AN 56
AL 60	4	24	12	12	30.5	38.5	3.8	AN 60
AL 64	5	24	15	12	31	41	5.35	AN 64
AL 68	5	28	15	14	38	48	6.65	AN 68, AN 72
AL 76	5	32	15	14	40	50	7.95	AN 76
AL 80	5	32	15	18	45	55	8.2	AN 80, AN 84
AL 88	5	36	15	18	43	53	9.0	AN 88, AN 92
AL 96	5	36	15	18	53	63	10.4	AN 96
AL 100	5	40	15	18	45	55	10.5	AN 100
Stopper Series ALL								
ALL 44	4	20	12	7	13.5	21.5	2.12	ANL 44
ALL 48	4	20	12	9	17.5	25.5	2.29	ANL 48, ANL 52
ALL 56	4	24	12	9	17.5	25.5	2.92	ANL 56
ALL 60	4	24	12	9	20.5	28.5	3.15	ANL 60
ALL 64	5	24	15	9	21	31	4.55	ANL 64, ANL 68
ALL 72	5	28	15	9	20	30	5.05	ANL 72
ALL 76	5	28	15	12	24	34	5.3	ANL 76, ANL 80
ALL 84	5	32	15	12	24	34	6.1	ANL 84
ALL 88	5	32	15	14	28	38	6.45	ANL 88, ANL 92
ALL 96	5	36	15	14	28	38	7.3	ANL 96, ANL 100

Lock-Washers for Rolling Bearings



Bent-Tab



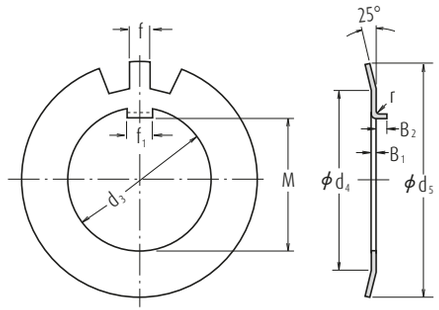
Straight-Tab

Units : mm

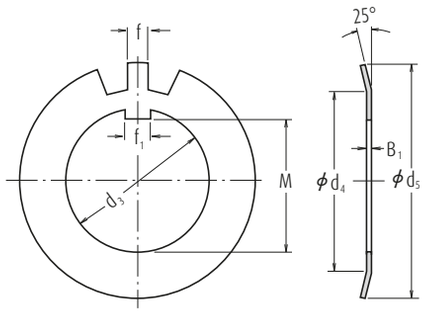
Nominal Numbers		Lock-washer Series AW											Reference		
		Basic Dimensions									No. of Teeth	Mass (kg) per 100 pcs approx.	Adapter (1) Sleeve Bore Dia. Numbers	Nut Numbers	Shaft Dia.
Bent-Tab	Straight-Tab	d_3	M	f_1	B_1	f	d_4	d_5	Bent-Tab r	Bent-Tab B_2					
AW 02	AW 02 X	15	13.5	4	1	4	21	28	1	2.5	13	0.253	—	AN 02	15
AW 03	AW 03 X	17	15.5	4	1	4	24	32	1	2.5	13	0.315	—	AN 03	17
AW 04	AW 04 X	20	18.5	4	1	4	26	36	1	2.5	13	0.35	04	AN 04	20
AW 05	AW 05 X	25	23	5	1.2	5	32	42	1	2.5	13	0.64	05	AN 05	25
AW 06	AW 06 X	30	27.5	5	1.2	5	38	49	1	2.5	13	0.78	06	AN 06	30
AW 07	AW 07 X	35	32.5	6	1.2	5	44	57	1	2.5	15	1.04	07	AN 07	35
AW 08	AW 08 X	40	37.5	6	1.2	6	50	62	1	2.5	15	1.23	08	AN 08	40
AW 09	AW 09 X	45	42.5	6	1.2	6	56	69	1	2.5	17	1.52	09	AN 09	45
AW 10	AW 10 X	50	47.5	6	1.2	6	61	74	1	2.5	17	1.6	10	AN 10	50
AW 11	AW 11 X	55	52.5	8	1.2	7	67	81	1	4	17	1.96	11	AN 11	55
AW 12	AW 12 X	60	57.5	8	1.5	7	73	86	1.2	4	17	2.53	12	AN 12	60
AW 13	AW 13 X	65	62.5	8	1.5	7	79	92	1.2	4	19	2.9	13	AN 13	65
AW 14	AW 14 X	70	66.5	8	1.5	8	85	98	1.2	4	19	3.35	14	AN 14	70
AW 15	AW 15 X	75	71.5	8	1.5	8	90	104	1.2	4	19	3.55	15	AN 15	75
AW 16	AW 16 X	80	76.5	10	1.8	8	95	112	1.2	4	19	4.65	16	AN 16	80
AW 17	AW 17 X	85	81.5	10	1.8	8	102	119	1.2	4	19	5.25	17	AN 17	85
AW 18	AW 18 X	90	86.5	10	1.8	10	108	126	1.2	4	19	6.25	18	AN 18	90
AW 19	AW 19 X	95	91.5	10	1.8	10	113	133	1.2	4	19	6.7	19	AN 19	95
AW 20	AW 20 X	100	96.5	12	1.8	10	120	142	1.2	6	19	7.65	20	AN 20	100
AW 21	AW 21 X	105	100.5	12	1.8	12	126	145	1.2	6	19	8.25	21	AN 21	105
AW 22	AW 22 X	110	105.5	12	1.8	12	133	154	1.2	6	19	9.4	22	AN 22	110
AW 23	AW 23 X	115	110.5	12	2	12	137	159	1.5	6	19	10.8	—	AN 23	115
AW 24	AW 24 X	120	115	14	2	12	138	164	1.5	6	19	10.5	24	AN 24	120
AW 25	AW 25 X	125	120	14	2	12	148	170	1.5	6	19	11.8	—	AN 25	125

