Rolling bearing construction

Most rolling bearings consist of rings with raceway (inner ring and outer ring), rolling elements (either balls or rollers) and cage. The cage separates the rolling elements at regular intervals, holds them in place within the inner and outer raceways, and allows them to rotate freely.

Classification of rolling bearings

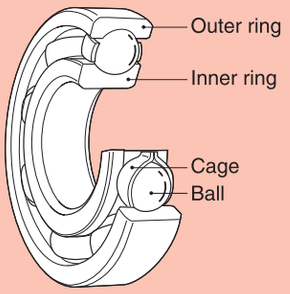
Rolling bearings divide into two main classifications: ball bearings and roller bearings. Ball bearings are classified according to their bearing ring configurations: deep groove type and angular contact type. Roller bearings on the other hand are classified according to the shape of the rollers: cylindrical, needle, tapered and spherical. Rolling bearings can be further classified according to the direction in which the load is applied; radial bearings carry radial loads and thrust bearings carry axial loads.

Other classifications

1) Number of rolling rows (single, double, or 4-row),
2) Separable and non-separable, in which either the inner ring or the outer ring can be detached.
3) There are also bearings designed for special purposes, such as Automotive and other applications

Deep groove ball bearings

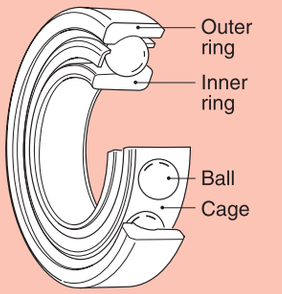
The most common type of bearing, deep groove ball bearings are widely used in a variety of fields. Deep groove ball bearings include shield bearings and sealed bearings with grease enabling easier usage. Deep groove ball bearings also include bearings with a locating snap-ring to facilitate positioning when mounting the outer ring. These type of bearings supports radial load on both directions. Deep groove ball bearings are also classified into Thin series, Light series, Medium series and Heavy series ball bearings.



Deep groove ball bearing

Angular contact ball bearings

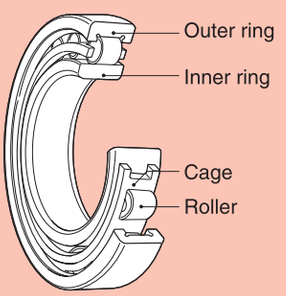
Angular contact ball bearings unite point of contact of the inner ring, ball and the outer ring runs at a certain angle (contact angle) in the radial direction. Bearings are generally designed with three contact angles. Angular contact ball bearings can support an axial load, but cannot be used as single bearing because of the contact angle. They must instead be used in pairs or in combinations. Angular contact ball bearings include double row angular contact ball bearings for which the inner and outer rings are combined as a single unit. The contact angle of double row angular contact ball bearings is 25°. These type support certain amount of combined loads.



Angular contact ball bearing

Cylindrical roller bearings

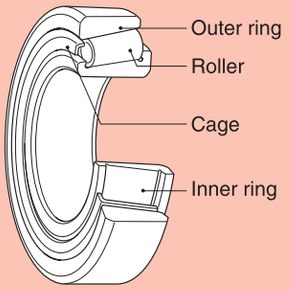
Cylindrical roller bearings use rollers for rolling elements, and therefore has a high load capacity. The rollers are guided by the ribs of the inner or outer ring. The inner and outer rings can be separated to facilitate assembly, and both can be fitted with shaft or housing tightly. If there are no ribs, either the inner or the outer ring can move freely in the axial direction. Cylindrical roller bearings are of different types, like N, NU, NJ, NUP, NF depending upon the construction of inner and outer rings. Cylindrical roller bearings are designed with multiple row rollers and full compliment rollers without cage depending on the applications. These bearings are suitable for heavy radial and impact loading and are appropriate for high speed applications.



Cylindrical roller bearing

Tapered roller bearings

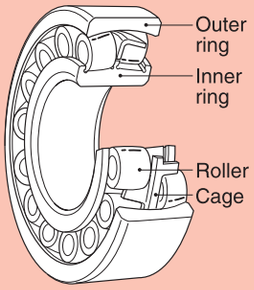
Tapper roller bearings are designed such that the outer ring, inner ring and the rollers have tapered surfaces whose apexes converge at a common point on the bearing axis. Tapper rollers are available in metric as well as inch dimensions most commonly called as metric series and inch series . Tapper rollers are available in Single, Double and four row, these type of bearings are suitable for Heavy and Impact load application and can take both radial and axial load simultaneously.



Tapered roller bearing

Spherical roller bearings

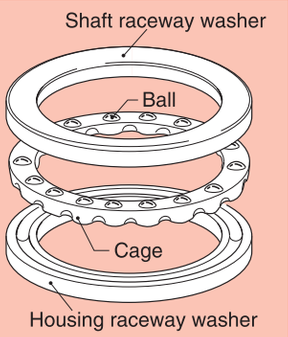
Spherical roller bearings are equipped with an outer ring with a spherical raceway surface and an inner ring which holds two rows of barrel shaped rolling elements, spherical roller bearings are able to adjust center alignment to handle inclination of the axle or shaft. There are varieties of bearing types that differ according to internal design. Spherical roller bearings include as type equipped with an inner ring with a tapered bore. The bearing can easily be mounted on a shaft by means of an adapter or withdrawal sleeve. The bearing is capable of supporting heavy loads, and is therefore often used in industrial machinery. Gages for these bearings are of both steel and brass depending on the applications.



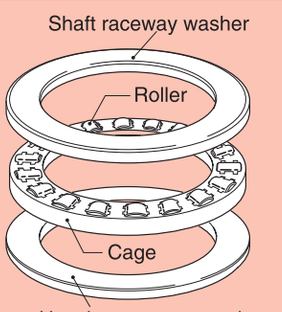
Spherical roller bearing

Thrust bearings

Thrust bearings are classified in accordance to the rolling elements they contain and generally the allowable rotational speed is very low.
Thrust ball bearing with single row is called as single direction Thrust ball bearings and can take axial load in one direction, whereas Thrust ball bearing with double row is called as double direction Thrust ball bearings and can take axial load from both directions. Thrust bearings with rollers as rolling element can accommodate a certain amount of radial load along with axial loads.



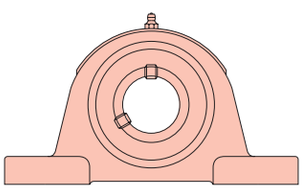
Thrust ball bearing

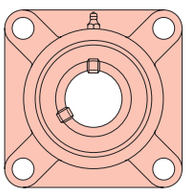


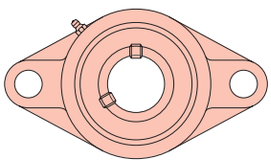
Thrust roller bearing

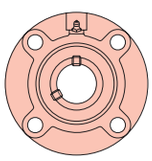
Ball Bearing unit

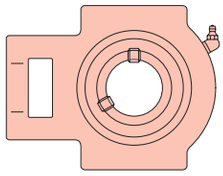
A ball bearing unit is comprised of a ball bearing inserted into various types of housings. The housing can be bolted onto machinery and the inner ring can be easily mounted on the shaft with a set screw. This means the bearing unit can support rotating equipment without special design to allow for mounting. A variety of standardized housing shapes is available, including pillow and flange types. The outer diameter of the bearing is spherical just like the inner diameter of the housing, so it capable of aligning itself on the shaft. For lubrication, grease is sealed inside the bearing, and particle penetration is prevented by a double seal with 3 lip


UCP


UCF


UCFL

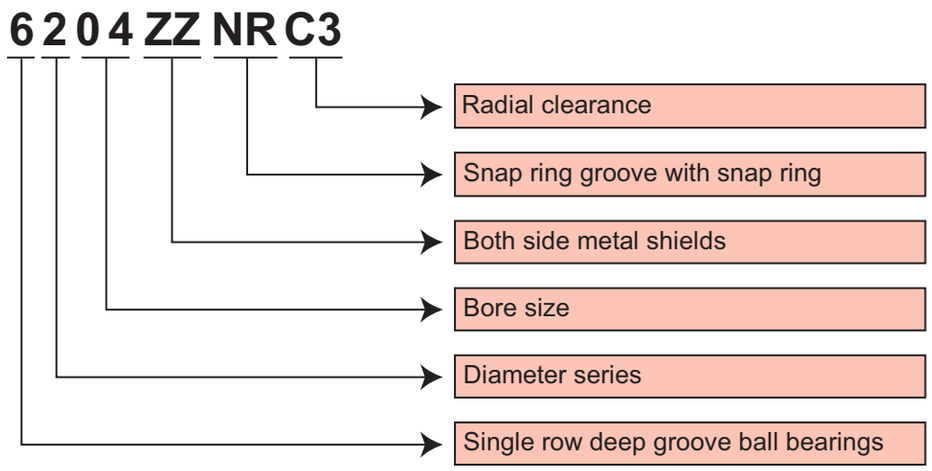

UCFC


UCT

Bearing Designation, prefix and suffix

Rolling bearing part numbers indicate bearing type, dimensions, tolerances, internal construction, and other related specifications. Bearing numbers are comprised of a “basic number” followed by “supplementary codes.” The basic number indicates general information about a bearing, such as its fundamental type, boundary dimensions, series number, bore diameter code and contact angle. The supplementary codes derive from prefixes and suffixes which indicate a bearing’s tolerance, internal clearance, and related specifications.

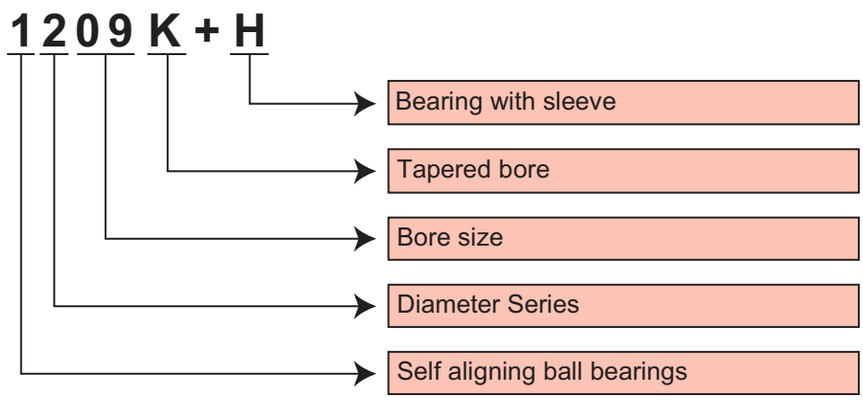
Ball bearings



Bearing type	Bearing series	Diameter series
Single row ball bearings	68,69,160,60,62,63,64,622,623	8,9,0,0,2,3,4,2,3
Double row ball bearings	42,43	2,3

Prefix	Description	Suffix	Description
F	Flanged outer ring	CM	Electric motor clearance
RLS	Inch type ball bearing	C2	Radial clearance lesser than normal
RMS	Inch type ball bearing	C3	Radial clearance higher than normal
		C4	Radial clearance higher than C3
		DDU	Bearings with non contact type rubber seals
		LLU	Bearings with contact type rubber seals
		M	Machined brass cage
		N	With snap ring groove
		NR	Snap ring groove with snap ring
		P6	Precision class 6
		Z	With one side metal shield
		ZZ	With both side metal shield
		ZNR	With one side metal shield and snap ring groove with snap ring

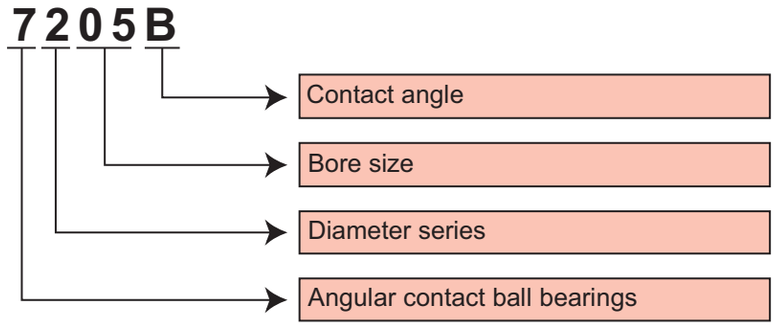
Self Aligning ball bearings



Bearing type	Bearing Series	Diameter series
Self aligning ball bearings	12,22,13,23	2,2,3,3

Prefix	Description	Suffix	Description
		K	With tapered bore
		+H	With adapter sleeve

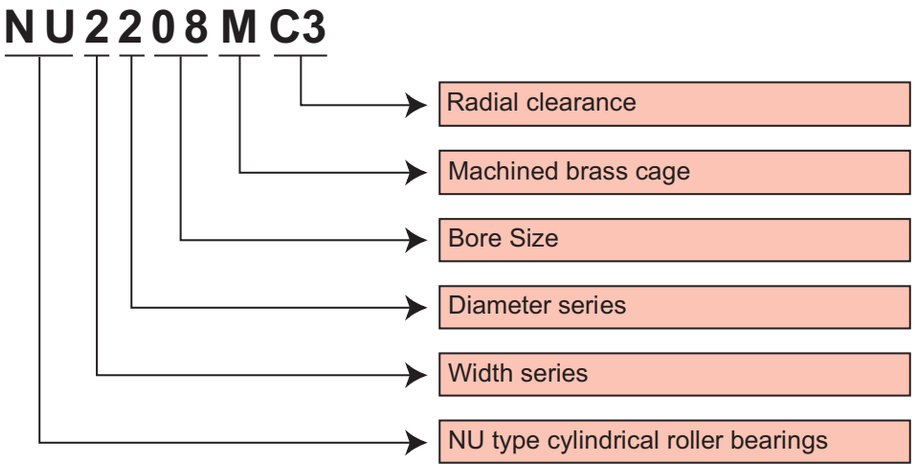
Angular Contact ball bearings



Bearing type	Bearing Series	Diameter series
Angular contact ball bearings	72.73	2,3
Double row angular contact ball bearing with filling slot (maximum capacity)	32,33	2,3
Double row angular contact ball bearing without filling slot	52,53	2,3

Prefix	Description	Suffix	Description
		A	30 degree contact angle
		B	40 degree contact angle
		TVP	With reinforced polyamide cage
		C	15 degree contact angle
		M	Brass cage

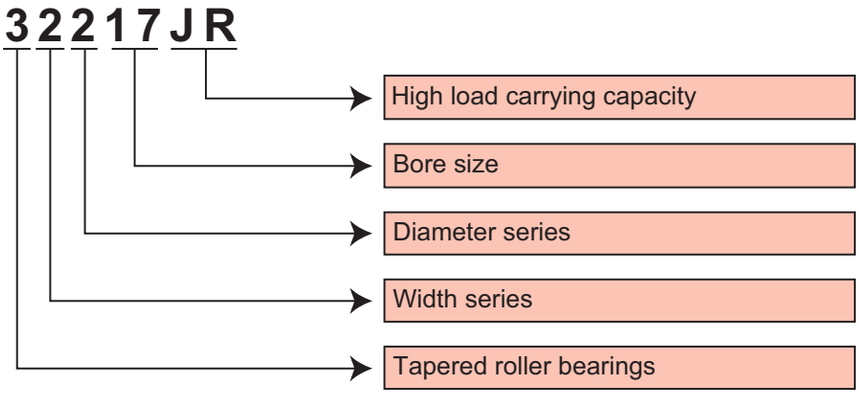
Cylindrical roller bearings



Bearing type	Bearing series	Diameter series
Cylindrical roller bearing	2,22,3,32	2,2,3,3

Prefix	Description	Suffix	Description
N	Bearings with both side sliding outer ring	N	With snap ring groove
NJ	Bearings with one side sliding inner ring	NR	Snap ring groove and snap ring
NU	Bearings with both side sliding inner ring	V	Full compliment bearings
NUP	Bearing with fixed inner and outer ring		

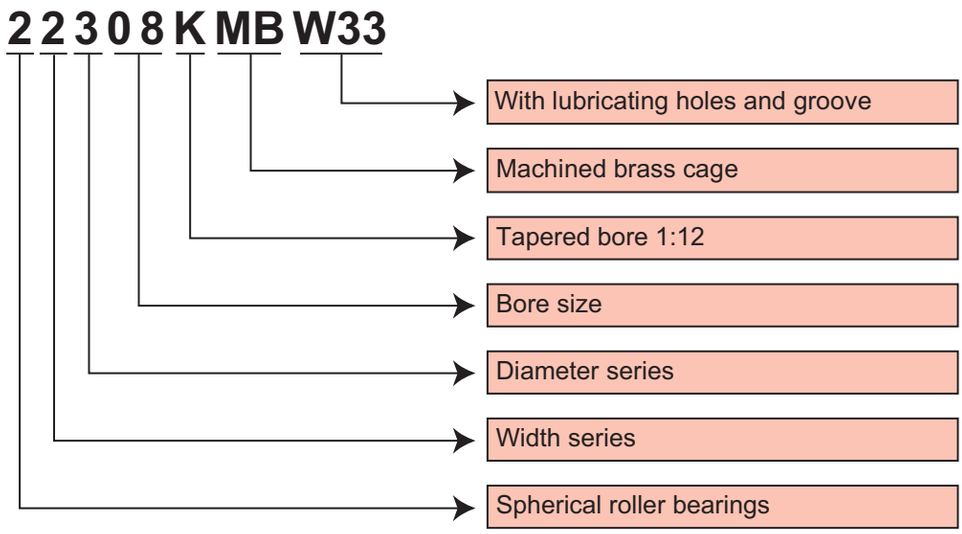
Tapered Roller bearings



Bearing type	Bearing Series	Diameter series
Taper roller bearing	320,330,331,302,322,332,303,313,323	0,0,1,2,2,2,3,3,3

Prefix	Description	Suffix	Description
HC	Hi-cap	D	Steep contact angel (24°~32°) metric series
HM	Heavy medium duty inch series	JR	High load carrying capacity
JL	J series tapper roller bearings		
JLM	J series light medium duty inch series		
L	Light duty inch series		
LM	Light medium duty inch series		
M	Medium duty inch series		

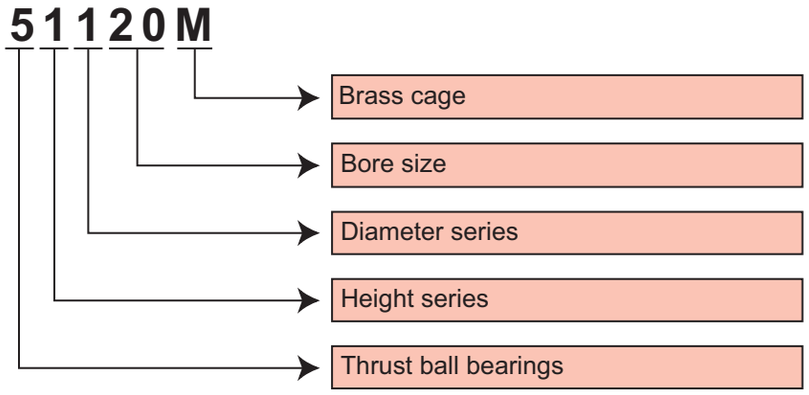
Spherical Roller bearings



Bearing type	Bearing Series	Diameter series
Spherical roller bearings	239,230,240,231,241,222,232,213,223,	9,0,0,1,1,2,2,3,3

Prefix	Description	Suffix	Description
		CC	Steel cage
		CA	Machined single brass cage
		K	Tapered bore 1:12
		K30	Tapered bore 1:30
		M	Machined brass cage
		MA	Machined brass cage outer ring guided
		MB	Machined brass cage inner ring guided
		W33	Lubricating holes and groove on outer ring

Thrust ball bearings



Bearing type	Bearing Series	Diameter series
Thrust ball bearing	511,512,513	1,2,3

Prefix	Description	Suffix	Description
		M	Machined brass cage

Tolerances for bearings

Bearing tolerances and permissible values for the boundary dimensions and running accuracy of bearings are specified. These values are prescribed in JIS B 1514 “tolerances for rolling bearings.” (These JIS standards are based on ISO standards.)
Bearing tolerances are standardized by classifying bearings into the following six classes (accuracy in tolerances becomes higher in the order described): 0, 6X, 6, 5, 4 and 2.

Dimensional accuracy

Dimensional accuracy constitutes the acceptable values for bore diameter, outer diameter, assembled bearing width, and bore diameter uniformity as seen in chamfer dimensions, allowable inner ring tapered bore deviation and shape error. Also included are, average bore diameter variation, outer diameter variation, average outer diameter unevenness, as well as raceway width and height variation (for thrust bearings).

Running accuracy

Running accuracy constitutes the acceptable values for inner and outer ring radial runout and axial runout, inner ring side runout, and outer ring outer diameter runout. Allowable rolling bearing tolerances have been established according to precision classes. Bearing precision is stipulated as JIS class 6, class 5, class 4, or class 2, with precision rising from ordinary precision indicated by class 0.

Bearing types and applicable tolerance

Bearing type		Applicable standard	Tolerance class					Tolerance table
Deep groove ball bearings		JIS B 1514 (ISO492)	class 0	class 6	class 5	class 4	class 2	Table a
Angular contact ball bearings			class 0	class 6	class 5	class 4	class 2	
Self-aligning ball bearings			class 0	—	—	—	—	
Cylindrical roller bearigns			class 0	class 6	class 5	class 4	class 2	
Spherical roller bearings			class 0	—	—	—	—	
Tapered roller bearings	metric	JIS B 1514	class 0,6X	class 6	class 5	class 4	—	Table b
	Inch	ANSI/ABMA Std.19	class 4	class 2	class 3	class 0	class 00	Table c
Thrust ball bearings		JIS B 1514 (ISO199)	class 0	class 6	class 5	class 4	—	Table d
Spherical roller thrust bearings			class 0	—	—	—	—	Table e

Comparison of tolerance classifications of national standards

Standard	Applicable standerd	Tolerance Class					Bearing Types
Japanese industrial standard (JIS)	JIS B 1514	Class 0,6X	Class 6	Class 5	Class 4	Class 2	All type
International Organization for Standardization (ISO)	ISO 492	Normal class Class 6X	Class 6	Class 5	Class 4	Class 2	Radial bearings
	ISO 199	Normal Class	Class 6	Class 5	Class 4	—	Thrust ball bearings
	ISO 578	Class 4	—	Class 3	Class 0	Class 00	Tapered roller bearings (Inch series)
	ISO 1224	—	—	Class 5A	Class 4A	—	Precision instrument bearings
Deutsches Institut fur Normung(DIN)	DIN 620	P0	P6	P5	P4	P2	All type
American National Standards Institute (ANSI)	ANSI/ABMA Std.20	ABEC-1 RBEC-1	ABEC-3 RBEC-3	ABEC-5 RBEC-5	ABEC-7	ABEC-9	Radial bearings (Except tapered roller bearings)
American Bearing Manufacturer's Association (ABMA)	ANSI/ABMA Std.19.1	Class K	Class N	Class C	Class B	Class A	Tapered roller bearings (Metric series)
	ANSI/ABMA Std.19	Class 4	Class 2	Class 3	Class 0	Class 00	Tapered roller bearings (Inch series)

Table a Tolerance of radial bearings (Except tapered roller bearings)

Table a.1 Inner rings

Nominal bore diameter d mm		Dimensional tolerance of mean bore diameter within plane Δ_{dmp}										Bore diameter variation V_{dp}														
												diameter series 9					diameter series 0.1					diameter series 2.3.4				
		class 0		class 6		class 5		class 4		class 2		class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2
over	incl.	high	low	high	low	high	low	high	low	high	low	max					max					max				
0.6	2.5	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5	8	7	4	3	2.5	6	5	4	3	2.5
2.5	10	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5	8	7	4	3	2.5	6	5	4	3	2.5
10	18	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5	8	7	4	3	2.5	6	5	4	3	2.5
18	30	0	-10	0	-8	0	-6	0	-5	0	-2.5	13	10	6	5	2.5	10	8	5	4	2.5	8	6	5	4	2.5
30	50	0	-12	0	-10	0	-8	0	-6	0	-2.5	15	13	8	6	2.5	12	10	6	5	2.5	9	8	6	5	2.5
50	80	0	-15	0	-12	0	-9	0	-7	0	-4	19	15	9	7	4	19	15	7	5	4	11	9	7	5	4
80	120	0	-20	0	-15	0	-10	0	-8	0	-5	25	19	10	8	5	25	19	8	6	5	15	11	8	6	5
120	150	0	-25	0	-18	0	-13	0	-10	0	-7	31	23	13	10	7	31	23	10	8	7	19	14	10	8	7
150	180	0	-25	0	-18	0	-13	0	-10	0	-7	31	23	13	10	7	31	23	10	8	7	19	14	10	8	7
180	250	0	-30	0	-22	0	-15	0	-12	0	-8	38	28	15	12	8	38	28	12	9	8	23	17	12	9	8
250	315	0	-35	0	-25	0	-18	—	—	—	—	44	31	18	—	—	44	31	14	—	—	26	19	14	—	—
315	400	0	-40	0	-30	0	-23	—	—	—	—	50	38	23	—	—	50	38	18	—	—	30	23	18	—	—
400	500	0	-45	0	-35	—	—	—	—	—	—	56	44	—	—	—	56	44	—	—	—	34	26	—	—	—
500	630	0	-50	0	-40	—	—	—	—	—	—	63	50	—	—	—	63	50	—	—	—	38	30	—	—	—

Table a.2 Outer rings

Nominal outside diameter D mm		Dimensional tolerance of mean outside diameter within plane Δ_{Dmp}										Outside diameter variation V_{Dp} open type														
												diameter series 9					diameter series 0.1					diameter series 2.3.4				
		class 0		class 6		class 5		class 4		class 2		class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2
over	incl.	high	low	high	low	high	low	high	low	high	low	max					max					max				
2.5	6	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5	8	7	4	3	2.5	6	5	4	3	2.5
6	18	0	-8	0	-7	0	-5	0	-4	0	-2.5	10	9	5	4	2.5	8	7	4	3	2.5	6	5	4	3	2.5
18	30	0	-9	0	-8	0	-6	0	-5	0	-4	12	10	6	5	4	9	8	5	4	4	7	6	5	4	4
30	50	0	-11	0	-9	0	-7	0	-6	0	-4	14	11	7	6	4	11	9	5	5	4	8	7	5	5	4
50	80	0	-13	0	-11	0	-9	0	-7	0	-4	16	14	9	7	4	13	11	7	5	4	10	8	7	5	4
80	120	0	-15	0	-13	0	-10	0	-8	0	-5	19	16	10	8	5	19	16	8	6	5	11	10	8	6	5
120	150	0	-18	0	-15	0	-11	0	-9	0	-5	23	19	11	9	5	23	19	8	7	5	14	11	8	7	5
150	180	0	-25	0	-18	0	-13	0	-10	0	-7	31	23	13	10	7	31	23	10	8	7	19	14	10	8	7
180	250	0	-30	0	-20	0	-15	0	-11	0	-8	38	25	15	11	8	38	25	11	8	8	23	15	11	8	8
250	315	0	-35	0	-25	0	-18	0	-13	0	-8	44	31	18	13	8	44	31	14	10	8	26	19	14	10	8
315	400	0	-40	0	-28	0	-20	0	-15	0	-10	50	35	20	15	10	50	35	15	11	10	30	21	15	11	10
400	500	0	-45	0	-33	0	-23	—	—	—	—	56	41	23	—	—	56	41	17	—	—	34	25	17	—	—
500	630	0	-50	0	-38	0	-28	—	—	—	—	63	48	28	—	—	63	48	21	—	—	38	29	21	—	—
630	800	0	-75	0	-45	0	-35	—	—	—	—	94	56	35	—	—	94	56	26	—	—	55	34	26	—	—

Unit μm

Mean bore diameter variation V_{dmp}					Inner ring radial runout K_{ia}					Side runout with bore S_d			Inner ring axial runout S_{ia}			Inner ring width deviation Δ_{Bs}								Inner ring width variation V_{Bs}				
																normal						modified							
class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2	class 5	class 4	class 2	class 5	class 4	class 2	class 0,6		class 5,4		class 2		class 0,6		class 5,4		class 0	class 6	class 5	class 4	class 2
max					max					max			max			high	low	high	low	high	low	high	low	high	low	max				
6	5	3	2	1.5	10	5	4	2.5	1.5	7	3	1.5	7	3	1.5	0	-40	0	-40	0	-40	—	—	0	-250	12	12	5	2.5	1.5
6	5	3	2	1.5	10	6	4	2.5	1.5	7	3	1.5	7	3	1.5	0	-120	0	-40	0	-40	0	-250	0	-250	15	15	5	2.5	1.5
6	5	3	2	1.5	10	7	4	2.5	1.5	7	3	1.5	7	3	1.5	0	-120	0	-80	0	-80	0	-250	0	-250	20	20	5	2.5	1.5
8	6	3	2.5	1.5	13	8	4	3	2.5	8	4	1.5	8	4	2.5	0	-120	0	-120	0	-120	0	-250	0	-250	20	20	5	2.5	1.5
9	8	4	3	1.5	15	10	5	4	2.5	8	4	1.5	8	4	2.5	0	-120	0	-120	0	-120	0	-250	0	-250	20	20	5	3	1.5
11	9	5	3.5	2	20	10	5	4	2.5	8	5	1.5	8	5	2.5	0	-150	0	-150	0	-150	0	-380	0	-250	25	25	6	4	1.5
15	11	5	4	2.5	25	13	6	5	2.5	9	5	2.5	9	5	2.5	0	-200	0	-200	0	-200	0	-380	0	-380	25	25	7	4	2.5
19	14	7	5	3.5	30	18	8	6	2.5	10	6	2.5	10	7	2.5	0	-250	0	-250	0	-250	0	-500	0	-380	30	30	8	5	2.5
19	14	7	5	3.5	30	18	8	6	5	10	6	4	10	7	5	0	-250	0	-250	0	-250	0	-500	0	-380	30	30	8	5	4
23	17	8	6	4	40	20	10	8	5	11	7	5	13	8	5	0	-300	0	-300	0	-300	0	-500	0	-500	30	30	10	6	5
26	19	9	—	—	50	25	13	—	—	13	—	—	15	—	—	0	-350	0	—	—	—	0	-500	0	—	35	35	13	—	—
30	23	12	—	—	60	30	15	—	—	15	—	—	20	—	—	0	-400	0	—	—	—	0	-630	0	—	40	40	15	—	—
34	26	—	—	—	65	35	—	—	—	—	—	—	—	—	—	0	-450	—	—	—	—	—	—	—	—	50	45	—	—	—
38	30	—	—	—	70	40	—	—	—	—	—	—	—	—	—	0	-500	—	—	—	—	—	—	—	—	60	50	—	—	—

Unit μm

Outside diameter variation V_{DP} Sealed/shield bearings diameter series		Mean bore diameter variation V_{Dmp}					Outer ring radial runout K_{ea}					Outside surface inclination S_D			Outside ring axial runout S_{ea}			Outer ring width deviation Δ_{Cs}	Outer ring width variation V_{Cs}				
2,3,4 class 0	0,1,2,3,4 class 6	class 0	class 6	class 5	class 4	class 2	class 0	class 6	class 5	class 4	class 2	class 5	class 4	class 2	class 5	class 4	class 2		class 0,6	class 5	class 4	class 2
max		max					max					max			max			all type	max				
10	9	6	5	3	2	1.5	15	8	5	3	1.5	8	4	1.5	8	5	1.5			5	2.5	1.5
10	9	6	5	3	2	1.5	15	8	5	3	1.5	8	4	1.5	8	5	1.5	Depends on tolerance of Δ_{Bs} in relation to d of same bearing	Depends on tolerance of Δ_{Bs} in relation to d of same bearing	5	2.5	1.5
12	10	7	6	3	2.5	2	15	9	6	4	2.5	8	4	1.5	8	5	2.5			5	2.5	1.5
16	13	8	7	4	3	2	20	10	7	5	2.5	8	4	1.5	8	5	2.5			5	2.5	1.5
20	16	10	8	5	3.5	2	25	13	8	5	4	8	4	1.5	10	5	4			6	3	1.5
26	20	11	10	5	4	2.5	35	18	10	6	5	9	5	2.5	11	6	5			8	4	2.5
30	25	14	11	6	5	2.5	40	20	11	7	5	10	5	2.5	13	7	5			8	5	2.5
38	30	19	14	7	5	3.5	45	23	13	8	5	10	5	2.5	14	8	5			8	5	2.5
—	—	23	15	8	6	4	50	25	15	10	7	11	7	4	15	10	7			10	7	4
—	—	26	19	9	7	4	60	30	18	11	7	13	8	5	18	10	7			11	7	5
—	—	30	21	10	8	5	70	35	20	13	8	13	10	7	20	13	8			13	8	7
—	—	34	25	12	—	—	80	40	23	—	—	15	—	—	23	—	—			15	—	—
—	—	38	29	14	—	—	100	50	25	—	—	18	—	—	25	—	—			18	—	—
—	—	55	34	18	—	—	120	60	30	—	—	20	—	—	30	—	—			20	—	—

Table b Tolerance of tapered roller bearings (Metric series)

Table b.1 Inner rings

Nominal bore diameter d mm		Dimensional tolerance of mean bore diameter within plane Δ_{dmp}						Bore diameter variation V_{dp}				Mean bore diameter variation V_{dmp}				Inner ring radial runout K_{ia}				Side runout with bore S_d	
		class 0,6X		class 5,6		class 4		class 0,6X	class 6	class 5	class 4	class 0,6X	class 6	class 5	class 4	class 0,6X	class 6	class 5	class 4	class 5	class 4
over	incl.	high	low	high	low	high	low	max				max				max				max	
10	18	0	-12	0	-7	0	-5	12	7	5	4	9	5	5	4	15	7	5	3	7	3
18	30	0	-12	0	-8	0	-6	12	8	6	5	9	6	5	4	18	8	5	3	8	4
30	50	0	-12	0	-10	0	-8	12	10	8	6	9	8	5	5	20	10	6	4	8	4
50	80	0	-15	0	-12	0	-9	15	12	9	7	11	9	6	5	25	10	7	4	8	5
80	120	0	-20	0	-15	0	-10	20	15	11	8	15	11	8	5	30	13	8	5	9	5
120	180	0	-25	0	-18	0	-13	25	18	14	10	19	14	9	7	35	18	11	6	10	6
180	250	0	-30	0	-22	0	-15	30	22	17	11	23	16	11	8	50	20	13	8	11	7
250	315	0	-35	—	—	—	—	35	—	—	—	26	—	—	—	60	—	—	—	—	—
315	400	0	-40	—	—	—	—	40	—	—	—	30	—	—	—	70	—	—	—	—	—

Table b.2 Outer rings

Nominal outside diameter D mm		Dimensional tolerance of mean outside diameter within plane Δ_{Dmp}						Outside diameter variation V_{Dp}				Mean bore diameter variation V_{Dmp}				Outer ring radial runout K_{ea}				Outside surface inclination S_D	
		class 0,6X		class 5,6		class 4		class 0,6X	class 6	class 5	class 4	class 0,6X	class 6	class 5	class 4	class 0,6X	class 6	class 5	class 4	class 5	class 4
over	incl.	high	low	high	low	high	low	max				max				max				max	
18	30	0	-12	0	-8	0	-6	12	8	6	5	9	6	5	4	18	9	6	4	8	4
30	50	0	-14	0	-9	0	-7	14	9	7	5	11	7	5	5	20	10	7	5	8	4
50	80	0	-16	0	-11	0	-9	16	11	8	7	12	8	6	5	25	13	8	5	8	4
80	120	0	-18	0	-13	0	-10	18	13	10	8	14	10	7	5	35	18	10	6	9	5
120	150	0	-20	0	-15	0	-11	20	15	11	8	15	11	8	6	40	20	11	7	10	5
150	180	0	-25	0	-18	0	-13	25	18	14	10	19	14	9	7	45	23	13	8	10	5
180	250	0	-30	0	-20	0	-15	30	20	15	11	23	15	10	8	50	25	15	10	11	7
250	315	0	-35	0	-25	0	-18	35	25	19	14	26	19	13	9	60	30	18	11	13	8
315	400	0	-40	0	-28	0	-20	40	28	22	15	30	21	14	10	70	35	20	13	13	10

Table b.3 Effective width of outer and inner rings with roller Unit μm

Nominal bore diameter d mm		Effective width deviation of roller and inner ring assembly of tapered roller bearing Δ_{T1s}				Tapered roller bearing outer ring effective width deviation Δ_{T2s}			
		class 0		class 6X		class 0		class 6X	
over	incl.	high	low	high	low	high	low	high	low
10	18	+100	0	+50	0	+100	0	+50	0
18	30	+100	0	+50	0	+100	0	+50	0
30	50	+100	0	+50	0	+100	0	+50	0
50	80	+100	0	+50	0	+100	0	+50	0
80	120	+100	-100	+50	0	+100	-100	+50	0
120	180	+150	-150	+50	0	+200	-100	+100	0
180	250	+150	-150	+50	0	+200	-100	+100	0
250	315	+150	-150	+100	0	+200	-100	+100	0
315	400	+200	-200	+100	0	+200	-200	+100	0

Unit μm

Inner ring axial runout S_{ia}	Inner ring width deviation Δ_{Bs}						Assembly width deviation of single-row tapered roller bearings Δ_{Ts}						Combination width deviation of double row bearings Δ_{B1s}, Δ_{C1s}		Combination width deviation of 4-row bearings Δ_{B2s}, Δ_{C2s}	
class 4	class 0,6		class 6X		class 4,5		class 0,6		class 6X		class 4,5		class 0,6,5		class 0,6,5	
max	high	low	high	low	high	low	high	low	high	low	high	low	high	low	high	low
3	0	-120	0	-50	0	-200	+200	0	+100	0	+200	-200	—	—	—	—
4	0	-120	0	-50	0	-200	+200	0	+100	0	+200	-200	—	—	—	—
4	0	-120	0	-50	0	-240	+200	0	+100	0	+200	-200	+240	-240	—	—
4	0	-150	0	-50	0	-300	+200	0	+100	0	+200	-200	+300	-300	—	—
5	0	-200	0	-50	0	-400	+200	-200	+100	0	+200	-200	+400	-400	+500	-500
7	0	-250	0	-50	0	-500	+350	-250	+150	0	+350	-250	+500	-500	+600	-600
8	0	-300	0	-50	0	-600	+350	-250	+150	0	+350	-250	+600	-600	+750	-750
—	0	-350	0	-50	—	—	+350	-250	+200	0	—	—	+700	-700	+900	-900
—	0	-400	0	-50	—	—	+400	-400	+200	0	—	—	+800	-800	+1 000	-1 000

Unit μm

Outer ring axial runout S_{ea}	Outer ring width deviation Δ_{Cs}			
class 4	class 0,6,5,4		class 6X	
max	sup.	inf.	sup.	inf.
5	Depends on tolerance of Δ_{Bs} in relation to d of same bearing		0	-100
5			0	-100
5			0	-100
6			0	-100
7			0	-100
8			0	-100
10			0	-100
10			0	-100
13			0	-100

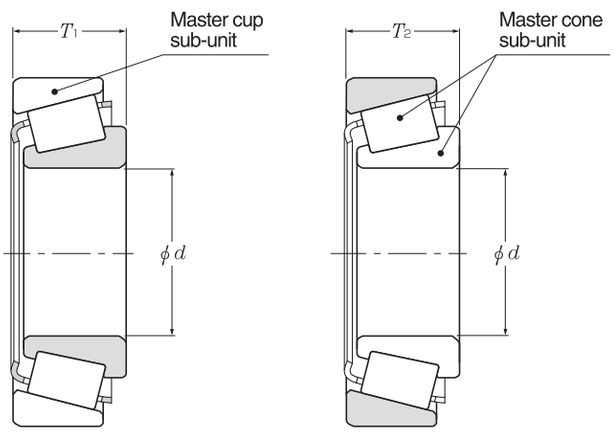


Table c Tolerance of tapered roller bearings (Inch series)

Table c.1 Inner rings

Unit μm

Nominal bore diameter d mm (inch)		Single bore diameter deviation Δ_{ds}									
		Class 4		Class 2		Class 3		Class 0		Class 00	
over	incl.	high	low	high	low	high	low	high	low	high	low
—	76.2 (3)	+13	0	+13	0	+13	0	+13	0	+8	0
76.2 (3)	266.7 (10.5)	+25	0	+25	0	+13	0	+13	0	+8	0
266.7 (10.5)	304.8 (12)	+25	0	+25	0	+13	0	+13	0	—	—
304.8 (12)	609.6 (24)	+51	0	+51	0	+25	0	—	—	—	—
609.6 (24)	914.4 (36)	+76	0	—	—	+38	0	—	—	—	—
914.4 (36)	1 219.2 (48)	+102	0	—	—	+51	0	—	—	—	—
1 219.2 (48)	—	+127	0	—	—	+76	0	—	—	—	—

Table c.2 Outer rings

Unit μm

Nominal outside diameter D mm (inch)		Single outside diameter deviation Δ_{Ds}									
		Class 4		Class 2		Class 3		Class 0		Class 00	
over	incl.	high	low	high	low	high	low	high	low	high	low
—	266.7 (10.5)	+25	0	+25	0	+13	0	+13	0	+8	0
266.7 (10.5)	304.8 (12)	+25	0	+25	0	+13	0	+13	0	—	—
304.8 (12)	609.6 (24)	+51	0	+51	0	+25	0	—	—	—	—
609.6 (24)	914.4 (36)	+76	0	+76	0	+38	0	—	—	—	—
914.4 (36)	1 219.2 (48)	+102	0	—	—	+51	0	—	—	—	—
1 219.2 (48)	—	+127	0	—	—	+76	0	—	—	—	—

Table d Tolerance of thrust ball bearings

Table d.1 Shaft raceway washer

Unit μm

Nominal bore diameter d mm		Mean bore diameter deviation Δ_{dmp}				Bore diameter variation V_{dp}		Raceway thickness variation S_i			
		Class 0,6,5		Class 4		Class 0,6,5	Class 4	Class 0	Class 6	Class 5	Class 4
over	incl.	high	low	high	low	max		max			
—	18	0	-8	0	-7	6	5	10	5	3	2
18	30	0	-10	0	-8	8	6	10	5	3	2
30	50	0	-12	0	-10	9	8	10	6	3	2
50	80	0	-15	0	-12	11	9	10	7	4	3
80	120	0	-20	0	-15	15	11	15	8	4	3
120	180	0	-25	0	-18	19	14	15	9	5	4
180	250	0	-30	0	-22	23	17	20	10	5	4
250	315	0	-35	0	-25	26	19	25	13	7	5
315	400	0	-40	0	-30	30	23	30	15	7	5
400	500	0	-45	0	-35	34	26	30	18	9	6
500	630	0	-50	0	-40	38	30	35	21	11	7

Table d.2 Housing raceway washer

Unit μm

Nominal outside diameter D mm		Mean outside diameter deviation Δ_{Dmp}				Outside diameter variation V_{Dp}		Raceway thickness variation S_e			
		Class 0,6,5		Class 4		Class 0,6,5	Class 4	Class 0	Class 6	Class 5	Class 4
over	incl.	high	low	high	low	max		max			
10	18	0	-11	0	-7	8	5	According to the tolerance of S_1 against "d" of the same bearings			
18	30	0	-13	0	-8	10	6				
30	50	0	-16	0	-9	12	7				
50	80	0	-19	0	-11	14	8				
80	120	0	-22	0	-13	17	10				
120	180	0	-25	0	-15	19	11				
180	250	0	-30	0	-20	23	15				
250	315	0	-35	0	-25	26	19				
315	400	0	-40	0	-28	30	21				
400	500	0	-45	0	-33	34	25				
500	630	0	-50	0	-38	38	29				
630	800	0	-75	0	-45	55	34				

Table d.3 Bearing height

Unit μm

Nominal bore diameter d mm		Single direction Bearing height deviation Δ_{Ts}	
over	incl.	high	low
—	30	0	-75
30	50	0	-100
50	80	0	-125
80	120	0	-150
120	180	0	-175
180	250	0	-200
250	315	0	-225
315	400	0	-300
400	500	0	-350
500	630	0	-400

Table e Tolerance of spherical thrust roller bearing

Table e.1 Shaft raceway washer

Unit μm

Nominal bore diameter d mm		Mean bore diameter deviation Δ_{dmp}		Bore diameter variation V_{dp}	Side runout with bore S_d	Bearing height deviation Δ_{Ts}	
over	incl.	high	low	max	max	high	low
50	80	0	-15	11	25	+150	-150
80	120	0	-20	15	25	+200	-200
120	180	0	-25	19	30	+250	-250
180	250	0	-30	23	30	+300	-300
250	315	0	-35	26	35	+350	-350
315	400	0	-40	30	40	+400	-400
400	500	0	-45	34	45	+450	-450

Table e.2 Housing raceway washer

Unit μm

Nominal outside diameter D mm		Single plane mean outside diameter deviation Δ_{Dmp}	
over	incl.	high	low
120	180	0	-25
180	250	0	-30
250	315	0	-35
315	400	0	-40
400	500	0	-45
500	630	0	-50
630	800	0	-75
800	1,000	0	-100

Interference

For rolling bearings, inner and outer rings are fixed on the shaft or in the housing so that relative movement does not occur between fitting surfaces during operation or under load. This relative movement between the fitting surfaces of the bearing and the shaft or housing can occur in a radial direction, an axial direction, or in the direction of rotation. Types of fitting include tight, transition and loose fitting, which may be selected depending on whether or not there is interference.
The most effective way to fix the fitting surfaces between a bearing's raceway and shaft or housing is to apply a "tight fit." The advantage of this tight fit for thin walled bearings is that it provides uniform load support over the entire ring circumference without any loss of load carrying capacity. However, with a tight fit, ease of installation and disassembly is lost; and when using a non-separable bearing as the floating-side bearing, axial displacement is not possible. For this reason, a tight fit cannot be recommended in all cases.

The necessity of a proper fit

In some cases, improper fit may lead to damage and shorten bearing life, therefore it is necessary to make a careful investigation in selecting a proper fit. Some of the bearing failure caused by improper fit are listed below.