Note (1) Applicable to adapter sleeve Series A31, A2, A3, and A23.

Remark Lock-washers with straight tabs shall be used with adapter sleeves having narrow slits. For adapter sleeves having wide slits, either type of lock-washer may be used.



Bent-Tab



Straight-Tab

Units : mm

Nominal Numbers		Lock-washer Series AW											Reference		
		Basic Dimensions									No. of Teeth	Mass (kg) per 100 pcs approx.	Adapter (1) Sleeve Bore Dia. Numbers	Nut Numbers	Shaft Dia.
Bent-Tab	Straight-Tab	d_3	M	f_1	B_1	f	d_4	d_5	Bent-Tab r	Bent-Tab B_2					
AW 26	AW 26 X	130	125	14	2	12	149	175	1.5	6	19	11.3	26	AN 26	130
AW 27	AW 27 X	135	130	14	2	14	160	185	1.5	6	19	14.4	—	AN 27	135
AW 28	AW 28 X	140	135	16	2	14	160	192	1.5	8	19	14.2	28	AN 28	140
AW 29	AW 29 X	145	140	16	2	14	172	202	1.5	8	19	16.8	—	AN 29	145
AW 30	AW 30 X	150	145	16	2	14	171	205	1.5	8	19	15.9	30	AN 30	150
AW 31	AW 31 X	155	147.5	16	2.5	16	182	212	1.5	8	19	20.9	—	AN 31	155
AW 32	AW 32 X	160	154	18	2.5	16	182	217	1.5	8	19	22.2	32	AN 32	160
AW 33	AW 33 X	165	157.5	18	2.5	16	193	222	1.5	8	19	24.1	—	AN 33	165
AW 34	AW 34 X	170	164	18	2.5	16	193	232	1.5	8	19	24.7	34	AN 34	170
AW 36	AW 36 X	180	174	20	2.5	18	203	242	1.5	8	19	26.8	36	AN 36	180
AW 38	AW 38 X	190	184	20	2.5	18	214	252	1.5	8	19	27.8	38	AN 38	190
AW 40	AW 40 X	200	194	20	2.5	18	226	262	1.5	8	19	29.3	40	AN 40	200
Washer Series AWL															
AWL 24	AWL 24 X	120	115	14	2	12	133	155	1.5	6	19	7.7	24	ANL 24	120
AWL 26	AWL 26 X	130	125	14	2	12	143	165	1.5	6	19	8.7	26	ANL 26	130
AWL 28	AWL 28 X	140	135	16	2	14	151	175	1.5	8	19	10.9	28	ANL 28	140
AWL 30	AWL 30 X	150	145	16	2	14	164	190	1.5	8	19	11.3	30	ANL 30	150
AWL 32	AWL 32 X	160	154	18	2.5	16	174	200	1.5	8	19	16.2	32	ANL 32	160
AWL 34	AWL 34 X	170	164	18	2.5	16	184	210	1.5	8	19	19	34	ANL 34	170
AWL 36	AWL 36 X	180	174	20	2.5	18	192	220	1.5	8	19	18	36	ANL 36	180
AWL 38	AWL 38 X	190	184	20	2.5	18	202	230	1.5	8	19	20.5	38	ANL 38	190
AWL 40	AWL 40 X	200	194	20	2.5	18	218	250	1.5	8	19	21.4	40	ANL 40	200

Note (1) Series AW is applicable to adapter sleeve Series A31 and A23.
Series AWL is applicable to adapter sleeve Series A30.

Remark Lock-washers with straight tabs shall be used with adapter sleeves having narrow slits. For adapter sleeves having wide slits, either type of lock-washer may be used.



DISCLAIMER

The detailed listings and information within this catalogue have been researched and compiled from reliable sources, and are knowingly correct to the best of our knowledge.

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