- Raceway cracking, early flaking and displacement of raceway
- Raceway and shaft or housing abrasion caused by creeping and fretting corrosion
- Seizing caused by negative internal clearances
- Increased noise and deteriorated rotational accuracy due to raceway groove deformation

Fit selection

Selection of a proper fit is dependent upon thorough analysis of bearing operating conditions, including consideration of:

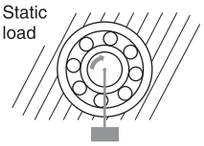
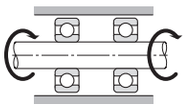
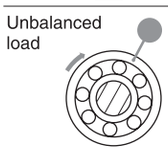
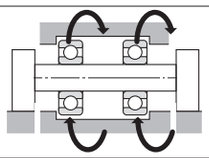
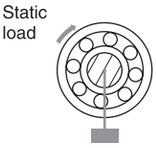
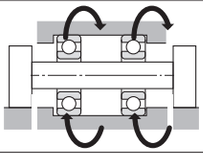
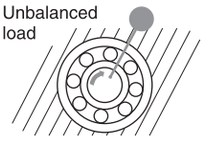
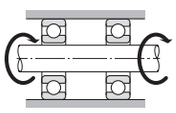
- Shaft and housing material, wall thickness, finished surface accuracy, etc.
- Machinery operating conditions (nature and magnitude of load, rotational speed, temperature, etc.)

"Tight fit" or "Loose fit"

(1) For raceways under rotating loads, a tight fit is necessary. "Raceways under rotating loads" refers to raceways receiving loads rotating relative to their radial direction. For raceways under static loads, on the other hand, a loose fit is sufficient.

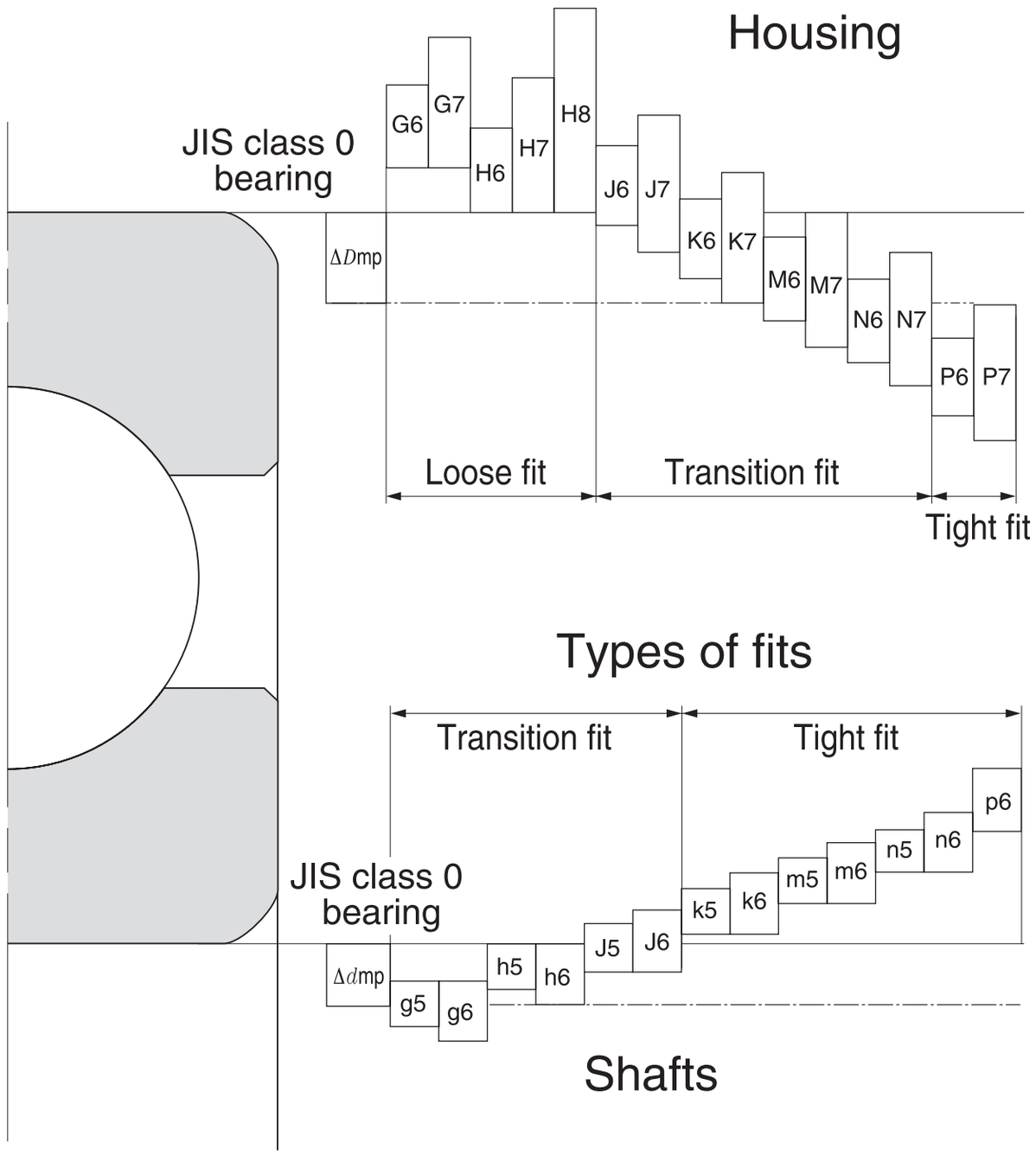
(2) For non-separable bearings, such as deep groove ball bearings, it is generally recommended that either the inner ring or outer ring be given a loose fit.

Radial load and bearing fit

Illustration	Bearing rotation	Ring load	Fit
Static load 	 Inner ring: Rotating Outer ring: Stationary	Rotating inner ring load	Inner ring : Tight fit
Unbalanced load 	 Inner ring: Stationary Outer ring: Rotating	Static outer ring load	Outer ring : Loose fit
Static load 	 Inner ring: Stationary Outer ring: Rotating	Static inner ring load	Inner ring : Loose fit
Unbalanced load 	 Inner ring: Rotating Outer ring: Stationary	Rotating outer ring load	Outer ring : Tight fit

Recommended Fits

Bearing fit is governed by the selection tolerances for bearing shaft diameters and housing bore diameters. Widely used fits for 0 Class tolerance bearings and various shaft and housing bore diameter tolerances are shown below.



Interference minimum and maximum values

The following points should be considered when it is necessary to calculate the interference for an application:

- In calculating the minimum required amount of interference keep in mind that:
  1) interference is reduced by radial loads
  2) interference is reduced by differences between bearing temperature and ambient temperature
  3) interference is reduced by variation of fitting surfaces
- The upper limit value should not exceed 1/1000 of the shaft diameter.

General standards for radial bearing fits (JIS Class 0, 6X, 6)

Tolerance class of shafts commonly used for radial bearings (classes 0, 6X and 6)

Conditions		Ball bearings		Cylindrical roller bearing Tapered roller bearing		Spherical roller bearing		Shaft tolerance class	Remarks
		Shaft diameter (mm)							
		Over	Under	Over	Under	Over	Under		
Cylindrical bore bearing (Classes 0, 6X and 6)									
Inner ring rotational load or load of undetermined direction	Light load or fluctuating load	— 18 100 —	18 100 200 —	— — 40 140	— 40 140 200	— — — —	— — — —	h5 js6 k6 m6	When greater accuracy is required js5, k5, and m5 may be substituted for js6, k6, and m6.
	Ordinary load	— 18 100 140 200 — —	18 100 140 200 280 — —	— — 40 100 140 200 —	— 40 100 140 200 400 —	— — 40 65 100 140 280	— 40 65 100 140 280 500	js5 k5 m5 m6 n6 p6 r6	Alteration of inner clearances to accommodate fit is not a consideration with single-row angular contact bearings and tapered roller bearings. Therefore, k5 and m5 may be substituted for k6 and m6.
	Heavy load or impact load	— — —	— — —	50 140 200	140 200 —	50 100 140	100 140 200	n6 p6 r6	Use bearings with larger internal clearances than CN clearance bearings.
Inner ring static load	Inner ring must move easily over shaft	Overall shaft diameter						g6	When greater accuracy is required use g5. For large bearings, f6 will suffice for to facilitate movement.
	Inner does not have to move easily over shaft	Overall shaft diameter						h6	When greater accuracy is required use h5.
Center axial load		Overall shaft diameter						js6	Generally, shaft and inner rings are not fixed using interferance.
Tapered bore bearing (class 0) (with adapter or withdrawal sleeve)									
Overall load		Overall shaft diameter						h9/IT5	h10/IT7 will suffice for power transmitting shafts.

Tolerance class of housing bore commonly used for radial bearings (classes 0, 6X and 6)

Conditions				Toleration class of housing bore	Remarks
Housing	Types of load		Outer ring axial direction movement		
Single housing or divided housing	Outer ring static load	All types of loads	Able to move.	H7	G7 will suffice for large bearings or bearings with large temperature differential between the outer ring and housing.
		Light load or ordinary load	Able to move.	H8	——
		Shaft and inner ring become hot.	Able to move easily.	G7	F7 will suffice for large bearings or bearings with large temperature differential between the outer ring and housing.
Single housing		Requires precision rotation with light or ordinary loads.	As a rule, cannot move.	K6	Primarily applies to roller bearings.
			Able to move.	JS6	Primarily applies to ball bearings.
		Requires quiet operation.	Able to move.	H6	——
	Indeterminate load	Light or ordinary load	Able to move.	JS7	If precision is required, JS6 and K6 are used in place of JS7 and K7.
		Ordinary load or heavy load	As a rule, cannot move.	K7	
		Large impact load	Cannot move.	M7	——
	Outer ring rotational load	Light or fluctuating load	Cannot move.	M7	——
		Ordinary or heavy load	Cannot move.	N7	Primarily applies to ball bearings.
		Heavy load or large impact load with thin housing	Cannot move.	P7	Primarily applies to roller bearings.

Standard fits for thrust bearings (JIS Class 0 and 6)

Shaft fits

Bearing type	Load conditions		Fit	Shaft diameter mm over — incl.	Tolerance class
All thrust bearings	Centered axial load only		Transition fit	All sizes	js6 or h6
Spherical roller thrust bearings	Combined load	Inner ring static load	Transition fit	All sizes	js6
		Inner ring rotating load or Indeterminate load	Transition fit	— ～ 200	k6 or js6
				200 ～ 400	m6 or k6
			Tight fit	400 ～	n6 or m6

Housing fits

Bearing type	Load conditions		Fit	Tolerance class	Remarks
All thrust bearings	Centered axial load only		Loose fit	Select a tolerance class that will provide clearance between outer ring and housing.	
				H8	Greater accuracy required with thrust ball bearings
Spherical roller thrust bearings	Combined load	Outer ring static load		H7	——
		Indeterminate load or outer ring rotating load	Transition fit	K7	Normal operating conditions
				M7	For relatively large radial loads

Note: All values and fits listed in the above tables are for cast iron or steel housings.

Fits for electric motor bearings

Bearing type	Shaft fits		Housing fits	
	Shaft diameter mm over — incl.	Tolerance class	Housing bore diameter	Tolerance class
Deep groove ball bearings	～ 18	j5	All sizes	H6 or J6
	18 ～100	k5		
	100 ～160	m5		
Cylindrical roller bearings	～ 40	k5	All sizes	H6 or J6
	40 ～160	m5		
	160 ～200	n6		

Fitting against shaft - class 0

Nominal bore diameter of bearing d mm over	incl.	Mean bore diameter deviation Δ_{dmp} high	low	g5 bearing shaft	g6 bearing shaft	h5 bearing shaft	h6 bearing shaft	j5 bearing shaft	js5 bearing shaft	j6 bearing shaft
3	6	0	-8	4T～ 9L	4T～12L	8T～ 5L	8T～ 8L	11T～ 2L	10.5T～ 2.5L	14T～ 2L
6	10	0	-8	3T～11L	3T～14L	8T～ 6L	8T～ 9L	12T～ 2L	11T ～ 3L	15T～ 2L
10	18	0	-8	2T～14L	2T～17L	8T～ 8L	8T～11L	13T～ 3L	12T ～ 4L	16T～ 3L
18	30	0	-10	3T～16L	3T～20L	10T～ 9L	10T～13L	15T～ 4L	14.5T～ 4.5L	19T～ 4L
30	50	0	-12	3T～20L	3T～25L	12T～11L	12T～16L	18T～ 5L	17.5T～ 5.5L	23T～ 5L
50	80	0	-15	5T～23L	5T～29L	15T～13L	15T～19L	21T～ 7L	21.5T～ 6.5L	27T～ 7L
80	120	0	-20	8T～27L	8T～34L	20T～15L	20T～22L	26T～ 9L	27.5T～ 7.5L	33T～ 9L
120 140 160	140 160 180	0	-25	11T～32L	11T～39L	25T～18L	25T～25L	32T～11L	34T ～ 9L	39T～11L
180 200 225	200 225 250	0	-30	15T～35L	15T～44L	30T～20L	30T～29L	37T～13L	40T ～10L	46T～13L
250 280	280 315	0	-35	18T～40L	18T～49L	35T～23L	35T～32L	42T～16L	46.5T～11.5L	51T～16L
315 355	355 400	0	-40	22T～43L	22T～54L	40T～25L	40T～36L	47T～18L	52.5T～12.5L	58T～18L
400 450	450 500	0	-45	25T～47L	25T～60L	45T～27L	45T～40L	52T～20L	58.5T～13.5L	65T～20L

Fitting against housing - class 0

Nominal outside diameter of bearing D mm over	incl.	Mean outside diameter deviation Δ_{Dmp} high	low	G7 housing bearing	H6 housing bearing	H7 housing bearing	J6 housing bearing	J7 housing bearing	Js7 housing bearing	K6 housing bearing
6	10	0	-8	5L～ 28L	0～17L	0～ 23L	4T～13L	7T～16L	7.5T～15.5L	7T～10L
10	18	0	-8	6L～ 32L	0～19L	0～ 26L	5T～14L	8T～18L	9T ～17L	9T～10L
18	30	0	-9	7L～ 37L	0～22L	0～ 30L	5T～17L	9T～21L	10.5T～19.5L	11T～11L
30	50	0	-11	9L～ 45L	0～27L	0～ 36L	6T～21L	11T～25L	12.5T～23.5L	13T～14L
50	80	0	-13	10L～ 53L	0～32L	0～ 43L	6T～26L	12T～31L	15T ～28L	15T～17L
80	120	0	-15	12L～ 62L	0～37L	0～ 50L	6T～31L	13T～37L	17.5T～32.5L	18T～19L
120	150	0	-18	14L～ 72L	0～43L	0～ 58L	7T～36L	14T～44L	20T ～38L	21T～22L
150	180	0	-25	14L～ 79L	0～50L	0～ 65L	7T～43L	14T～51L	20T ～45L	21T～29L
180	250	0	-30	15L～ 91L	0～59L	0～ 76L	7T～52L	16T～60L	23T ～53L	24T～35L
250	315	0	-35	17L～104L	0～67L	0～ 87L	7T～60L	16T～71L	26T ～61L	27T～40L
315	400	0	-40	18L～115L	0～76L	0～ 97L	7T～69L	18T～79L	28.5T～68.5L	29T～47L
400	500	0	-45	20L～128L	0～85L	0～108L	7T～78L	20T～88L	31.5T～76.5L	32T～53L

Unit μm

js6		k5		k6		m5		m6		n6		p6		r6		Nominal bore diameter of bearing d mm	
bearing	shaft	bearing	shaft	bearing	shaft	bearing	shaft	bearing	shaft	bearing	shaft	bearing	shaft	bearing	shaft	over	incl.
12T ～ 4L		14T～1T		17T～1T		17T～ 4T		20T～ 4T		24T～ 8T		28T～12T		—	—	3	6
12.5T～ 4.5L		15T～1T		18T～1T		20T～ 6T		23T～ 6T		27T～10T		32T～15T		—	—	6	10
13.5T～ 5.5L		17T～1T		20T～1T		23T～ 7T		26T～ 7T		31T～12T		37T～18T		—	—	10	18
16.5T～ 6.5L		21T～2T		25T～2T		27T～ 8T		31T～ 8T		38T～15T		45T～22T		—	—	18	30
20T ～ 8L		25T～2T		30T～2T		32T～ 9T		37T～ 9T		45T～17T		54T～26T		—	—	30	50
24.5T～ 9.5L		30T～2T		36T～2T		39T～11T		45T～11T		54T～20T		66T～32T		—	—	50	80
31T ～11L		38T～3T		45T～2T		48T～13T		55T～13T		65T～23T		79T～37T		—	—	80	120
37.5T～12.5L		46T～3T		53T～3T		58T～15T		65T～15T		77T～27T		93T～43T		113T～ 63T		120	140
														115T～ 65T		140	160
														118T～ 68T		160	180
44.5T～14.5L		54T～4T		63T～4T		67T～17T		76T～17T		90T～31T		109T～50T		136T～ 77T		180	200
														139T～ 80T		200	225
														143T～ 84T		225	250
51T ～16L		62T～4T		71T～4T		78T～20T		87T～20T		101T～34T		123T～56T		161T～ 94T		250	280
														165T～ 98T		280	315
58T ～18L		69T～4T		80T～4T		86T～21T		97T～21T		113T～37T		138T～62T		184T～108T		315	355
														190T～114T		355	400
65T ～20L		77T～5T		90T～4T		95T～23T		108T～23T		125T～40T		153T～68T		211T～126T		400	450
														217T～132T		450	500

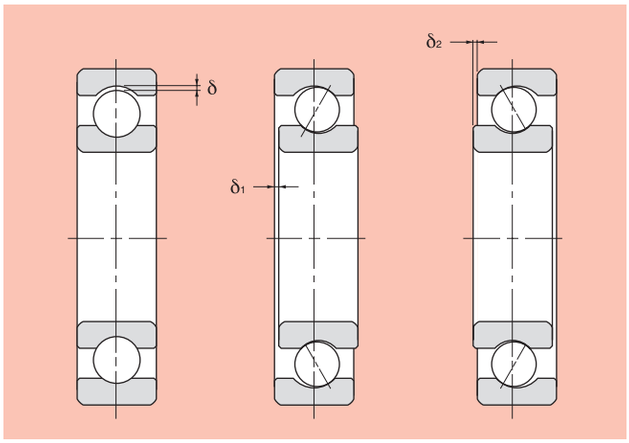
Unit μm

K7		M7		N7		P7		Nominal outside diameter of bearing D mm	
housing	bearing	housing	bearing	housing	bearing	housing	bearing	over	incl.
10T～13L		15T～ 8L		19T～ 4L		24T～ 1T		6	10
12T～14L		18T～ 8L		23T～ 3L		29T～ 3T		10	18
15T～15L		21T～ 9L		28T～ 2L		35T～ 5T		18	30
18T～18L		25T～11L		33T～ 3L		42T～ 6T		30	50
21T～22L		30T～13L		39T～ 4L		51T～ 8T		50	80
25T～25L		35T～15L		45T～ 5L		59T～ 9T		80	120
28T～30L		40T～18L		52T～ 6L		68T～10T		120	150
28T～37L		40T～25L		52T～13L		68T～ 3T		150	180
33T～43L		46T～30L		60T～16L		79T～ 3T		180	250
36T～51L		52T～35L		66T～21L		88T～ 1T		250	315
40T～57L		57T～40L		73T～24L		98T～ 1T		315	400
45T～63L		63T～45L		80T～28L		108T～ 0		400	500

Bearing internal clearance

Bearing internal clearance is the amount of internal free movement before mounting.

As shown below, when either the inner ring or the outer ring is fixed and the other ring is free to move, displacement can take place in either an axial or radial direction. This amount of displacement (radially or axially) is termed the internal clearance and, depending on the direction, is called the radial internal clearance or the axial internal clearance.



Radial clearance = δ Axial clearance = $\delta_1 + \delta_2$

Internal clearance

When the internal clearance of a bearing is measured, a slight measurement load is applied to the raceway so the internal clearance may be measured accurately. However, at this time, a slight amount of elastic deformation of the bearing occurs under the measurement load, and the clearance measurement value (measured clearance) is slightly larger than the true clearance. This difference between the true bearing clearance and the increased amount due to the elastic deformation must be compensated for. These compensation values are given in Table below.

Adjustment of radial internal clearance based on measured load (deep groove ball bearing)

Unit μm

Nominal Bore Diameter d mm		Measuring Load N {kgf}		Internal clearance adjustment				
over	incl.			C2	CN	C3	C4	C5
10	18	24.5	{2.5}	3～4	4	4	4	4
18	50	49	{5}	4～5	5	6	6	6
50	200	147	{15}	6～8	8	9	9	9

Internal clearance selection

The internal clearance of a bearing under operating conditions (effective clearance) is usually smaller than the same bearing's initial clearance before being installed and operated. This is due to several factors including bearing fit, the difference in temperature between the inner and outer rings, etc. As a bearing's operating clearance has an effect on bearing life, heat generation, vibration, noise, etc.; care must be taken in selecting the most suitable operating clearance.

Criteria for selecting bearing internal clearance

A bearing's life is theoretically maximum when operating clearance is slightly negative at steady operation. In reality it is however difficult to constantly maintain this optimal condition. If the negative clearance becomes enlarged by fluctuating operating conditions, heat will be produced and life will decrease dramatically. Under ordinary circumstances you should therefore select an initial internal clearance where the operating clearance is slightly larger than zero.

For ordinary operating conditions, use fitting for ordinary loads. If rotational speed and operating temperature are ordinary, selecting normal clearance enables you to obtain the proper operating clearance. Table below gives examples applying internal clearances other than CN (normal) clearance.

Examples of applications where bearing clearances other than CN (normal) clearance are used

Operating conditions	Applications	Selected clearance
With heavy or shock load, clearance is large.	Railway vehicle axles	C3
	Vibration screens	C3, C4
With indeterminate load, both inner and outer rings are tight-fitted.	Railway vehicle traction motors	C4
	Tractors and final speed regulators	C4
Shaft or inner ring is heated.	Paper making machines and driers	C3, C4
	Rolling mill table rollers	C3
Reduction of noise and vibration when rotating.	Micromotors	C2, CM
Adjustment of clearance to minimize shaft runout.	Main spindles of lathes (Double-row cylindrical roller bearings)	C9NA, C0NA
Loose fitting for both inner and outer rings.	Compressor roll neck	C2

Radial internal clearance of deep groove ball bearings

Unit μm

Nominal bore diameter d mm		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
—	2.5	0	6	4	11	10	20	—	—	—	—
2.5	6	0	7	2	13	8	23	—	—	—	—
6	10	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
50	65	1	15	8	28	23	43	38	61	55	90
65	80	1	15	10	30	25	51	46	71	65	105
80	100	1	18	12	36	30	58	53	84	75	120
100	120	2	20	15	41	36	66	61	97	90	140
120	140	2	23	18	48	41	81	71	114	105	160
140	160	2	23	18	53	46	91	81	130	120	180
160	180	2	25	20	61	53	102	91	147	135	200
180	200	2	30	25	71	63	117	107	163	150	230
200	225	2	35	25	85	75	140	125	195	175	265
225	250	2	40	30	95	85	160	145	225	205	300
250	280	2	45	35	105	90	170	155	245	225	340
280	315	2	55	40	115	100	190	175	270	245	370
315	355	3	60	45	125	110	210	195	300	275	410
355	400	3	70	55	145	130	240	225	340	315	460
400	450	3	80	60	170	150	270	250	380	350	510
450	500	3	90	70	190	170	300	280	420	390	570
500	560	10	100	80	210	190	330	310	470	440	630
560	630	10	110	90	230	210	360	340	520	490	690

Radial internal clearance of self-aligning ball bearings

Unit μm

Nominal bore diameter d mm		Bearing with cylindrical bore									
		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
2.5	6	1	8	5	15	10	20	15	25	21	33
6	10	2	9	6	17	12	25	19	33	27	42
10	14	2	10	6	19	13	26	21	35	30	48
14	18	3	12	8	21	15	28	23	37	32	50
18	24	4	14	10	23	17	30	25	39	34	52
24	30	5	16	11	24	19	35	29	46	40	58
30	40	6	18	13	29	23	40	34	53	46	66
40	50	6	19	14	31	25	44	37	57	50	71
50	65	7	21	16	36	30	50	45	69	62	88
65	80	8	24	18	40	35	60	54	83	76	108
80	100	9	27	22	48	42	70	64	96	89	124
100	120	10	31	25	56	50	83	75	114	105	145
120	140	10	38	30	68	60	100	90	135	125	175
140	160	15	44	35	80	70	120	110	161	150	210

Radial internal clearance of self-aligning ball bearings - Bearing with tapered bore

Unit μm

Nominal bore diameter d mm		Bearing with tapered bore									
		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
2.5	6	—	—	—	—	—	—	—	—	—	—
6	10	—	—	—	—	—	—	—	—	—	—
10	14	—	—	—	—	—	—	—	—	—	—
14	18	—	—	—	—	—	—	—	—	—	—
18	24	7	17	13	26	20	33	28	42	37	55
24	30	9	20	15	28	23	39	33	50	44	62
30	40	12	24	19	35	29	46	40	59	52	72
40	50	14	27	22	39	33	52	45	65	58	79
50	65	18	32	27	47	41	61	56	80	73	99
65	80	23	39	35	57	50	75	69	98	91	123
80	100	29	47	42	68	62	90	84	116	109	144
100	120	35	56	50	81	75	108	100	139	130	170
120	140	40	68	60	98	90	130	120	165	155	205
140	160	45	74	65	110	100	150	140	191	180	240

Radial internal clearance for duplex angular contact ball bearings

Unit μm

Nominal bore diameter d mm		C1		C2		CN		C3		C4	
over	incl.	min	max	min	max	min	max	min	max	min	max
—	10	3	8	6	12	8	15	15	22	22	30
10	18	3	8	6	12	8	15	15	24	30	40
18	30	3	10	6	12	10	20	20	32	40	55
30	50	3	10	8	14	14	25	25	40	55	75
50	80	3	11	11	17	17	32	32	50	75	95
80	100	3	13	13	22	22	40	40	60	95	120
100	120	3	15	15	30	30	50	50	75	110	140
120	150	3	16	16	33	35	55	55	80	130	170
150	180	3	18	18	35	35	60	60	90	150	200
180	200	3	20	20	40	40	65	65	100	180	240

Radial internal clearance of double row angular contact ball bearings

Unit μm

Nominal bore diameter d mm over	incl.	C2 min	C2 max	CN min	CN max	C3 min	C3 max	C4 min	C4 max	C5 min	C5 max
10	only	0	10	5	15	10	21	16	28	24	36
10	18	1	11	6	16	12	23	19	31	28	40
18	24	1	11	6	16	13	24	21	33	31	43
24	30	1	13	6	19	13	26	21	35	31	45
30	40	2	15	7	22	15	30	24	39	35	50
40	50	2	15	9	24	17	32	28	45	40	57
50	65	0	15	7	24	16	33	28	48	41	61
65	80	1	17	11	31	21	42	34	56	50	74
80	100	3	20	13	36	25	49	40	65	58	67

Radial internal clearance of bearings for electric motor

Unit μm

Nominal bore diameter d mm over	incl.	Radial internal clearance CM: Deep groove ball bearings min	Deep groove ball bearings max	Cylindrical roller bearings min	Cylindrical roller bearings max
10 (incl.)	18	4	11	—	—
18	24	5	12	—	—
24	30	5	12	15	30
30	40	9	17	15	30
40	50	9	17	20	35
50	65	12	22	25	40
65	80	12	22	30	45
80	100	18	30	35	55
100	120	18	30	35	60
120	140	24	38	40	65
140	160	24	38	50	80
160	180	—	—	60	90
180	200	—	—	65	100

Interchangeable radial internal clearance for cylindrical roller bearing (cylindrical bore)

Unit μm

Nominal bore diameter d mm over	incl.	C2 min	C2 max	CN min	CN max	C3 min	C3 max	C4 min	C4 max	C5 min	C5 max
—	10	0	25	20	45	35	60	50	75	—	—
10	24	0	25	20	45	35	60	50	75	65	90
24	30	0	25	20	45	35	60	50	75	70	95
30	40	5	30	25	50	45	70	60	85	80	105
40	50	5	35	30	60	50	80	70	100	95	125
50	65	10	40	40	70	60	90	80	110	110	140
65	80	10	45	40	75	65	100	90	125	130	165
80	100	15	50	50	85	75	110	105	140	155	190
100	120	15	55	50	90	85	125	125	165	180	220
120	140	15	60	60	105	100	145	145	190	200	245
140	160	20	70	70	120	115	165	165	215	225	275
160	180	25	75	75	125	120	170	170	220	250	300
180	200	35	90	90	145	140	195	195	250	275	330
200	225	45	105	105	165	160	220	220	280	305	365
225	250	45	110	110	175	170	235	235	300	330	395
250	280	55	125	125	195	190	260	260	330	370	440
280	315	55	130	130	205	200	275	275	350	410	485
315	355	65	145	145	225	225	305	305	385	455	535
355	400	100	190	190	280	280	370	370	460	510	600
400	450	110	210	210	310	310	410	410	510	565	665
450	500	110	220	220	330	330	440	440	550	625	735

Radial internal clearance of spherical roller bearings

Unit μm

Nominal bore diameter d mm		Bearing with cylindrical bore									
		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
14	18	10	20	20	35	35	45	45	60	60	75
18	24	10	20	20	35	35	45	45	60	60	75
24	30	15	25	25	40	40	55	55	75	75	95
30	40	15	30	30	45	45	60	60	80	80	100
40	50	20	35	35	55	55	75	75	100	100	125
50	65	20	40	40	65	65	90	90	120	120	150
65	80	30	50	50	80	80	110	110	145	145	180
80	100	35	60	60	100	100	135	135	180	180	225
100	120	40	75	75	120	120	160	160	210	210	260
120	140	50	95	95	145	145	190	190	240	240	300
140	160	60	110	110	170	170	220	220	280	280	350
160	180	65	120	120	180	180	240	240	310	310	390
180	200	70	130	130	200	200	260	260	340	340	430
200	225	80	140	140	220	220	290	290	380	380	470
225	250	90	150	150	240	240	320	320	420	420	520
250	280	100	170	170	260	260	350	350	460	460	570
280	315	110	190	190	280	280	370	370	500	500	630
315	355	120	200	200	310	310	410	410	550	550	690
355	400	130	220	220	340	340	450	450	600	600	750
400	450	140	240	240	370	370	500	500	660	660	820
450	500	140	260	260	410	410	550	550	720	720	900

Radial internal clearance of spherical roller bearings - Bearing with tapered bore

Unit μm

Nominal bore diameter d mm		Bearing with tapered bore									
		C2		CN		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max
14	18	—	—	—	—	—	—	—	—	—	—
18	24	15	25	25	35	35	45	45	60	60	75
24	30	20	30	30	40	40	55	55	75	75	95
30	40	25	35	35	50	50	65	65	85	85	105
40	50	30	45	45	60	60	80	80	100	100	130
50	65	40	55	55	75	75	95	95	120	120	160
65	80	50	70	70	95	95	120	120	150	150	200
80	100	55	80	80	110	110	140	140	180	180	230
100	120	65	100	100	135	135	170	170	220	220	280
120	140	80	120	120	160	160	200	200	260	260	330
140	160	90	130	130	180	180	230	230	300	300	380
160	180	100	140	140	200	200	260	260	340	340	430
180	200	110	160	160	220	220	290	290	370	370	470
200	225	120	180	180	250	250	320	320	410	410	520
225	250	140	200	200	270	270	350	350	450	450	570
250	280	150	220	220	300	300	390	390	490	490	620
280	315	170	240	240	330	330	430	430	540	540	680
315	355	190	270	270	360	360	470	470	590	590	740
355	400	210	300	300	400	400	520	520	650	650	820
400	450	230	330	330	440	440	570	570	720	720	910
450	500	260	370	370	490	490	630	630	790	790	1,000

Bearing Lubrication

Proper lubrication for rolling element bearings is critical for reliable bearing operation and prevention of premature damage and a reduction in fatigue life. The proper bearing lubricant must provide a separating film between the rolling elements, raceways, and cage to prevent metal-to-metal contact. The lubricant film must be thick enough under operating conditions to prevent contact of rolling element and raceway asperities.

If the asperities of rolling elements and races of an anti-friction bearing come into contact with each other, a certain amount of molecular adhesion or micro-welding or shearing of these asperities as a result of the relative motion between them can be expected. The result is an undesirable surface change of the rolling surfaces. Ideal lubrication requires that an oil film be continually present to prevent contact of the surface asperities and metal to metal contact.

In addition to preventing metal-to-metal contact, proper bearing lubricants help perform the following function:

- Reduce friction, heat generation, torque, and power consumption
- Provide a heat transfer medium
- Prevent corrosion
- Aid in providing proper sealing and preventing contamination

Bearing lubrication is broadly categorized as being either grease or oil lubrication. The decision to use grease or oil and what type of lubricant system to use, are dependent on the bearing type and application operating conditions.

Bearing greasing methods and amounts

There are two methods of providing bearing grease lubrication. One is the closed lubrication, in which grease is filed in advance into a shielded or sealed bearing; the other is the feeding method in which the bearing and housing are greased at assembly with the proper amount and designed to allow re-greasing and replacement at specified intervals. The dosed method using a pre-lubricated shielded or sealed bearing is well suited for applications where cost and space limitations preclude the use of grease filled housing or where relubrication is not possible or necessary. Conversely, the use of the feeding method has the advantage of allowing the replacement on periodic intervals in those applications where operating conditions require grease replacement.

For bearing applications utilizing the feeding method, there should be a grease fitting and a vent at opposite ends of the housing near the top. Also, a drain plug should be located near the bottom of the housing to allow purging of the old grease during relubrication. A bearing should be initially greased at assembly by packing it in on both sides and making sure the grease is between the rolling elements and cage. Regreasing should always occur while the bearing is in motion at the normal operating temperature.

Grease amount

The amount of grease needed to effectively lubricate a bearing is normally very small. In general, grease fill should be one-third to one-half of the space around the bearing; however, this may vary according to the housing design and application requirements. In applications with high speed and low torque requirements, the bearings can be lubricated with very small quantities of greases. Similarly, in low speed applications where the bearing may be exposed to dirt or moisture, the space around the bearing can be filled from two-thirds to nearly full to prevent contamination. If an excessive amount of grease is used when not required, additional heat will be generated from the churning, resulting in a softening and deterioration of the grease, and a reduction in bearing life. The grease weight required for a bearing can be calculated in grams.

Grease quantity = 0.05 x D x B gms.

Regreasing intervals and grease life

With grease lubricated bearings, periodic relubrication is normally required to ensure efficient operation. Over a period of time, most grease will eventually start to harden due to oxidation. The exception to this is in presealed bearings where relubrication is usually not required.

When regreasing bearings, it is necessary to be sure that the grease fitting is clean prior to injecting the grease. A hand operated grease gun should be used for relubrication, but the use of high pressure needs to be avoided. High pressure may blow out seals. When using a grease gun, it should be calibrated for the

proper amount of grease, and confirmed that the grease in the gun is the same as what was initially applied to the bearings.

The main considerations for determining a relubrication cycle are operating speed, bearing size, operating temperature, and sealing efficiency. Seals are very critical with grease lubrication because of the importance to keep the grease free from contamination. Contamination that reaches the grease is trapped and will cause bearing damage and wear problems.

As the chart below shows leading grease available in the market with their specifications

Manufacturer	Product	BaseOil/thickener	Working temperature range ˚C	0.1mm Worked Penetration ˚C	Dropping Point ˚C	Remark
Kyodo Yushi	Multemp SRL	Polyol ester+Diester/ Lithium hydroxy Stearate	-50~150	250	190	Low noise Long life, High temperature
	Multemp PS	Diester+Refined mineral oil Lithium Stearate	-60~130	NO.2	190	Low torque, Outstanding noise Suppressant property
	Multemp SB-M	Synthetic hydrocarban/Diurea	-40~200	220	>260	High temperature,High speed operation, low noise property
	Raremax Super N	Polyol ester+Diester/ Lithium hydroxy Stearate	-40~180	260	120	Low noise Long life, High temperature
Shell	Alvania RLQ 2	Mineral oil / Lithium	-25~120	266	195	Wide applications available
	Alvania RL2	Mineral oil/ Lithium	-30~120	310	185	Wide applications available
	Alvania RL3	Mineral oil/ Lithium	-30~120	220	185	Not good for transmission
	Alvania EP 2	Mineral oil/ Lithium	-20~110	265	185	Long service life under heavy load water, resistance, Corrosian resistance
Kluber	Asonic GL Y 32	PAO, Ester oil/ Lithium	-50~140	265~295	>190	Low noise Long life, High temperature
	Asonic Q 74-73	PAO,Ester oil / Polyrea	-40~160	220~250	>250	Low noise, Long life, High temperature
	Klueberquiet BQH72-102	Ester oil / Polyurea	-40~180	250~280	>250	Low noise, Long life, High temperature
	Klueberquiet BEP72-82	Ester oil / Polyurea	-40~180	250~280	>250	High temperature, Available for auto generator bearings
	Petamo GHY 133 N	Mineral oil, PAO/ Polyrea	-30~160	265~295	>250	High temperature, Available for auto generator bearings
	Lsoflex LDS 18 Special A	Ester oil, Mineral oil / Li	-50~120	265~295	>190	Avaiable for pump bearings, Motor and its accessory
Exxon Mobil	Beacon 325	Diester / Lithium	-54~120	280	193	High Speed, Low noise Corrosian resistance
	Polyrex EM	Mineral / Diurea	-29~177	318	288	Low temperature
	Mobilgrease 28	Diester/ Microgel	-62~177	310	>260	Water resistance, High temperature
Chevron	SRI-2	ISOSYN/ Polyurea	-30~150	280	243	Water resistance, Corrosian resistance High temperature
Dupont	Krytox 240	Fluoinated / PTFE	-34~288	285		High temperature

Vibration of single bearing

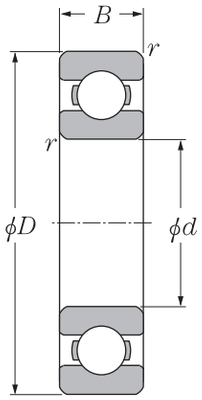
µm/s

Bore dia (mm)	V 0			V 1			V 2			V 3			V 4		
	LB	MB	HB	LB	MB	HB	LB	MB	HB	LB	MB	HB	LB	MB	HB
Miniature Ball Bearings															
3-4	80	44	44	60	35	32	48	26	22	31	16	15	28	10	10
5-6	110	72	60	74	48	40	58	36	30	35	21	18	32	11	11
7-9	130	96	80	92	66	54	72	48	40	44	28	24	38	12	12
Deep Groove Ball Bearings															
10-12	160	120	100	120	80	70	90	60	50	55	35	30	45	14	15
15-17	210	150	120	150	100	85	110	78	60	65	46	35	52	18	18
20-25	260	190	150	180	125	100	130	100	75	80	60	45	60	25	25
30-35	300	240	190	200	150	130	150	120	100	90	75	60	70	35	40
40-45	360	300	260	240	180	160	180	150	130	110	90	80	82	50	50
50-55	420	320	320	280	200	200	210	160	160	125	100	100	95	70	70
60	480	360	440	320	220	240	240	180	200	145	110	130	100	80	80

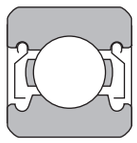
Maximum acceleration of single bearing

dB

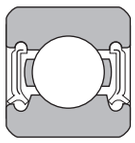
Bore dia (mm)	For dia series 0				For dia series 2					For dia series 3				
	Z	Z1	Z2	Z3	Z	Z1	Z2	Z3	Z4	Z	Z1	Z2	Z3	Z4
Miniature Ball Bearings														
3-4	35	34	32	28	36	35	32	30		37	36	33	31	
5-6	37	36	34	30	38	37	34	32		39	37	35	33	
7-8	39	38	35	31	40	38	36	34						
9	41	40	36	32	42	40	37	35						
Deep Groove Ball Bearings														
10	43	42	38	33	44	42	39	35	30	46	44	40	37	32
12	44	43	39	34	45	43	39	35	30	47	45	40	37	32
15	45	44	40	35	46	44	41	36	31	48	46	42	38	33
17	45	44	40	35	46	45	41	36	31	48	46	42	38	33
20	47	45	41	36	48	46	42	38	33	50	48	43	39	34
25	48	46	42	38	49	47	43	40	36	51	49	44	41	37
30	49	47	43	39	50	48	44	41	37	52	50	45	42	38
35	41	49	45	41	52	50	46	43	39	54	52	47	44	40
40	53	51	46	42	54	52	47	44	40	56	54	49	45	41
45	55	53	48	45	56	54	49	46	43	58	56	51	47	44
50	57	54	50	47	58	55	51	48	45	60	57	53	49	46
55	59	56	52	49	60	57	53	50	47	62	59	54	51	48
60	61	58	54	51	62	59	54	51	48	61	61	56	53	50
65	49	48	46		50	49	47	42		51	50	48	43	
70	50	49	47		51	50	48	43		52	51	49	44	
75	51	50	48		52	51	49	44		53	52	50	45	
80	52	51	49		53	52	50	45		54	53	51	46	
85	53	52	50		54	53	51	46		56	55	52	47	
90	54	53	52		56	55	53	48		58	57	54	49	
95	56	55	54		58	57	55	50		60	59	56	51	
100	58	57	56		60	59	57	52		62	61	58	53	
105	60	59	58		62	61	59	54		64	63	60	55	
110	62	61	60		64	63	61	56		66	65	62	57	
115-120	64	63	62		66	65	63	58		68	67	64	59	



Open type



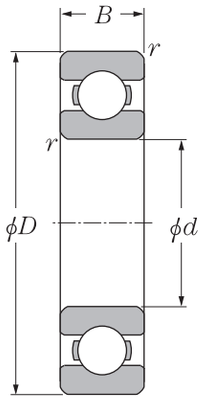
Shielded type (ZZ)



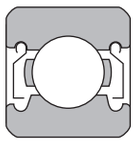
Contact sealed type (LLU)

d 4~7mm

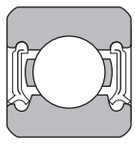
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers			Mass
				dynamic	static	dynamic	static	min^{-1}					kg
	mm			kN		kgf		grease	oil	open type	shielded type	sealed type	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}						
4	12	4.0	0.20	0.97	0.36	99	37	53000	63000	**604**			0.0021
	12	4.0	0.20	0.97	0.36	99	37	53000		**604**		**LLU**	0.0021
	12	4.0	0.20	0.97	0.36	99	37	53000		**604**	**ZZ**		0.0021
	13	5.0	0.20	1.30	0.49	133	49	40000	54000	**624**			0.0029
	13	5.0	0.20	1.30	0.49	133	49	40000		**624**		**LLU**	0.0029
	13	5.0	0.20	1.30	0.49	133	49	40000		**624**	**ZZ**		0.0029
5	11	3.0	0.15	0.97	0.36	99	37	53000	63000	**685**			0.0010
	11	5.0	0.15	0.97	0.36	99	37	53000		**685**		**LLU**	0.0010
	11	5.0	0.15	0.97	0.36	99	37	53000		**685**	**ZZ**		0.0010
	14	5.0	0.20	1.30	0.48	133	49	50000	60000	**605**			0.0035
	14	5.0	0.20	1.30	0.48	133	49	50000		**605**		**LLU**	0.0035
	14	5.0	0.20	1.30	0.48	133	49	50000		**605**	**ZZ**		0.0035
	16	5.0	0.30	1.75	0.67	179	68	40000	49000	**625**			0.0050
	16	5.0	0.30	1.75	0.67	179	68	40000		**625**		**LLU**	0.0050
	16	5.0	0.30	1.75	0.67	179	68	40000		**625**	**ZZ**		0.0050
6	13	3.50	0.15	1.10	0.44	112	45	48000	57000	**686**			0.0018
	13	5.0	0.15	1.10	0.44	112	45	48000		**686**		**LLU**	0.0018
	13	5.0	0.15	1.10	0.44	112	45	48000		**686**	**ZZ**		0.0018
	17	6.0	0.30	1.95	0.74	199	75	43000	51000	**606**			0.0058
	17	6.0	0.30	1.95	0.74	199	75	43000		**606**		**LLU**	0.0058
	17	6.0	0.30	1.95	0.74	199	75	43000		**606**	**ZZ**		0.0058
	19	6.0	0.30	2.60	1.05	265	107	35000	43000	**626**			0.0081
	19	6.0	0.30	2.60	1.05	265	107	35000		**626**		**LLU**	0.0081
	19	6.0	0.30	2.60	1.05	265	107	35000		**626**	**ZZ**		0.0081
7	14	3.5	0.15	1.15	0.51	117	52	45000	54000	**687**			0.0020
	14	5.0	0.15	1.15	0.51	117	52	45000		**687**		**LLU**	0.0020
	14	5.0	0.15	1.15	0.51	117	52	45000		**687**	**ZZ**		0.0020
	19	6.0	0.30	2.60	1.05	265	107	40000	47000	**607**			0.0076
	19	6.0	0.30	2.60	1.05	265	107	40000		**607**		**LLU**	0.0076
	19	6.0	0.30	2.60	1.05	265	107	40000		**607**	**ZZ**		0.0076
	22	7.0	0.30	3.30	1.35	337	138	31000	37000	**627**			0.0130
	22	7.0	0.30	3.30	1.35	337	138	31000		**627**		**LLU**	0.0130
	22	7.0	0.30	3.30	1.35	337	138	31000		**627**	**ZZ**		0.0130



Open type



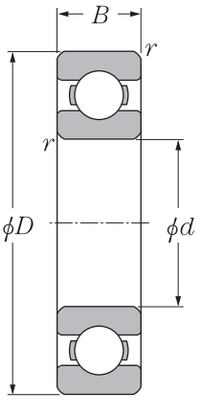
Shielded type (ZZ)



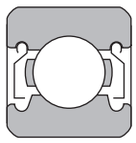
Contact sealed type (LLU)

d 8~9mm

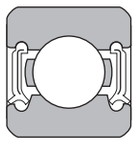
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers			Mass
				dynamic	static	dynamic	static	min^{-1}					kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}						
	16	4.00	0.20	1.60	0.71	163	72	42000	50000	**688**			0.0032
	16	5.0	0.20	1.60	0.71	163	72	42000		**688**		**LLU**	0.0032
	16	5.0	0.20	1.60	0.71	163	72	42000		**688**	**ZZ**		0.0032
	22	7.0	0.30	3.30	1.35	342	143	34000	41000	**608**			0.0120
8	22	7.0	0.30	3.30	1.35	342	143	34000		**608**		**LLU**	0.0120
	22	7.0	0.30	3.30	1.35	342	143	34000		**608**	**ZZ**		0.0120
	24	8.0	0.30	3.35	1.40	342	143	28000	35000	**628**			0.0180
	24	8.0	0.30	3.35	1.40	342	143	28000		**628**		**LLU**	0.0180
	24	8.0	0.30	3.35	1.40	342	143	28000		**628**	**ZZ**		0.0180
	17	4.0	0.20	1.35	0.66	138	67	39000	46000	**689**			0.0035
	17	5.0	0.20	1.35	0.66	138	67	39000		**689**	**ZZ**		0.0035
	17	5.0	0.20	1.35	0.66	138	67	39000		**689**		**LLU**	0.0035
	24	7.0	0.30	3.35	1.40	342	143	33000	40000	**609**			0.0150
9	24	7.0	0.30	3.35	1.40	342	143	33000		**609**		**LLU**	0.0150
	24	7.0	0.30	3.35	1.40	342	143	33000		**609**	**ZZ**		0.0150
	26	8.0	0.60	4.55	1.95	464	199	27000	33000	**629**			0.0200
	26	8.0	0.60	4.55	1.95	464	199	27000		**629**		**LLU**	0.0200
	26	8.0	0.60	4.55	1.95	464	199	27000		**629**	**ZZ**		0.0200



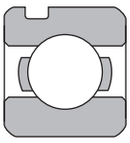
Open type



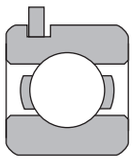
Shielded type (ZZ)



Contact sealed type (LLU)



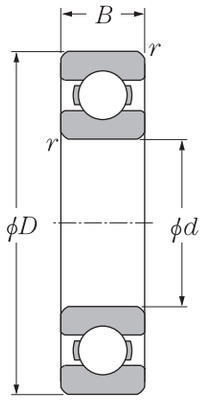
With snap ring groove



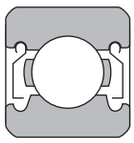
With snap ring

d 10~22mm

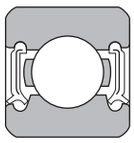
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers					Mass
				dynamic	static	dynamic	static	min^{-1}							kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	snap ring groove	snap ring	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
	19	5	0.3	1.830	0.925	187	94	32 000	38 000	**6800**	**ZZ**	**LLU**	—	—	0.005
	22	6	0.3	2.700	1.270	275	129	30 000	36 000	**6900**	**ZZ**	**LLU**	—	—	0.009
10	26	8	0.3	4.550	1.960	465	200	29 000	34 000	**6000**	**ZZ**	**LLU**	—	—	0.019
	30	9	0.6	5.100	2.390	520	244	25 000	30 000	**6200**	**ZZ**	**LLU**	—	—	0.032
	35	11	0.6	8.200	3.500	835	355	23 000	27 000	**6300**	**ZZ**	**LLU**	—	—	0.053
	21	5	0.3	1.920	1.040	195	106	29 000	35 000	**6801**	**ZZ**	**LLU**	—	—	0.006
	24	6	0.3	2.890	1.460	295	149	27 000	32 000	**6901**	**ZZ**	**LLU**	—	—	0.011
12	28	8	0.3	5.100	2.390	520	244	26 000	30 000	**6001**	**ZZ**	**LLU**	—	—	0.021
	32	10	0.6	6.100	2.750	620	280	22 000	26 000	**6201**	**ZZ**	**LLU**	—	**NR**	0.037
	37	12	1.0	9.700	4.200	990	425	20 000	24 000	**6301**	**ZZ**	**LLU**	—	—	0.060
	24	5	0.3	2.080	1.260	212	128	26 000	31 000	**6802**	**ZZ**	**LLU**	—	—	0.007
	28	7	0.3	3.650	2.000	375	204	24 000	28 000	**6902**	**ZZ**	**LLU**	—	—	0.016
15	32	9	0.3	5.600	2.830	570	289	22 000	26 000	**6002**	**ZZ**	**LLU**	—	—	0.030
	35	11	0.6	7.750	3.600	790	365	19 000	23 000	**6202**	**ZZ**	**LLU**	—	—	0.045
	42	13	1.0	11.400	5.450	1 170	555	17 000	21 000	**6302**	**ZZ**	**LLU**	—	—	0.082
	26	5	0.3	2.230	1.460	227	149	24 000	28 000	**6803**	**ZZ**	**LLU**	—	—	0.008
	30	7	0.3	4.650	2.580	475	263	22 000	26 000	**6903**	**ZZ**	**LLU**	—	—	0.018
	35	8	0.3	6.800	3.350	695	345	20 000	24 000	**16003**	**—**	**—**	—	—	0.032
17	35	10	0.3	6.800	3.350	695	345	20 000	24 000	**6003**	**ZZ**	**LLU**	—	—	0.039
	40	12	0.6	9.600	4.600	980	465	18 000	21 000	**6203**	**ZZ**	**LLU**	—	—	0.066
	47	14	1.0	13.500	6.550	1 380	665	16 000	19 000	**6303**	**ZZ**	**LLU**	—	—	0.115
	62	17	1.1	22.700	10.800	2 320	1 100	14 000	16 000	**6403**	**ZZ**	**LLU**	—	—	0.270
	32	7	0.3	4.000	2.470	410	252	21 000	25 000	**6804**	**ZZ**	**LLU**	—	—	0.019
	37	9	0.3	6.400	3.700	650	375	19 000	23 000	**6904**	**ZZ**	**LLU**	—	—	0.036
	42	8	0.3	7.900	4.500	810	455	18 000	21 000	**16004**			—	—	0.051
20	42	12	0.6	9.400	5.050	955	515	18 000	21 000	**6004**	**ZZ**	**LLU**	—	—	0.069
	47	14	1.0	12.800	6.650	1 310	680	16 000	18 000	**6204**	**ZZ**	**LLU**	—	**NR**	0.106
	52	15	1.1	15.900	7.900	1 620	805	14 000	17 000	**6304**	**ZZ**	**LLU**	**N**	**NR**	0.144
	72	19	1.1	28.500	13.900	2 900	1 420	12 000	14 000	**6404**	**—**	**—**	—	—	0.400
	44	12	0.6	9.400	5.050	955	515	17 000	20 000	**60/22**	**ZZ**	**LLU**	—	—	0.074
22	50	14	1.0	12.900	6.800	1 320	690	14 000	17 000	**62/22**	**ZZ**	**LLU**	—	—	0.117
	56	16	1.1	18.400	9.250	1 880	945	13 000	15 000	**63/22**	**ZZ**	**LLU**	—	—	0.176



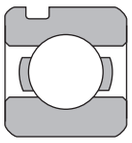
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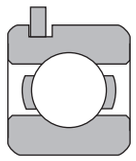
Shielded type (ZZ)



Contact sealed type (LLU)



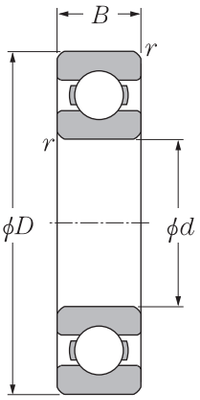
With snap ring groove



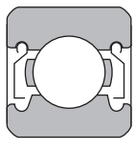
With snap ring

d 25~40mm

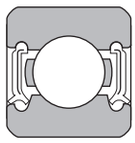
Boundary dimensions mm				Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers open type	shielded type	sealed type	snap ring groove	snap ring	Mass kg (approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
	37	7	0.3	4.300	2.950	435	300	18 000	21 000	**6805**	**ZZ**	**LLU**	—	—	0.022
	42	9	0.3	7.050	4.550	715	460	16 000	19 000	**6905**	**ZZ**	**LLU**	—	—	0.042
	47	8	0.3	8.350	5.100	855	520	15 000	18 000	**16005**	**—**	**—**	—	—	0.060
25	47	12	0.6	10.100	5.850	1 030	595	15 000	18 000	**6005**	**ZZ**	**LLU**	—	—	0.080
	52	15	1.0	14.000	7.850	1 430	800	13 000	15 000	**6205**	**ZZ**	**LLU**	—	**NR**	0.128
	62	17	1.1	21.200	10.900	2 160	1 110	12 000	14 000	**6305**	**ZZ**	**LLU**	—	**NR**	0.232
	80	21	1.5	34.500	17.500	3 550	1 780	10 000	12 000	**6405**	**ZZ**	**—**	—	—	0.530
	52	12	0.6	12.500	7.400	1 270	755	14 000	16 000	**60/28**	**ZZ**	**LLU**	—	—	0.098
28	58	16	1.0	17.900	9.750	1 830	995	12 000	14 000	**62/28**	**ZZ**	**LLU**	—	—	0.171
	68	18	1.1	26.700	14.000	2 730	1 430	11 000	13 000	**63/28**	**ZZ**	**LLU**	—	**NR**	0.284
	42	7	0.3	4.700	3.650	480	370	15 000	18 000	**6806**	**ZZ**	**LLU**	—	—	0.026
	47	9	0.3	7.250	5.000	740	510	14 000	17 000	**6906**	**ZZ**	**LLU**	—	—	0.048
	55	9	0.3	11.200	7.350	1 150	750	13 000	15 000	**16006**	**—**	**—**	—	—	0.091
30	55	13	1.0	13.200	8.300	1 350	845	13 000	15 000	**6006**	**ZZ**	**LLU**	—	—	0.116
	62	16	1.0	19.500	11.300	1 980	1 150	11 000	13 000	**6206**	**ZZ**	**LLU**	—	**NR**	0.199
	72	19	1.1	26.700	15.000	2 720	1 530	10 000	12 000	**6306**	**ZZ**	**LLU**	**N**	**NR**	0.360
	90	23	1.5	43.500	23.900	4 400	2 440	8 800	10 000	**6406**	**—**	**—**	—	—	0.735
	58	13	1.0	11.800	8.050	1 200	820	12 000	15 000	**60/32**	**ZZ**	**LLU**	—	—	0.129
32	65	17	1.0	20.700	11.600	2 110	1 190	11 000	12 000	**62/32**	**ZZ**	**LLU**	—	—	0.226
	75	20	1.1	29.800	16.900	3 050	1 730	9 500	11 000	**63/32**	**ZZ**	**LLU**	—	**NR**	0.382
	47	7	0.3	4.900	4.050	500	410	13 000	16 000	**6807**	**ZZ**	**LLU**	—	—	0.029
	55	10	0.6	9.550	6.850	975	695	12 000	15 000	**6907**	**ZZ**	**LLU**	—	—	0.074
	62	9	0.3	11.700	8.200	1 190	835	12 000	14 000	**16007**	**—**	**—**	—	—	0.110
35	62	14	1.0	16.000	10.300	1 630	1 050	12 000	14 000	**6007**	**ZZ**	**LLU**	—	—	0.155
	72	17	1.1	25.700	15.300	2 620	1 560	9 800	11 000	**6207**	**ZZ**	**LLU**	—	**NR**	0.288
	80	21	1.5	33.500	19.100	3 400	1 950	8 800	10 000	**6307**	**ZZ**	**LLU**	—	**NR**	0.457
	100	25	1.5	55.000	31.000	5 600	3 150	7 800	9 100	**6407**	**—**	**—**	—	—	0.952
	52	7	0.3	5.100	4.400	520	445	12 000	14 000	**6808**	**ZZ**	**LLU**	—	—	0.033
	62	12	0.6	12.200	8.900	1 240	910	11 000	13 000	**6908**	**ZZ**	**LLU**	—	—	0.110
	68	9	0.3	12.600	9.650	1 290	985	10 000	12 000	**16008**	**—**	**—**	—	—	0.125
40	68	15	1.0	16.800	11.500	1 710	1 170	10 000	12 000	**6008**	**ZZ**	**LLU**	—	—	0.190
	80	18	1.1	29.100	17.800	2 970	1 820	8 700	10 000	**6208**	**ZZ**	**LLU**	—	**NR**	0.366
	90	23	1.5	40.500	24.000	4 150	2 450	7 800	9 200	**6308**	**ZZ**	**LLU**	—	**NR**	0.630
	110	27	2.0	63.500	36.500	6 500	3 750	7 000	8 200	**6408**	**—**	**—**	—	—	1.230



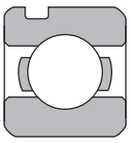
Open type



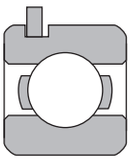
Shielded type (ZZ)



Contact sealed type (LLU)



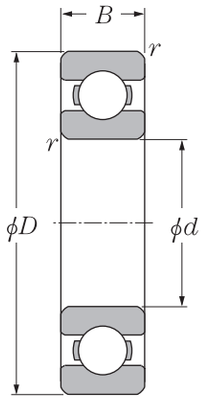
With snap ring groove



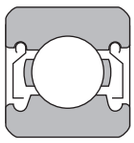
With snap ring

d 45~65mm

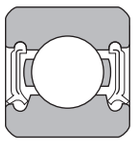
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers					Mass
				dynamic	static	dynamic	static	min^{-1}							kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	snap ring groove	snap ring	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
	58	7	0.3	5.350	4.950	550	500	11 000	12 000	**6809**	**ZZ**	**LLU**	—	—	0.040
	68	12	0.6	13.100	10.400	1 330	1 060	9 800	12 000	**6909**	**ZZ**	**LLU**	—	—	0.128
	75	10	0.6	12.900	10.500	1 320	1 070	9 200	11 000	**16009**	**—**	**—**	—	—	0.171
45	75	16	1.0	21.000	15.100	2 140	1 540	9 200	11 000	**6009**	**ZZ**	**LLU**	—	—	0.237
	85	19	1.1	32.500	20.400	3 350	2 080	7 800	9 200	**6209**	**ZZ**	**LLU**	—	—	0.398
	100	25	1.5	53.000	32.000	5 400	3 250	7 000	8 200	**6309**	**ZZ**	**LLU**	—	**NR**	0.814
	120	29	2.0	77.000	45.000	7 850	4 600	6 300	7 400	**6409**	**ZZ**	**—**	—	—	1.530
	65	7	0.3	6.600	6.100	670	620	9 600	11 000	**6810**	**ZZ**	**LLU**	—	—	0.052
	72	12	0.6	13.400	11.200	1 370	1 140	8 900	11 000	**6910**	**ZZ**	**LLU**	—	—	0.132
	80	10	0.6	13.200	11.300	1 350	1 150	8 400	9 800	**16010**	**—**	**—**	—	—	0.180
50	80	16	1.0	21.800	16.600	2 230	1 690	8 400	9 800	**6010**	**ZZ**	**LLU**	—	—	0.261
	90	20	1.1	35.000	23.200	3 600	2 370	7 100	8 300	**6210**	**ZZ**	**LLU**	**N**	**NR**	0.454
	110	27	2.0	62.000	38.500	6 300	3 900	6 400	7 500	**6310**	**ZZ**	**LLU**	**N**	**NR**	1.070
	130	31	2.1	83.000	49.500	8 450	5 050	5 700	6 700	**6410**	**—**	**—**	—	**NR**	1.880
	72	9	0.3	8.800	8.100	900	825	8 700	10 000	**6811**	**ZZ**	**LLU**	—	—	0.083
	80	13	1.0	16.000	13.300	1 630	1 350	8 200	9 600	**6911**	**ZZ**	**LLU**	—	—	0.180
	90	11	0.6	18.600	15.300	1 900	1 560	7 700	9 000	**16011**	**—**	**—**	—	—	0.258
55	90	18	1.1	28.300	21.200	2 880	2 170	7 700	9 000	**6011**	**ZZ**	**LLU**	—	—	0.388
	100	21	1.5	43.500	29.200	4 450	2 980	6 400	7 600	**6211**	**ZZ**	**LLU**	—	**NR**	0.601
	120	29	2.0	71.500	45.000	7 300	4 600	5 800	6 800	**6311**	**ZZ**	**LLU**	—	**NR**	1.370
	140	33	2.1	89.000	54.000	9 050	5 500	5 200	6 100	**6411**	**—**	**—**	**N**	—	2.290
	78	10	0.3	11.500	10.600	1 170	1 080	8 000	9 400	**6812**	**ZZ**	**LLU**	—	—	0.106
	85	13	1.0	16.400	14.300	1 670	1 450	7 600	8 900	**6912**	**ZZ**	**LLU**	—	—	0.193
	95	11	0.6	20.000	17.500	2 040	1 780	7 000	8 300	**16012**	**—**	**—**	—	—	0.283
60	95	18	1.1	29.500	23.200	3 000	2 370	7 000	8 300	**6012**	**ZZ**	**LLU**	—	—	0.414
	110	22	1.5	52.500	36.000	5 350	3 700	6 000	7 000	**6212**	**ZZ**	**LLU**	—	**NR**	0.783
	130	31	2.1	82.000	52.000	8 350	5 300	5 400	6 300	**6312**	**ZZ**	**LLU**	—	**NR**	1.730
	150	35	2.1	102.000	64.500	10 400	6 550	4 800	5 700	**6412**	**—**	**—**	**N**	**NR**	2.770
	85	10	0.6	11.600	11.000	1 180	1 120	7 400	8 700	**6813**	**ZZ**	**LLU**	—	—	0.128
	90	13	1.0	17.400	16.100	1 770	1 640	7 000	8 200	**6913**	**ZZ**	**LLU**	—	—	0.206
	100	11	0.6	20.500	18.700	2 090	1 910	6 500	7 700	**16013**	**—**	**—**	—	—	0.307
65	100	18	1.1	30.500	25.200	3 100	2 570	6 500	7 700	**6013**	**ZZ**	**LLU**	—	—	0.421
	120	23	1.5	57.500	40.000	5 850	4 100	5 500	6 500	**6213**	**ZZ**	**LLU**	—	—	0.990
	140	33	2.1	92.500	60.000	9 450	6 100	4 900	5 800	**6313**	**ZZ**	**LLU**	—	—	2.080
	160	37	2.1	111.000	72.500	11 300	7 400	4 400	5 200	**6413**	**—**	**—**	—	—	3.300



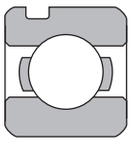
Open type



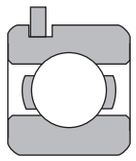
Shielded type (ZZ)



Contact sealed type (LLU)



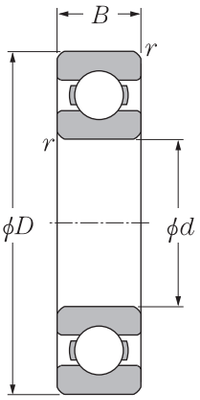
With snap ring groove



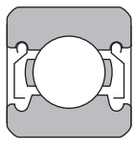
With snap ring

d 70~90mm

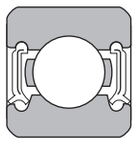
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers					Mass
				dynamic	static	dynamic	static	min^{-1}							kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	snap ring groove	snap ring	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
	90	10	0.6	12.100	11.900	1 230	1 220	6 900	8 100	**6814**	**ZZ**	**LLU**	—	—	0.137
	100	16	1.0	23.700	21.200	2 420	2 160	6 500	7 700	**6914**	**ZZ**	**LLU**	—	—	0.334
	110	13	0.6	24.400	22.600	2 480	2 300	6 100	7 100	**16014**	**—**	**—**	—	—	0.441
70	110	20	1.1	38.000	31.000	3 900	3 150	6 100	7 100	**6014**	**ZZ**	**LLU**	—	—	0.604
	125	24	1.5	62.000	44.000	6 350	4 500	5 100	6 000	**6214**	**ZZ**	**LLU**	—	—	1.070
	150	35	2.1	104.000	68.000	10 600	6 950	4 600	5 400	**6314**	**ZZ**	**LLU**	—	**NR**	2.520
	180	42	3.0	128.000	89.500	13 100	9 100	4 100	4 800	**6414**	**—**	**—**	—	—	4.830
	95	10	0.6	12.500	12.900	1 280	1 310	6 400	7 600	**6815**	**ZZ**	**LLU**	—	—	0.145
	105	16	1.0	24.400	22.600	2 480	2 300	6 100	7 200	**6915**	**ZZ**	**LLU**	—	—	0.353
	115	13	0.6	25.000	24.000	2 540	2 450	5 700	6 700	**16015**	**—**	**—**	—	—	0.464
75	115	20	1.1	39.500	33.500	4 050	3 400	5 700	6 700	**6015**	**ZZ**	**LLU**	—	—	0.649
	130	25	1.5	66.000	49.500	6 750	5 050	4 800	5 600	**6215**	**ZZ**	**LLU**	—	—	1.180
	160	37	2.1	113.000	77.000	11 600	7 850	4 300	5 000	**6315**	**ZZ**	**LLU**	—	—	3.020
	190	45	3.0	138.000	99.000	14 000	10 100	3 800	4 500	**6415**	**—**	**—**	—	—	5.720
	100	10	0.6	12.700	13.300	1 290	1 360	6 000	7 100	**6816**	**ZZ**	**LLU**	—	—	0.154
	110	16	1.0	24.900	24.000	2 540	2 450	5 700	6 700	**6916**	**ZZ**	**LLU**	—	—	0.373
	125	14	0.6	25.400	25.100	2 590	2 560	5 300	6 200	**16016**	**—**	**—**	—	—	0.597
80	125	22	1.1	47.500	40.000	4 850	4 050	5 300	6 200	**6016**	**ZZ**	**LLU**	—	—	0.854
	140	26	2.0	72.500	53.000	7 400	5 400	4 500	5 300	**6216**	**ZZ**	**LLU**	—	—	1.400
	170	39	2.1	123.000	86.500	12 500	8 850	4 000	4 700	**6316**	**ZZ**	**LLU**	—	—	3.590
	200	48	3.0	164.000	125.000	16 700	12 800	3 600	4 200	**6416**	**—**	**—**	—	—	6.760
	110	13	1.0	18.700	19.000	1 910	1 940	5 700	6 700	**6817**	**ZZ**	**LLU**	—	—	0.270
	120	18	1.1	32.000	29.600	3 250	3 000	5 400	6 300	**6917**	**ZZ**	**LLU**	—	—	0.536
85	130	14	0.6	25.900	26.200	2 640	2 670	5 000	5 900	**16017**	**—**	**—**	—	—	0.626
	130	22	1.1	49.500	43.000	5 050	4 400	5 000	5 900	**6017**	**ZZ**	**LLU**	—	—	0.890
	150	28	2.0	83.500	64.000	8 500	6 500	4 200	5 000	**6217**	**ZZ**	**LLU**	—	—	1.790
	180	41	3.0	133.000	97.000	13 500	9 850	3 800	4 500	**6317**	**ZZ**	**LLU**	—	—	4.230
	115	13	1.0	19.000	19.700	1 940	2 010	5 400	6 300	**6818**	**ZZ**	**LLU**	—	—	0.285
	125	18	1.1	33.000	31.500	3 350	3 200	5 100	6 000	**6918**	**ZZ**	**LLU**	—	—	0.554
90	140	16	1.0	33.500	33.500	3 400	3 400	4 700	5 600	**16018**	**—**	**—**	—	—	0.848
	140	24	1.5	58.000	49.500	5 950	5 050	4 700	5 600	**6018**	**ZZ**	**LLU**	—	—	1.020
	160	30	2.0	96.000	71.500	9 800	7 300	4 000	4 700	**6218**	**ZZ**	**LLU**	—	—	2.150
	190	43	3.0	143.000	107.000	14 500	10 900	3 600	4 200	**6318**	**ZZ**	**LLU**	—	—	4.910



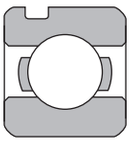
Open type



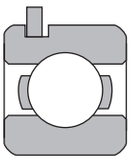
Shielded type (ZZ)



Contact sealed type (LLU)



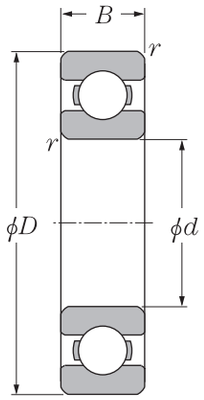
With snap ring groove



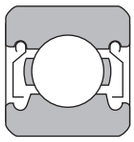
With snap ring

d 95~130mm

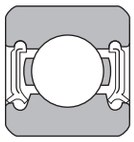
Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers					Mass
				dynamic	static	dynamic	static	min^{-1}							kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	snap ring groove	snap ring	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
95	120	13	1.0	19.300	20.500	1 970	2 090	5 000	5 900	**6819**	**ZZ**	**LLU**	—	—	0.300
	130	18	1.1	33.500	33.500	3 450	3 400	4 800	5 700	**6919**	**ZZ**	**LLU**	—	—	0.579
	145	16	1.0	34.500	35.000	3 500	3 550	4 500	5 300	**16019**	**—**	**—**	—	—	0.885
	145	24	1.5	60.500	54.000	6 150	5 500	4 500	5 300	**6019**	**ZZ**	**LLU**	—	—	1.080
	170	32	2.1	109.000	82.000	11 100	8 350	3 700	4 400	**6219**	**ZZ**	**LLU**	—	—	2.620
	200	45	3.0	153.000	119.000	15 600	12 100	3 300	3 900	**6319**	**ZZ**	**—**	—	—	5.670
100	125	13	1.0	19.600	21.200	2 000	2 160	4 800	5 600	**6820**	**ZZ**	**LLU**	—	—	0.313
	140	20	1.1	41.000	39.500	4 200	4 050	4 500	5 300	**6920**	**ZZ**	**LLU**	—	—	0.785
	150	16	1.0	35.000	36.500	3 600	3 750	4 200	5 000	**16020**	**—**	**—**	—	—	0.910
	150	24	1.5	60.000	54.000	6 150	5 500	4 200	5 000	**6020**	**ZZ**	**LLU**	—	—	1.150
	180	34	2.1	122.000	93.000	12 500	9 450	3 500	4 200	**6220**	**ZZ**	**LLU**	—	—	3.140
	215	47	3.0	173.000	141.000	17 600	14 400	3 200	3 700	**6320**	**ZZ**	**—**	—	—	7.000
105	130	13	1.0	19.800	22.000	2 020	2 240	4 600	5 400	**6821**	**—**	**—**	—	—	0.330
	145	20	1.1	42.500	42.000	4 300	4 300	4 300	5 100	**6921**	**ZZ**	**LLU**	—	—	0.816
	160	18	1.0	52.000	50.500	5 300	5 150	4 000	4 700	**16021**	**—**	**—**	—	—	1.200
	160	26	2.0	72.500	65.500	7 400	6 700	4 000	4 700	**6021**	**ZZ**	**LLU**	—	—	1.590
	190	36	2.1	133.000	105.000	13 600	10 700	3 400	4 000	**6221**	**ZZ**	**—**	—	—	3.700
	225	49	3.0	184.000	153.000	18 700	15 700	3 000	3 600	**6321**	**ZZ**	**—**	—	—	8.050
110	140	16	1.0	24.900	28.200	2 540	2 880	4 300	5 100	**6822**	**—**	**—**	—	—	0.515
	150	20	1.1	43.500	44.500	4 450	4 550	4 100	4 800	**6922**	**ZZ**	**LLU**	—	—	0.849
	170	19	1.0	57.500	56.500	5 850	5 800	3 800	4 500	**16022**	**—**	**—**	—	—	1.460
	170	28	2.0	82.000	73.000	8 350	7 450	3 800	4 500	**6022**	**ZZ**	**LLU**	—	—	1.960
	200	38	2.1	144.000	117.000	14 700	11 900	3 200	3 800	**6222**	**ZZ**	**—**	—	—	4.360
	240	50	3.0	205.000	179.000	20 900	18 300	2 900	3 400	**6322**	**ZZ**	**—**	—	—	9.540
120	150	16	1.0	28.900	33.000	2 950	3 350	4 000	4 700	**6824**	**—**	**—**	—	—	0.555
	165	22	1.1	53.000	54.000	5 400	5 500	3 800	4 400	**6924**	**—**	**—**	—	—	1.150
	180	19	1.0	63.000	63.500	6 450	6 450	3 500	4 100	**16024**	**—**	**—**	—	—	1.560
	180	28	2.0	85.000	79.500	8 650	8 100	3 500	4 100	**6024**	**ZZ**	**LLU**	—	—	2.070
	215	40	2.1	155.000	131.000	15 900	13 400	2 900	3 400	**6224**	**ZZ**	**LLU**	—	—	5.150
	260	55	3.0	207.000	185.000	21 100	18 800	2 600	3 100	**6324**	**—**	**—**	—	—	12.400
130	165	18	1.1	37.000	41.000	3 750	4 200	3 700	4 300	**6826**	**—**	**—**	—	—	0.800
	180	24	1.5	65.000	67.500	6 650	6 850	3 500	4 100	**6926**	**—**	**—**	—	—	1.520
	200	22	1.1	80.000	79.500	8 150	8 100	3 200	3 800	**16026**	**—**	**—**	—	—	2.310



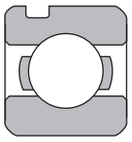
Open type



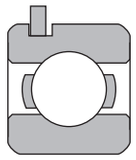
Shielded type (ZZ)



Contact sealed type (LLU)



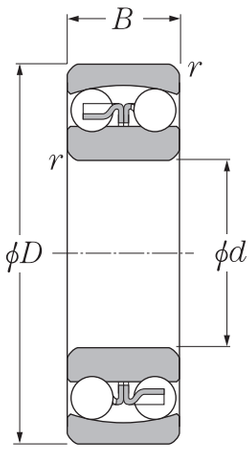
With snap ring groove



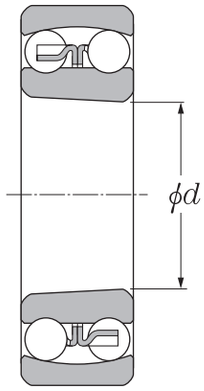
With snap ring

d 130~150mm

Boundary dimensions				Basic load ratings				Limiting speeds		Bearing numbers					Mass
				dynamic	static	dynamic	static	min^{-1}							kg
mm				kN		kgf		grease	oil	open type	shielded type	sealed type	snap ring groove	snap ring	(approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}								
130	200	33	2.0	106.000	101.000	10 800	10 300	3 200	3 800	**6026**	**ZZ**	**LLU**	—	—	3.160
	230	40	3.0	167.000	146.000	17 000	14 900	2 700	3 100	**6226**	**—**	**—**	—	—	5.820
	280	58	4.0	229.000	214.000	23 400	21 800	2 400	2 800	**6326**	**—**	**—**	—	—	15.300
140	175	18	1.1	38.500	44.500	3 900	4 550	3 400	4 000	**6828**	**—**	**—**	—	—	0.850
	190	24	1.5	66.500	71.500	6 800	7 300	3 200	3 800	**6928**	**—**	**—**	—	—	1.620
	210	22	1.1	82.000	85.000	8 350	8 650	3 000	3 500	**16028**	**—**	**—**	—	—	2.450
	210	33	2.0	110.000	109.000	11 200	11 100	3 000	3 500	**6028**	**ZZ**	**LLU**	—	—	3.350
	250	42	3.0	166.000	150.000	17 000	15 300	2 500	2 900	**6228**	**—**	**—**	—	—	7.570
	300	62	4.0	253.000	246.000	25 800	25 100	2 200	2 600	**6328**	**—**	**—**	—	—	18.500
150	190	20	1.1	47.500	55.000	4 850	5 600	3 100	3 700	**6830**	**—**	**—**	—	—	1.160
	210	28	2.0	85.000	90.500	8 650	9 200	3 000	3 500	**6930**	**—**	**—**	—	—	2.470
	225	24	1.1	96.500	101.000	9 850	10 300	2 800	3 200	**16030**	**—**	**—**	—	—	3.070
	225	35	2.1	126.000	126.000	12 800	12 800	2 800	3 200	**6030**	**ZZ**	**LLU**	—	—	4.080
	270	45	3.0	176.000	168.000	18 000	17 100	2 300	2 700	**6230**	**—**	**—**	—	—	9.410
	320	65	4.0	274.000	284.000	28 000	28 900	2 100	2 400	**6330**	**—**	**—**	—	—	22.000



Cylindrical bore

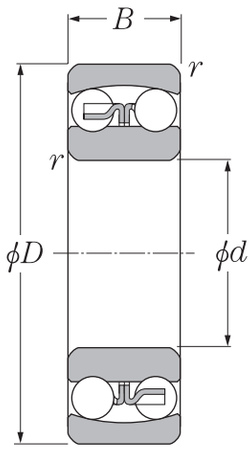


Tapered bore

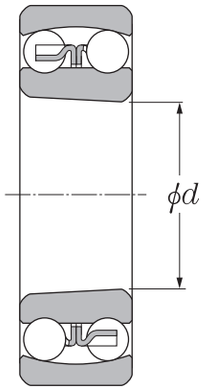
d 10~35mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers		Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil	cylindrical bore	tapered bore	(approx.)
10	30	9	0.6	5.55	1.19	570	121	22 000	28 000	**1200**	—	0.033
	30	14	0.6	7.45	1.59	760	162	24 000	28 000	**2200**	—	0.042
	35	11	0.6	7.35	1.62	750	165	20 000	24 000	**1300**	—	0.057
	35	17	0.6	9.20	2.01	935	205	18 000	22 000	**2300**	—	0.077
12	32	10	0.6	5.70	1.27	580	130	22 000	26 000	**1201**	—	0.039
	32	14	0.6	7.75	1.73	790	177	22 000	26 000	**2201**	—	0.048
	37	12	1.0	9.65	2.16	985	221	18 000	22 000	**1301**	—	0.066
	37	17	1.0	12.10	2.73	1 240	278	17 000	22 000	**2301**	—	0.082
15	35	11	0.6	7.60	1.75	775	179	18 000	22 000	**1202**	—	0.051
	35	14	0.6	7.80	1.85	795	188	18 000	22 000	**2202**	—	0.055
	42	13	1.0	9.70	2.29	990	234	16 000	20 000	**1302**	—	0.093
	42	17	1.0	12.30	2.91	1 250	296	14 000	18 000	**2302**	—	0.108
17	40	12	0.6	8.00	2.01	815	205	16 000	20 000	**1203**	—	0.072
	40	16	0.6	9.95	2.42	1 010	247	16 000	20 000	**2203**	—	0.085
	47	14	1.0	12.70	3.20	1 300	325	14 000	17 000	**1303**	—	0.130
	47	19	1.0	14.70	3.55	1 500	365	13 000	16 000	**2303**	—	0.150
20	47	14	1.0	10.0	2.61	1 020	266	14 000	17 000	**1204**	**1204K**	0.120
	47	18	1.0	12.8	3.30	1 310	340	14 000	17 000	**2204**	**2204K**	0.133
	52	15	1.1	12.6	3.35	1 280	340	12 000	15 000	**1304**	**1304K**	0.150
	52	21	1.1	18.5	4.70	1 880	480	11 000	14 000	**2304**	**2304K**	0.193
25	52	15	1.0	12.2	3.30	1 250	335	12 000	14 000	**1205**	**1205K**	0.140
	52	18	1.0	12.4	3.45	1 270	350	12 000	14 000	**2205**	**2205K**	0.150
	62	17	1.1	18.2	5.00	1 850	510	10 000	13 000	**1305**	**1305K**	0.255
	62	24	1.1	24.9	6.60	2 530	675	9 500	12 000	**2305**	**2305K**	0.319
30	62	16	1.0	15.8	4.65	1 610	475	10 000	12 000	**1206**	**1206K**	0.220
	62	20	1.0	15.3	4.55	1 560	460	10 000	12 000	**2206**	**2206K**	0.249
	72	19	1.1	21.4	6.30	2 190	645	8 500	11 000	**1306**	**1306K**	0.385
	72	27	1.1	32.0	8.75	3 250	895	8 000	10 000	**2306**	**2306K**	0.480
35	72	17	1.1	15.9	5.10	1 620	520	8 500	10 000	**1207**	**1207K**	0.320
	72	23	1.1	21.7	6.60	2 210	675	8 500	10 000	**2207**	**2207K**	0.378

K-Indicates bearings with tapered bore with ratio 1:12



Cylindrical bore

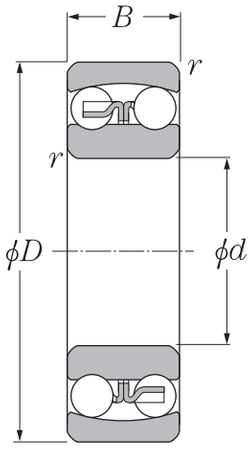


Tapered bore

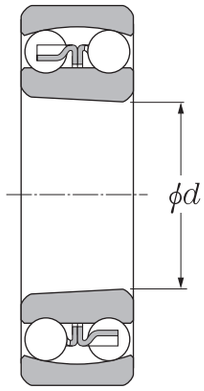
d 35~70mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers		Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil	cylindrical bore	tapered bore	(approx.)
35	80	21	1.5	25.3	7.85	2 580	800	7 500	9 500	**1307**	**1307K**	0.510
	80	31	1.5	40.0	11.30	4 100	1 150	7 100	9 000	**2307**	**2307K**	0.642
40	80	18	1.1	19.3	6.50	1 970	665	7 500	9 000	**1208**	**1208K**	0.415
	80	23	1.1	22.4	7.35	2 290	750	7 500	9 000	**2208**	**2208K**	0.477
	90	23	1.5	29.8	9.70	3 050	990	6 700	8 500	**1308**	**1308K**	0.715
	90	33	1.5	45.5	13.50	4 650	1 380	6 300	8 000	**2308**	**2308K**	0.889
45	85	19	1.1	22.0	7.35	2 240	750	7 100	8 500	**1209**	**1209K**	0.465
	85	23	1.1	23.3	8.15	2 380	830	7 100	8 500	**2209**	**2209K**	0.522
	100	25	1.5	38.5	12.70	3 900	1 300	6 000	7 500	**1309**	**1309K**	0.955
	100	36	1.5	55.0	16.70	5 600	1 700	5 600	7 100	**2309**	**2309K**	1.200
50	90	20	1.1	22.8	8.10	2 330	830	6 300	8 000	**1210**	**1210K**	0.525
	90	23	1.1	23.3	8.45	2 380	865	6 300	8 000	**2210**	**2210K**	0.564
	110	27	2.0	43.5	14.10	4 450	1 440	5 600	6 700	**1310**	**1310K**	1.250
	110	40	2.0	65.0	20.20	6 650	2 060	5 000	6 300	**2310**	**2310K**	1.580
55	100	21	1.5	26.9	10.00	2 750	1 020	6 000	7 100	**1211**	**1211K**	0.705
	100	25	1.5	26.7	9.90	2 720	1 010	6 000	7 100	**2211**	**2211K**	0.746
	120	29	2.0	51.5	17.90	5 250	1 820	5 000	6 300	**1311**	**1311K**	1.600
	120	43	2.0	76.5	24.00	7 800	2 450	4 800	6 000	**2311**	**2311K**	2.030
60	110	22	1.5	30.5	11.50	3 100	1 180	5 300	6 300	**1212**	**1212K**	0.900
	110	28	1.5	34.0	12.60	3 500	1 290	5 300	6 300	**2212**	**2212K**	1.030
	130	31	2.1	57.5	20.80	5 900	2 130	4 500	5 600	**1312**	**1312K**	2.030
	130	46	2.1	88.5	28.30	9 000	2 880	4 300	5 300	**2312**	**2312K**	2.570
65	120	23	1.5	31.0	12.50	3 150	1 280	4 800	6 000	**1213**	**1213K**	1.150
	120	31	1.5	43.5	16.40	4 450	1 670	4 800	6 000	**2213**	**2213K**	1.400
	140	33	2.1	62.5	22.90	6 350	2 330	4 300	5 300	**1313**	**1313K**	2.540
	140	48	2.1	97.0	32.50	9 900	3 300	3 800	4 800	**2313**	**2313K**	3.200
70	125	24	1.5	35.0	13.80	3 550	1 410	4 800	5 600	**1214**	**1214K**	1.300
	125	31	1.5	44.0	17.10	4 500	1 740	4 500	5 600	**2214**	**2214K**	1.520
	150	35	2.1	75.0	27.70	7 650	2 830	4 000	5 000	**1314**	**1314K**	3.190
	150	51	2.1	111.0	37.50	11 300	3 850	3 600	4 500	**2314**	**2314K**	3.900

K-Indicates bearings with tapered bore with ratio 1:12



Cylindrical bore

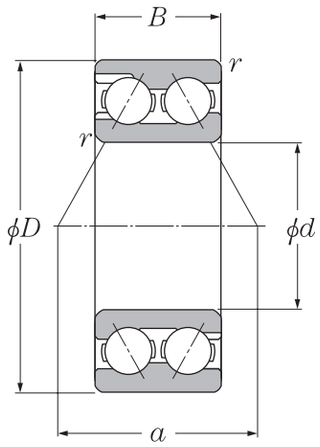


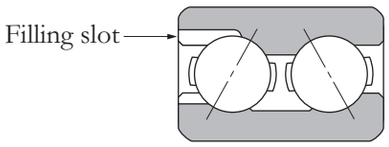
Tapered bore

d 75~100mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers		Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil	cylindrical bore	tapered bore	(approx.)
75	130	25	1.5	39.0	15.7	4 000	1 600	4 300	5 300	**1215**	**1215K**	1.410
	130	31	1.5	44.5	17.8	4 550	1 820	4 300	5 300	**2215**	**2215K**	1.600
	160	37	2.1	80.0	30.0	8 150	3 050	3 800	4 500	**1315**	**1315K**	3.650
	160	55	2.1	125.0	43.0	12 700	4 400	3 400	4 300	**2315**	**2315K**	4.770
80	140	26	2.0	40.0	17.0	4 100	1 730	4 000	5 000	**1216**	**1216K**	1.730
	140	33	2.0	49.0	19.9	5 000	2 030	4 000	5 000	**2216**	**2216K**	1.970
	170	39	2.1	89.0	33.0	9 100	3 400	3 600	4 300	**1316**	**1316K**	4.310
	170	58	2.1	130.0	45.0	13 200	4 600	3 200	4 000	**2316**	**2316K**	5.540
85	150	28	2.0	49.5	20.8	5 050	2 120	3 800	4 500	**1217**	**1217K**	2.090
	150	36	2.0	58.5	23.6	5 950	2 400	3 800	4 800	**2217**	**2217K**	2.480
	180	41	3.0	98.5	38.0	10 000	3 850	3 400	4 000	**1317**	**1317K**	5.130
	180	60	3.0	142.0	51.5	14 500	5 250	3 000	3 800	**2317**	**2317K**	6.560
90	160	30	2.0	57.5	23.5	5 850	2 400	3 600	4 300	**1218**	**1218K**	2.550
	160	40	2.0	70.5	28.7	7 200	2 930	3 600	4 300	**2218**	**2218K**	3.130
	190	43	3.0	117.0	44.5	12 000	4 550	3 200	3 800	**1318**	**1318K**	5.940
	190	64	3.0	154.0	57.5	15 700	5 850	2 800	3 600	**2318**	**2318K**	7.760
95	170	32	2.1	64.0	27.1	6 550	2 770	3 400	4 000	**1219**	**1219K**	3.210
	170	43	2.1	84.0	34.5	8 550	3 500	3 400	4 000	**2219**	**2219K**	3.870
	200	45	3.0	129.0	51.0	13 200	5 200	3 000	3 600	**1319**	**1319K**	6.840
	200	67	3.0	161.0	64.5	16 400	6 550	2 800	3 400	**2319**	**2319K**	9.010
100	180	34	2.1	69.5	29.7	7 100	3 050	3 200	3 800	**1220**	**1220K**	3.820
	180	46	2.1	94.5	38.5	9 650	3 900	3 200	3 800	**2220**	**2220K**	4.530
	215	47	3.0	140.0	57.5	14 300	5 850	2 800	3 400	**1320**	**1320K**	8.460
	215	73	3.0	187.0	79.0	19 100	8 050	2 400	3 200	**2320**	**2320K**	11.600

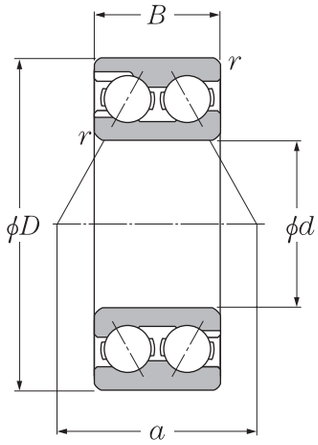
K-Indicates bearings with tapered bore with ratio 1:12

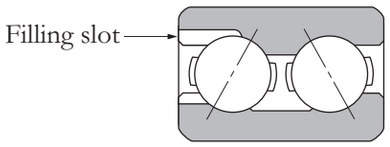




d 10~60mm

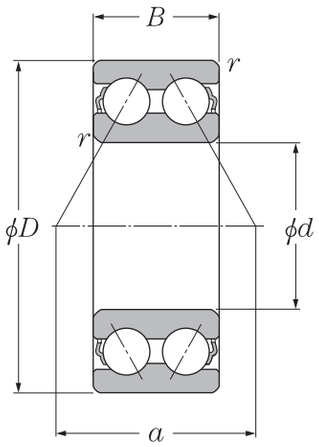
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1} grease		Bearing numbers	Mass kg
d	D	B	$r_{s\,min}$	C_r	C_{or}	C_r kgf	C_{or} kgf		oil		(approx.)
10	30	14.3	0.6	8.00	5.79	810.00	590.00	16000	19000	**3200**	0.052
12	32	15.9	0.6	9.65	7.13	985.00	725.00	14000	17000	**3201**	0.063
15	35	15.9	0.6	9.05	7.43	920.00	758.00	13000	16000	**3202**	0.072
	42	19.0	1.0	15.20	11.80	1550.00	1200.00	10600	12600	**3302**	0.132
17	40	17.5	0.6	12.60	10.60	1285.00	1080.00	11000	13000	**3203**	0.100
	47	22.2	1.0	20.70	16.40	2110.00	1674.00	9400	11000	**3303**	0.192
20	47	20.6	1.0	17.30	14.90	1765.00	1520.00	9400	11000	**3204**	0.170
	52	22.2	1.1	20.80	18.30	2120.00	1868.00	8400	10000	**3304**	0.230
25	52	20.6	1.0	19.00	18.20	1938.00	1858.00	8400	10000	**3205**	0.190
	62	25.4	1.1	28.90	26.40	2950.00	2695.00	7100	8400	**3305**	0.369
30	62	23.8	1.0	27.20	26.90	2777.00	2745.00	7100	8400	**3206**	0.320
	72	30.2	1.1	38.20	35.90	3900.00	3665.00	6000	7100	**3306**	0.585
35	72	27	1.1	36.80	37.50	3755.00	3828.00	6000	7100	**3207**	0.480
	80	34.9	1.5	48.60	46.80	4960.00	4778.00	5300	6300	**3307**	0.816
40	80	30.2	1.1	42.00	43.90	4288.00	4480.00	5300	6300	**3208**	0.650
	90	36.5	1.5	54.10	53.80	5520.00	5490.00	4700	5600	**3308**	1.070
45	85	30.2	1.1	45.40	51.30	4635.00	5235.00	5000	6000	**3209**	0.710
	100	39.7	1.5	66.10	67.30	6748.00	6870.00	4200	5000	**3309**	1.420
50	90	30.2	1.1	45.10	52.10	4604.00	5319.00	4500	5300	**3210**	0.760
	110	44.4	2.0	86.10	88.60	8790.00	9045.00	3800	4500	**3310**	1.950
55	100	33.3	1.5	50.90	60.20	5195.00	6145.00	4200	5000	**3211**	1.050
	120	49.2	2.0	94.80	107.00	9679.00	10924.00	3300	4000	**3311**	2.530
60	110	36.5	1.5	64.00	76.80	6534.00	7840.00	3800	4500	**3212**	1.400
	130	54.0	2.1	111.00	127.00	11333.00	12965.00	3200	3800	**3312**	3.240

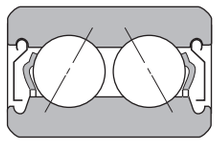




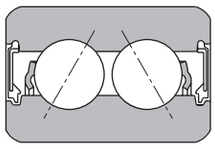
d 65~75mm

Boundary dimensions mm				Basic load ratings dynamic kN		Basic load ratings static kgf		Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	B	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
65	120	38.1	1.5	76.40	97.40	7800.00	9944.00	3500	4200	**3213**	1.750
	140	58.7	2.1	129.00	148.00	13170.00	15110.00	3000	3500	**3313**	4.080
70	125	39.7	1.5	75.80	98.30	7739.00	10035.00	3200	3800	**3214**	1.920
	150	63.5	2.1	149.00	165.00	15210.00	16845.00	2700	3600	**3314**	5.040
75	130	41.3	1.5	83.60	109.00	8535.00	11128.00	3200	3800	**3215**	2.100
	160	68.3	2.1	169.00	189.00	17254.90	19296.90	2500	3300	**3315**	6.160





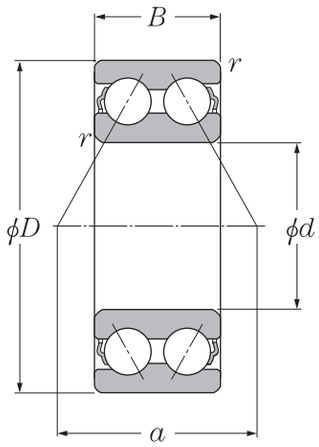
Shielded type
(ZZ)

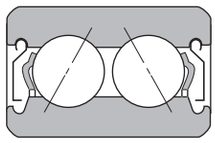


Contact sealed type
(LLU)

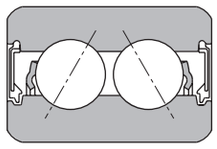
d 10~60mm

Boundary dimensions mm				Basic load ratings dynamic / static kN		dynamic / static kgf		Limiting speeds min^{-1} grease	oil	Bearing numbers open type	shielded type	sealed type	Load center mm	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}						*a*	(approx.)
10	30	14.3	0.6	7.15	3.90	730	400	17 000	22 000	**5200**	**ZZ**	**LLU**	14.5	0.05
12	32	15.9	0.6	10.5	5.80	1 070	590	15 000	20 000	**5201**	**ZZ**	**LLU**	16.7	0.06
15	35	15.9	0.6	11.7	7.05	1 190	715	13 000	17 000	**5202**	**ZZ**	**LLU**	18.3	0.07
	42	19.0	1.0	17.6	10.2	1 800	1 040	11 000	15 000	**5302**	**ZZ**	**LLU**	22.0	0.11
17	40	17.5	0.6	14.6	9.05	1 490	920	11 000	15 000	**5203**	**ZZ**	**LLU**	20.8	0.09
	47	22.2	1.0	21.0	12.6	2 140	1 280	10 000	13 000	**5303**	**ZZ**	**LLU**	25.0	0.14
20	47	20.6	1.0	19.6	12.4	2 000	1 270	10 000	13 000	**5204**	**ZZ**	**LLU**	24.3	0.12
	52	22.2	1.1	24.6	15.0	2 510	1 530	9 000	12 000	**5304**	**ZZ**	**LLU**	26.7	0.23
25	52	20.6	1	21.3	14.7	2 170	1 500	8 500	11 000	**5205**	**ZZ**	**LLU**	26.8	0.19
	62	25.4	1.1	32.5	20.7	3 350	2 110	7 500	10 000	**5305**	**ZZ**	**LLU**	31.8	0.34
30	62	23.8	1.0	29.6	21.1	3 000	2 150	7 100	9 500	**5206**	**ZZ**	**LLU**	31.6	0.29
	72	30.2	1.1	40.5	28.1	4 150	2 870	6 300	8 500	**5306**	**ZZ**	**LLU**	36.5	0.51
35	72	27.0	1.1	39.0	28.7	4 000	2 920	6 300	8 000	**5207**	**ZZ**	**LLU**	36.6	0.43
	80	34.9	1.5	51.0	36.0	5 200	3 700	5 600	7 500	**5307**	**ZZ**	**LLU**	41.6	0.79
40	80	30.2	1.1	44.0	33.5	4 500	3 400	5 600	7 100	**5208**	**ZZ**	**LLU**	41.5	0.57
	90	36.5	1.5	56.5	41.0	5 800	4 200	5 300	6 700	**5308**	**ZZ**	**LLU**	45.5	1.05
45	85	30.2	1.1	49.5	38.0	5 050	3 900	5 000	6 700	**5209**	**ZZ**	**LLU**	43.4	0.62
	100	39.7	1.5	68.5	51.0	7 000	5 200	4 500	6 000	**5309**	**ZZ**	**LLU**	50.6	1.40
50	90	30.2	1.1	53.0	43.5	5 400	4 400	4 800	6 000	**5210**	**ZZ**	**LLU**	45.9	0.67
	110	44.4	2	81.5	61.5	8 300	6 250	4 300	5 600	**5310**	**ZZ**	**LLU**	55.6	1.95
55	100	33.3	1.5	56.0	49.0	5 700	5 000	4 300	5 600	**5211**	**ZZ**	**LLU**	50.1	0.96
	120	49.2	2	95.0	73.0	9 700	7 450	3 800	5 000	**5311**	**ZZ**	**LLU**	60.6	2.30
60	110	36.5	1.5	69.0	62.0	7 150	6 300	3 800	5 000	**5212**	**ZZ**	**LLU**	56.5	1.35
	130	54.0	2.1	125.0	98.5	12 800	10 000	3 400	4 500	**5312**	**ZZ**	**LLU**	69.2	3.15





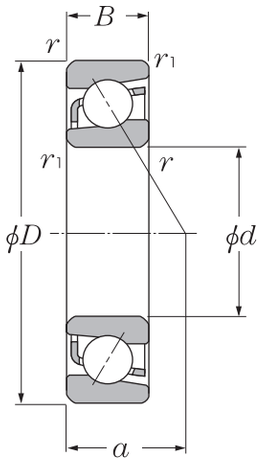
Shielded type (ZZ)



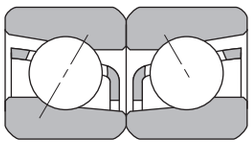
Contact sealed type (LLU)

d 65~75mm

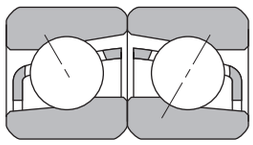
Boundary dimensions mm				Basic load ratings dynamic / static kN		dynamic / static kgf		Limiting speeds min^{-1} grease	oil	Bearing numbers open type	shielded type	sealed type	Load center mm	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}						*a*	(approx.)
65	120	38.1	1.5	76.5	69.0	7 800	7 050	3 600	4 500	**5213**	**ZZ**	**LLU**	59.7	1.65
	140	58.7	2.1	142.0	113.0	14 500	11 500	3 200	4 300	**5313**	**ZZ**	**LLU**	72.8	3.85
70	125	39.7	1.5	94.0	82.0	9 600	8 400	3 400	4 500	**5214**	**ZZ**	**LLU**	63.8	1.80
	150	63.5	2.1	159.0	128.0	16 200	13 100	3 000	3 800	**5314**	**ZZ**	**LLU**	78.3	4.90
75	130	41.3	1.5	93.5	83.0	9 550	8 500	3 200	4 300	**5215**	**ZZ**	**LLU**	66.1	1.90



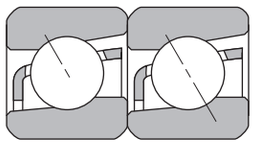
Single



Back-to-back arrangement (DB)



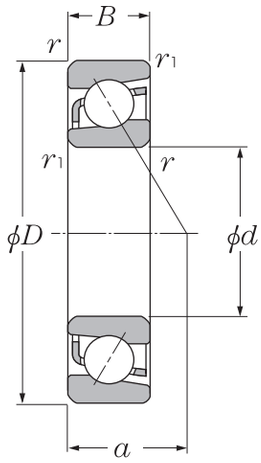
Face-to-face arrangement (DF)



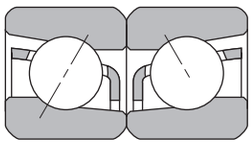
Tandem arrangement (DT)

d 10~35mm

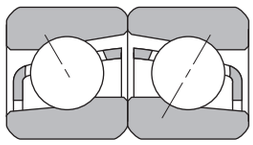
Boundary dimensions mm					Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Load center mm	Mass kg
d	*D*	*B*	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		*a*	(approx.)
10	30	9	0.6	0.3	5.45	2.74	555	279	28 000	37 000	**7200**	10.5	0.029
	30	9	0.6	0.3	5.00	2.52	510	257	24 000	32 000	**7200B**	13.0	0.029
	35	11	0.6	0.3	10.10	4.95	1 030	500	26 000	34 000	**7300**	12.0	0.040
	35	11	0.6	0.3	9.50	4.60	970	470	22 000	29 000	**7300B**	15.0	0.041
12	32	10	0.6	0.3	7.60	3.95	775	405	25 000	33 000	**7201**	11.5	0.035
	32	10	0.6	0.3	7.00	3.65	775	405	21 000	28 000	**7201B**	14.0	0.036
	37	12	1.0	0.6	11.20	5.25	1 140	535	23 000	30 000	**7301**	13.0	0.044
	37	12	1.0	0.6	10.50	4.95	1 080	505	19 000	26 000	**7301B**	16.5	0.045
15	35	11	0.6	0.3	9.05	4.70	925	480	22 000	29 000	**7202**	12.5	0.046
	35	11	0.6	0.3	8.35	4.35	855	445	18 000	25 000	**7202B**	16.0	0.046
	42	13	1.0	0.6	13.50	7.20	1 370	735	19 000	26 000	**7302**	15.0	0.055
	42	13	1.0	0.6	12.50	6.65	1 270	680	17 000	22 000	**7302B**	19.0	0.057
17	40	12	0.6	0.3	12.00	6.60	1 220	675	19 000	26 000	**7203**	14.5	0.064
	40	12	0.6	0.3	11.00	6.10	1 120	625	17 000	22 000	**7203B**	18.0	0.066
	47	14	1.0	0.6	15.90	8.65	1 630	880	18 000	24 000	**7303**	16.0	0.107
	47	14	1.0	0.6	14.80	8.00	1 510	820	15 000	20 000	**7303B**	20.5	0.109
20	47	14	1.0	0.6	14.50	8.40	1 480	855	17 000	23 000	**7204**	17.0	0.100
	47	14	1.0	0.6	13.30	7.70	1 360	785	15 000	20 000	**7204B**	21.5	0.102
	52	15	1.1	0.6	18.70	10.40	1 910	1 060	16 000	21 000	**7304**	18.0	0.138
	52	15	1.1	0.6	17.30	9.65	1 770	985	13 000	18 000	**7304B**	22.5	0.141
25	52	15	1.0	0.6	16.20	10.30	1 650	1 050	14 000	19 000	**7205**	19.0	0.125
	52	15	1.0	0.6	14.80	9.40	1 510	960	12 000	16 000	**7205B**	24.0	0.129
	62	17	1.1	0.6	26.40	15.80	2 690	1 610	13 000	17 000	**7305**	21.0	0.230
	62	17	1.1	0.6	24.40	14.60	2 490	1 490	11 000	15 000	**7305B**	27.0	0.234
30	62	16	1.0	0.6	22.50	14.80	2 300	1 510	12 000	16 000	**7206**	21.5	0.193
	62	16	1.0	0.6	20.50	13.50	2 090	1 380	11 000	14 000	**7206B**	27.5	0.197
	72	19	1.1	0.6	33.50	22.30	3 450	2 280	11 000	15 000	**7306**	24.5	0.345
	72	19	1.1	0.6	31.00	20.50	3 150	2 090	9 600	13 000	**7306B**	31.5	0.352
35	72	17	1.1	0.6	29.70	20.10	3 050	2 050	11 000	14 000	**7207**	24.0	0.281
	72	17	1.1	0.6	27.10	18.40	2 760	1 870	9 300	12 000	**7207B**	31.0	0.287



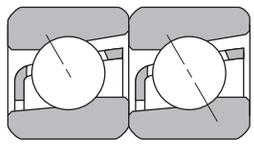
Single



Back-to-back arrangement (DB)



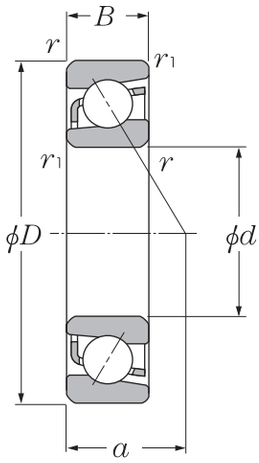
Face-to-face arrangement (DF)



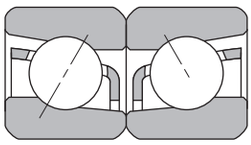
Tandem arrangement (DT)

d 35~70mm

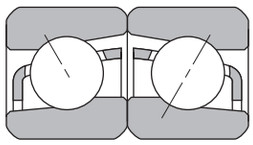
Boundary dimensions mm					Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers	Load center mm	Mass kg
d	D	B	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}				a	(approx.)
35	80	21	1.5	1.0	40.00	26.30	4 050	2 680	9 800	13 000	**7307**	27.0	0.462
	80	21	1.5	1.0	36.50	24.20	3 750	2 470	8 400	11 000	**7307B**	34.5	0.469
40	80	18	1.1	0.6	35.50	25.10	3 600	2 560	9 600	13 000	**7208**	26.5	0.355
	80	18	1.1	0.6	32.00	23.00	3 250	2 340	8 300	11 000	**7208B**	34.0	0.375
	90	23	1.5	1.0	49.00	33.00	5 000	3 350	8 600	12 000	**7308**	30.5	0.625
	90	23	1.5	1.0	45.00	30.50	4 550	3 100	7 400	9 900	**7308B**	39.0	0.636
45	85	19	1.1	0.6	39.50	28.70	4 050	2 930	8 700	12 000	**7209**	28.5	0.404
	85	19	1.1	0.6	36.00	26.20	3 650	2 680	7 400	9 900	**7209B**	37.0	0.410
	100	25	1.5	1.0	63.50	44.00	6 450	4 500	7 800	10 000	**7309**	33.5	0.837
	100	25	1.5	1.0	58.50	40.00	5 950	4 100	6 600	8 900	**7309B**	43.0	0.854
50	90	20	1.1	0.6	41.50	31.50	4 200	3 200	7 900	10 000	**7210**	30.0	0.457
	90	20	1.1	0.6	37.50	28.60	3 800	2 920	6 700	9 000	**7210B**	39.5	0.466
	110	27	2.0	1.0	74.50	52.50	7 600	5 350	7 100	9 400	**7310**	36.5	1.090
	110	27	2.0	1.0	68.00	48.00	6 950	4 950	6 000	8 100	**7310B**	47.0	1.110
55	100	21	1.5	1.0	51.00	39.50	5 200	4 050	7 100	9 500	**7211**	33.0	0.600
	100	21	1.5	1.0	46.50	36.00	4 700	3 700	6 100	8 200	**7211B**	43.0	0.612
	120	29	2.0	1.0	86.00	61.50	8 750	6 300	6 400	8 600	**7311**	40.0	1.390
	120	29	2.0	1.0	79.00	56.50	8 050	5 800	5 500	7 300	**7311B**	52.0	1.420
60	110	22	1.5	1.0	61.50	49.00	6 300	5 000	6 600	8 800	**7212**	36.0	0.765
	110	22	1.5	1.0	56.00	44.50	5 700	4 550	5 700	7 600	**7212B**	47.5	0.780
	130	31	2.1	1.1	98.00	71.50	10 000	7 300	5 900	7 900	**7312**	43.0	1.740
	130	31	2.1	1.1	90.00	66.00	9 200	6 700	5 100	6 800	**7312B**	56.0	1.770
65	120	23	1.5	1.0	70.50	58.00	7 150	5 900	6 100	8 100	**7213**	38.0	0.962
	120	23	1.5	1.0	63.50	52.50	6 500	5 350	5 200	7 000	**7213B**	50.5	0.981
	140	33	2.1	1.1	111.00	82.00	11 300	8 350	5 500	7 300	**7313**	46.0	2.110
	140	33	2.1	1.1	102.00	75.00	10 400	7 700	4 700	6 300	**7313B**	59.5	2.150
70	125	24	1.5	1.0	76.50	63.50	7 800	6 500	5 700	7 600	**7214**	40.0	1.090
	125	24	1.5	1.0	69.00	58.00	7 050	5 900	4 900	6 500	**7214B**	53.0	1.110
	150	35	2.1	1.1	125.00	93.50	12 700	9 550	5 100	6 800	**7314**	49.5	2.560
	150	35	2.1	1.1	114.00	86.00	11 700	8 800	4 400	5 800	**7314B**	63.5	2.610



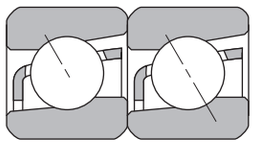
Single



Back-to-back arrangement (DB)



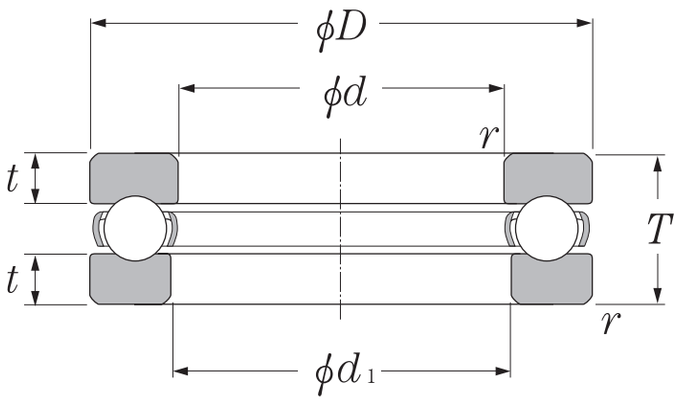
Face-to-face arrangement (DF)



Tandem arrangement (DT)

d 75~100mm

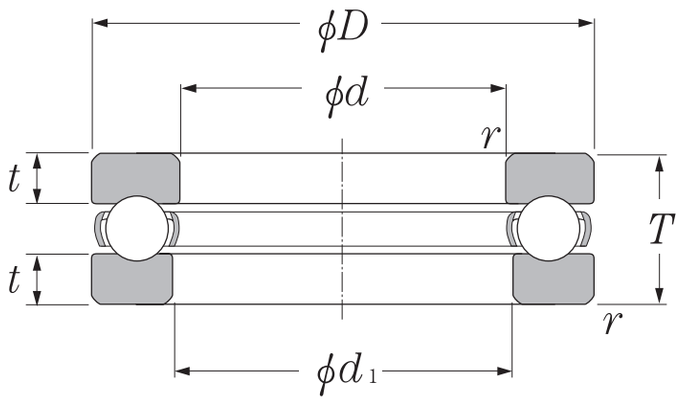
Boundary dimensions mm					Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Load center mm	Mass kg
d	D	B	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		a	(approx.)
75	130	25	1.5	1.0	79.00	68.50	8 050	7 000	5 300	7 100	**7215**	42.5	1.170
	130	25	1.5	1.0	71.50	62.00	7 300	6 350	4 500	6 000	**7215B**	56.0	1.190
	160	37	2.1	1.1	136.00	106.00	13 800	10 800	4 800	6 300	**7315**	52.5	3.070
	160	37	2.1	1.1	125.00	97.50	12 700	9 900	4 100	5 400	**7315B**	68.0	3.130
80	140	26	2.0	1.0	89.00	76.00	9 100	7 750	5 000	6 600	**7216**	45.0	1.390
	140	26	2.0	1.0	80.50	69.50	8 200	7 050	4 300	5 700	**7216B**	59.0	1.420
	170	39	2.1	1.1	147.00	119.00	15 000	12 100	4 500	5 900	**7316**	55.5	3.650
	170	39	2.1	1.1	135.00	109.00	13 800	11 100	3 800	5 100	**7316B**	72.0	3.720
85	150	28	2	1.0	99.50	88.50	10 100	9 050	4 700	6 200	**7217**	48.0	1.780
	150	28	2	1.0	90.00	80.50	9 150	8 200	4 000	5 300	**7217B**	63.5	1.820
	180	41	3	1.1	159.00	133.00	16 200	13 500	4 200	5 600	**7317**	59.0	4.340
	180	41	3	1.1	146.00	122.00	14 800	12 400	3 600	4 800	**7317B**	76.0	4.430
90	160	30	2.0	1.0	118.00	103.00	12 000	10 500	4 400	5 900	**7218**	51.0	2.180
	160	30	2.0	1.0	107.00	94.00	10 900	9 550	3 800	5 000	**7218B**	67.5	2.220
	190	43	3.0	1.1	171.00	147.00	17 400	15 000	4 000	5 300	**7318**	62.0	5.060
	190	43	3.0	1.1	156.00	135.00	15 900	13 800	3 400	4 500	**7318B**	80.5	5.160
95	170	32	2.1	1.1	133.00	118.00	13 600	12 000	4 100	5 500	**7219**	54.5	2.670
	170	32	2.1	1.1	121.00	107.00	12 300	11 000	3 500	4 700	**7219B**	71.5	2.720
	200	45	3.0	1.1	183.00	162.00	18 600	16 600	3 700	5 000	**7319**	65.0	5.890
	200	45	3.0	1.1	167.00	149.00	17 100	15 200	3 200	4 200	**7319B**	84.5	6.000
100	180	34	2.1	1.1	144.00	126.00	14 700	12 800	3 900	5 200	**7220**	57.5	3.200
	180	34	2.1	1.1	130.00	114.00	13 300	11 700	3 400	4 500	**7220B**	76.0	3.260
	215	47	3.0	1.1	207.00	193.00	21 100	19 700	3 500	4 700	**7320**	69.0	7.180
	215	47	3.0	1.1	190.00	178.00	19 400	18 100	3 000	4 000	**7320B**	89.5	7.320



d 10~45mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1} grease		Bearing numbers	Dimensions mm		Mass kg
d	D	B	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}				d_1	t	(approx.)
10	24	9	0.3	10.0	14.0	1 020	1 420	6 700	9 500	**51100**	11	2.5	0.021
	26	11	0.6	12.7	17.1	1 290	1 740	5 800	8 300	**51200**	12	3.3	0.030
12	26	9	0.3	10.3	15.4	1 050	1 570	6 400	9 200	**51101**	13	2.5	0.023
	28	11	0.6	13.2	19.0	1 340	1 940	5 600	8 000	**51201**	14	3.3	0.034
15	28	9	0.3	10.5	16.8	1 070	1 710	6 200	8 800	**51102**	16	2.5	0.024
	32	12	0.6	16.6	24.8	1 690	2 530	5 000	7 100	**51202**	17	3.5	0.046
17	30	9	0.3	10.8	18.2	1 100	1 850	6 000	8 500	**51103**	18	2.5	0.026
	35	12	0.6	17.2	27.3	1 750	2 780	4 800	6 800	**51203**	19	3.5	0.054
20	35	10	0.3	14.2	24.7	1 450	2 520	5 200	7 500	**51104**	21	2.5	0.040
	40	14	0.6	22.3	37.5	2 270	3 850	4 100	5 900	**51204**	22	4.1	0.081
25	42	11	0.6	19.6	37.0	1 990	3 800	4 600	6 500	**51105**	26	3.0	0.060
	47	15	0.6	27.8	50.5	2 830	5 150	3 700	5 300	**51205**	27	4.3	0.111
	52	18	1.0	35.5	61.5	3 650	6 250	3 200	4 600	**51305**	27	5.0	0.176
30	47	11	0.6	20.4	42.0	2 080	4 300	4 300	6 200	**51106**	32	3.0	0.069
	52	16	0.6	29.3	58.0	2 990	5 950	3 400	4 900	**51206**	32	5.0	0.139
	60	21	1.0	43.0	78.5	4 350	8 000	2 800	3 900	**51306**	32	6.4	0.269
35	52	12	0.6	20.4	44.5	2 080	4 550	3 900	5 600	**51107**	37	3.5	0.085
	62	18	1.0	39.0	78.0	4 000	7 950	2 900	4 200	**51207**	37	5.2	0.215
	68	24	1.0	55.5	105.0	5 650	10 700	2 400	3 500	**51307**	37	7.2	0.383
40	60	13	0.6	26.9	63.0	2 740	6 400	3 500	5 000	**51108**	42	3.8	0.125
	68	19	1.0	47.0	98.5	4 800	10 000	2 700	3 900	**51208**	42	5.5	0.276
	78	26	1.0	69.0	135.0	7 050	13 700	2 200	3 100	**51308**	42	7.6	0.548
45	65	14	0.6	27.9	69.0	2 840	7 050	3 200	4 600	**51109**	47	4.0	0.148
	73	20	1.0	48.0	105.0	4 850	10 700	2 600	3 700	**51209**	47	6.0	0.317
	85	28	1.0	80.0	163.0	8 150	16 700	2 000	2 900	**51309**	47	8.3	0.684

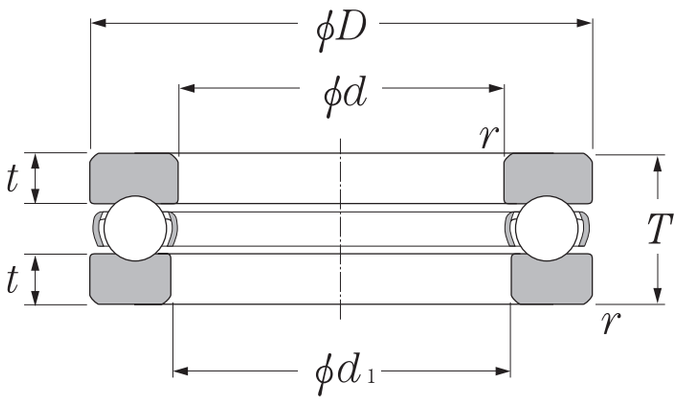
Bearing with Brass cage availiable on request (with suffix M)



d 50~90mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min-1 grease	oil	Bearing numbers	Dimensions mm		Mass kg
d	D	B	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}				d_1	t	(approx.)
50	70	14	0.6	28.8	75.5	2 930	7 700	3 100	4 500	**51110**	52	4.0	0.161
	78	22	1.0	48.5	111.0	4 950	11 400	2 400	3 400	**51210**	52	7.0	0.378
	95	31	1.1	96.5	202.0	9 850	20 600	1 800	2 600	**51310**	52	9.2	0.951
55	78	16	0.6	35.0	93.0	3 550	9 500	2 800	4 000	**51111**	57	5.0	0.226
	90	25	1.0	69.5	159.0	7 100	16 200	2 100	3 000	**51211**	57	7.5	0.608
	105	35	1.1	119.0	246.0	12 200	25 100	1 600	2 300	**51311**	57	10.2	1.290
60	85	17	1.0	41.5	113.0	4 200	11 500	2 600	3 700	**51112**	62	5.0	0.296
	95	26	1.0	73.5	179.0	7 500	18 200	2 000	2 800	**51212**	62	8.0	0.676
	110	35	1.1	123.0	267.0	12 600	27 200	1 600	2 300	**51312**	62	10.2	1.370
65	90	18	1.0	41.5	117.0	4 250	12 000	2 400	3 500	**51113**	67	5.5	0.338
	100	27	1.0	75.0	189.0	7 650	19 200	1 900	2 700	**51213**	67	8.4	0.767
	115	36	1.1	128.0	287.0	13 000	29 300	1 500	2 200	**51313**	67	10.7	1.510
70	95	18	1.0	43.0	127.0	4 400	12 900	2 400	3 400	**51114**	72	5.5	0.356
	105	27	1.0	76.0	199.0	7 750	20 200	1 800	2 600	**51214**	72	8.4	0.793
	125	40	1.1	148.0	340.0	15 100	34 500	1 400	2 000	**51314**	72	12.0	2.010
75	100	19	1.0	44.5	136.0	4 550	13 900	2 200	3 200	**51115**	77	6.0	0.399
	110	27	1.0	77.5	209.0	7 900	21 300	1 800	2 600	**51215**	77	8.4	0.874
	135	44	1.5	171.0	395.0	17 400	40 500	1 300	1 800	**51315**	77	13.4	2.610
80	105	19	1.0	44.5	141.0	4 550	14 400	2 200	3 100	**51116**	82	6.0	0.422
	115	28	1.0	78.5	218.0	8 000	22 300	1 700	2 400	**51216**	82	8.9	0.916
	140	44	1.5	176.0	425.0	18 000	43 000	1 200	1 800	**51316**	82	13.4	2.720
85	110	19	1.0	46.0	150.0	4 700	15 300	2 100	3 000	**51117**	87	6.0	0.444
	125	31	1.0	95.5	264.0	9 700	26 900	1 600	2 200	**51217**	88	9.8	1.250
	150	49	1.5	201.0	490.0	20 500	50 000	1 100	1 600	**51317**	88	15.0	3.520
90	120	22	1.0	59.5	190.0	6 100	19 400	1 900	2 700	**51118**	92	7.0	0.687
	135	35	1.1	117.0	325.0	11 900	33 000	1 400	2 000	**51218**	93	11.2	1.700
	155	50	1.5	198.0	490.0	20 200	50 000	1 100	1 600	**51318**	93	15.5	3.740

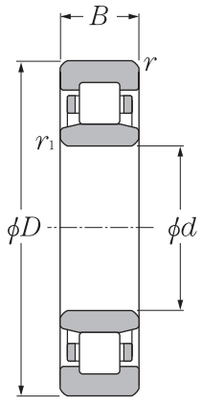
Bearing with Brass cage availiable on request (with suffix M)



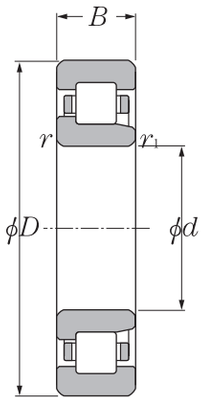
d 100~150mm

Boundary dimensions mm				Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1} grease	oil	Bearing numbers	Dimensions mm		Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}				d_1	*t*	(approx.)
	135	25	1.0	85.0	268.0	8 700	27 300	1 700	2 400	**51120**	102	7.5	0.987
100	150	38	1.1	147.0	410.0	14 900	42 000	1 300	1 800	**51220**	103	11.7	2.290
	170	55	1.5	237.0	595.0	24 100	60 500	990	1 400	**51320**	103	17.3	4.880
	145	25	1.0	87.0	288.0	8 900	29 400	1 600	2 300	**51122**	112	7.5	1.070
110	160	38	1.1	153.0	450.0	15 600	46 000	1 200	1 800	**51222**	113	11.7	2.460
	190	63	2.0	267.0	705.0	27 300	72 000	870	1 200	**51322**	113	20.0	7.670
	155	25	1.0	89.0	310.0	9 100	31 500	1 500	2 200	**51124**	122	7.5	1.110
120	170	39	1.1	154.0	470.0	15 700	48 000	1 200	1 700	**51224**	123	12.2	2.710
	210	70	2.1	296.0	805.0	30 000	82 500	780	1 100	**51324**	123	22.3	10.800
	170	30	1.0	104.0	350.0	10 600	36 000	1 300	1 900	**51126**	132	9.0	1.730
130	190	45	1.5	191.0	565.0	19 400	57 500	1 000	1 500	**51226**	133	13.9	4.220
	225	75	2.1	330.0	960.0	33 500	97 500	720	1 000	**51326**	134	24.2	12.700
	180	31	1.0	107.0	375.0	10 900	38 500	1 300	1 800	**51128**	142	9.5	1.900
140	200	46	1.5	193.0	595.0	19 700	60 500	980	1 400	**51228**	143	14.4	4.770
	240	80	2.1	350.0	1 050.0	35 500	107 000	670	960	**51328**	144	26.0	15.300
	190	31	1.0	109.0	400.0	11 100	41 000	1 200	1 800	**51130**	152	10.0	2.000
150	215	50	1.5	220.0	685.0	22 400	70 000	900	1 300	**51230**	153	15.8	5.870
	250	80	2.1	360.0	1 130.0	37 000	115 000	660	940	**51330**	154	26.0	16.100

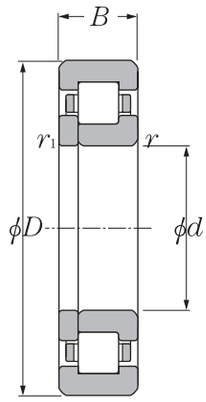
Bearing with Brass cage availiable on request (with suffix M)



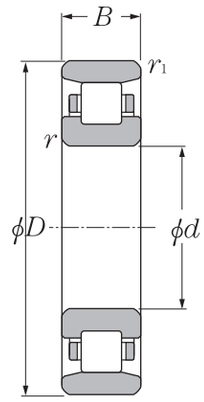
Type NU



Type NJ



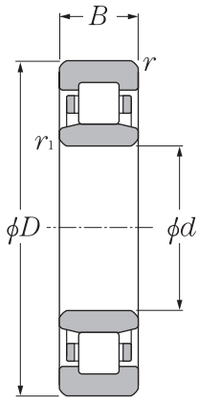
Type NUP



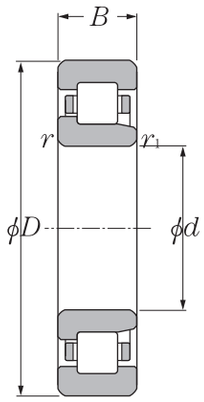
Type N

d 20~50mm

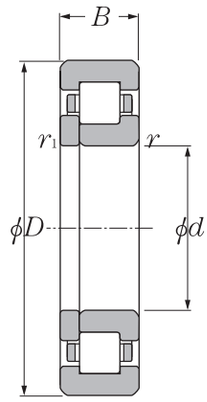
Boundary dimensions mm					Basic load ratings dynamic kN		Basic load ratings static kgf		Limiting speeds min^{-1}		Bearing numbers type NU	type NJ	type NUP	type N	Mass kg (approx.)
d	*D*	*B*	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil					
20	47	14	1.0	0.6	25.7	22.6	2 620	2 310	15 000	18 000	**NU204**	**NJ**	**NUP**	**—**	0.122
	47	18	1.0	0.6	30.5	28.3	3 100	2 890	14 000	16 000	**NU2204**	**NJ**	**NUP**	**—**	0.158
	52	15	1.1	0.6	31.5	26.9	3 200	2 740	13 000	15 000	**NU304**	**NJ**	**NUP**	**—**	0.176
	52	21	1.1	0.6	42.0	39.0	4 300	3 950	12 000	14 000	**NU2304**	**NJ**	**NUP**	**—**	0.242
25	52	15	1.0	0.6	29.3	27.7	2 990	2 830	13 000	15 000	**NU205**	**NJ**	**NUP**	**—**	0.151
	52	18	1.0	0.6	35.0	34.5	3 550	3 550	11 000	13 000	**NU2205**	**NJ**	**NUP**	**—**	0.186
	62	17	1.1	1.1	41.5	37.5	4 250	3 800	11 000	13 000	**NU305**	**NJ**	**NUP**	**—**	0.275
	62	24	1.1	1.1	57.0	56.0	5 800	5 700	9 700	11 000	**NU2305**	**NJ**	**NUP**	**—**	0.386
30	62	16	1.0	0.6	39.0	37.5	4 000	3 800	11 000	13 000	**NU206**	**NJ**	**NUP**	**—**	0.226
	62	20	1.0	0.6	49.0	50.0	5 000	5 100	9 700	11 000	**NU2206**	**NJ**	**NUP**	**—**	0.297
	72	19	1.1	1.1	53.0	50.0	5 400	5 100	9 300	11 000	**NU306**	**NJ**	**NUP**	**—**	0.398
	72	27	1.1	1.1	74.5	77.5	7 600	7 900	8 300	9 700	**NU2306**	**NJ**	**NUP**	**—**	0.580
35	72	17	1.1	0.6	50.5	50.0	5 150	5 100	9 500	11 000	**NU207**	**NJ**	**NUP**	**—**	0.327
	72	23	1.1	0.6	61.5	65.5	6 300	6 650	8 500	10 000	**NU2207**	**NJ**	**NUP**	**—**	0.455
	80	21	1.5	1.1	71.0	71.0	7 200	7 200	8 100	9 600	**NU307**	**NJ**	**NUP**	**—**	0.545
	80	31	1.5	1.1	99.0	109.0	10 100	11 100	7 200	8 500	**NU2307**	**NJ**	**NUP**	**—**	0.780
40	80	18	1.1	1.1	43.5	43.0	4 450	4 350	9 400	11 000	**NU208**	**NJ**	**NUP**	**N**	0.378
	80	23	1.1	1.1	58.0	62.0	5 950	6 300	8 500	10 000	**NU2208**	**NJ**	**NUP**	**N**	0.490
	90	23	1.5	1.5	58.5	57.0	6 000	5 800	8 000	9 400	**NU308**	**NJ**	**NUP**	**N**	0.658
	90	33	1.5	1.5	82.5	88.0	8 400	8 950	7 000	8 200	**NU2308**	**NJ**	**NUP**	**N**	0.951
45	85	19	1.1	1.1	46.0	47.0	4 700	4 800	8 400	9 900	**NU209**	**NJ**	**NUP**	**N**	0.432
	85	23	1.1	1.1	61.5	68.0	6 250	6 900	7 600	9 000	**NU2209**	**NJ**	**NUP**	**N**	0.530
	100	25	1.5	1.5	74.0	71.0	7 550	7 250	7 200	8 400	**NU309**	**NJ**	**NUP**	**N**	0.877
	100	36	1.5	1.5	99.0	104.0	10 100	10 600	6 300	7 400	**NU2309**	**NJ**	**NUP**	**N**	1.270
50	90	20	1.1	1.1	48.0	51.0	4 900	5 200	7 600	9 000	**NU210**	**NJ**	**NUP**	**N**	0.470
	90	23	1.1	1.1	64.0	73.5	6 550	7 500	6 900	8 100	**NU2210**	**NJ**	**NUP**	**N**	0.571
	110	27	2.0	2.0	87.0	86.0	8 850	8 800	6 500	7 700	**NU310**	**NJ**	**NUP**	**N**	1.140
	110	40	2.0	2.0	121.0	131.0	12 300	13 400	5 700	6 700	**NU2310**	**NJ**	**NUP**	**N**	1.700



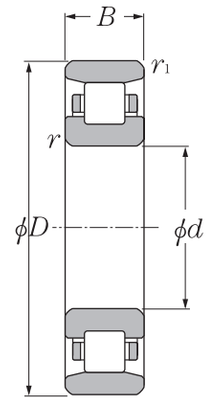
Type NU



Type NJ



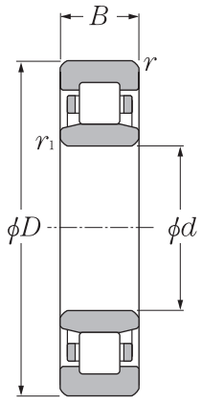
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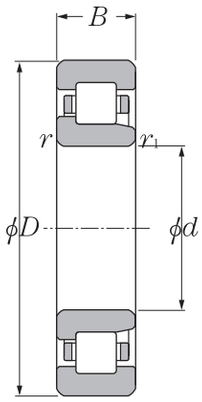
Type N

d 55~85mm

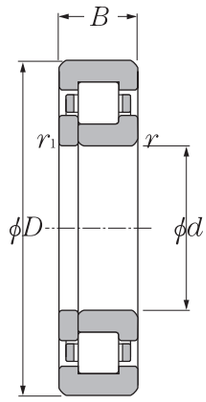
Boundary dimensions mm					Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers				Mass kg
d	*D*	*B*	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil	type NU	type NJ	type NUP	type N	(approx.)
55	100	21	1.5	1.1	58.0	62.5	5 900	6 350	6 900	8 200	**NU211**	**NJ**	**NUP**	**N**	0.638
	100	25	1.5	1.1	75.5	87.0	7 700	8 900	6 300	7 400	**NU2211**	**NJ**	**NUP**	**N**	0.773
	120	29	2.0	2.0	111.0	111.0	11 300	11 400	5 900	7 000	**NU311**	**NJ**	**NUP**	**N**	1.450
	120	43	2.0	2.0	148.0	162.0	15 100	16 500	5 200	6 100	**NU2311**	**NJ**	**NUP**	**N**	2.170
60	110	22	1.5	1.5	68.5	75.0	7 000	7 650	6 400	7 600	**NU212**	**NJ**	**NUP**	**N**	0.818
	110	28	1.5	1.5	96.0	116.0	9 800	11 800	5 800	6 800	**NU2212**	**NJ**	**NUP**	**N**	1.060
	130	31	2.1	2.1	124.0	126.0	12 600	12 900	5 500	6 500	**NU312**	**NJ**	**NUP**	**N**	1.800
	130	46	2.1	2.1	169.0	188.0	17 200	19 200	4 800	5 700	**NU2312**	**NJ**	**NUP**	**N**	2.710
65	120	23	1.5	1.5	84.0	94.5	8 550	9 650	5 900	7 000	**NU213**	**NJ**	**NUP**	**N**	1.020
	120	31	1.5	1.5	120.0	149.0	12 200	15 200	5 400	6 300	**NU2213**	**NJ**	**NUP**	**N**	1.400
	140	33	2.1	2.1	135.0	139.0	13 800	14 200	5 100	6 000	**NU313**	**NJ**	**NUP**	**N**	2.230
	140	48	2.1	2.1	188.0	212.0	19 100	21 700	4 400	5 200	**NU2313**	**NJ**	**NUP**	**N**	3.270
70	125	24	1.5	1.5	83.5	95.0	8 500	9 700	5 500	6 500	**NU214**	**NJ**	**NUP**	**N**	1.120
	125	31	1.5	1.5	119.0	151.0	12 200	15 400	5 000	5 900	**NU2214**	**NJ**	**NUP**	**N**	1.470
	150	35	2.1	2.1	158.0	168.0	16 100	17 200	4 700	5 500	**NU314**	**NJ**	**NUP**	**N**	2.710
	150	51	2.1	2.1	223.0	262.0	22 700	26 700	4 100	4 800	**NU2314**	**NJ**	**NUP**	**N**	3.980
75	130	25	1.5	1.5	96.5	111.0	9 850	11 300	5 100	6 000	**NU215**	**NJ**	**NUP**	**N**	1.230
	130	31	1.5	1.5	130.0	162.0	13 200	16 500	4 700	5 500	**NU2215**	**NJ**	**NUP**	**N**	1.550
	160	37	2.1	2.1	190.0	205.0	19 400	20 900	4 400	5 200	**NU315**	**NJ**	**NUP**	**N**	3.280
	160	55	2.1	2.1	258.0	300.0	26 300	31 000	3 800	4 500	**NU2315**	**NJ**	**NUP**	**N**	4.870
80	140	26	2.0	2.0	106.0	122.0	10 800	12 500	4 800	5 700	**NU216**	**NJ**	**NUP**	**N**	1.500
	140	33	2.0	2.0	147.0	186.0	15 000	19 000	4 400	5 100	**NU2216**	**NJ**	**NUP**	**N**	1.930
	170	39	2.1	2.1	190.0	207.0	19 400	21 100	4 100	4 800	**NU316**	**NJ**	**NUP**	**N**	3.860
	170	58	2.1	2.1	274.0	330.0	27 900	34 000	3 600	4 200	**NU2316**	**NJ**	**NUP**	**N**	5.790
85	150	28	2.0	2.0	120.0	140.0	12 300	14 300	4 500	5 300	**NU217**	**NJ**	**NUP**	**N**	1.870
	150	36	2.0	2.0	170.0	218.0	17 300	22 200	4 100	4 800	**NU2217**	**NJ**	**NUP**	**N**	2.440
	180	41	3.0	3.0	212.0	228.0	21 600	23 300	3 900	4 600	**NU317**	**NJ**	**NUP**	**N**	4.540
	180	60	3.0	3.0	315.0	380.0	32 000	39 000	3 400	4 000	**NU2317**	**NJ**	**NUP**	**N**	6.700



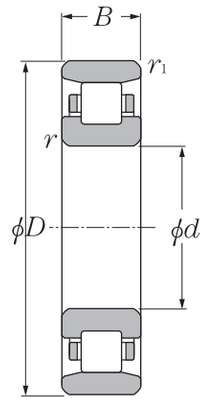
Type NU



Type NJ



Type NUP

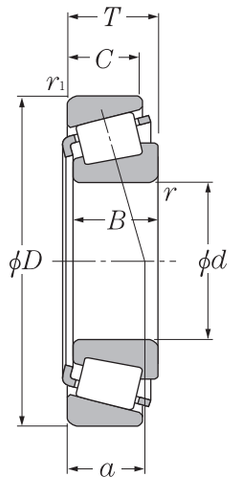


Type N

d 90~100mm

Boundary dimensions mm					Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers				Mass kg
d	*D*	*B*	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil	type NU	type NJ	type NUP	type N	(approx.)
90	160	30	2.0	2.0	152.0	178.0	15 500	18 100	4 300	5 000	**NU218**	**NJ**	**NUP**	**N**	2.300
	160	40	2.0	2.0	197.0	248.0	20 100	25 300	3 900	4 600	**NU2218**	**NJ**	**NUP**	**N**	3.100
	190	43	3.0	3.0	240.0	265.0	24 500	27 100	3 700	4 300	**NU318**	**NJ**	**NUP**	**N**	5.300
	190	64	3.0	3.0	325.0	395.0	33 500	40 000	3 200	3 800	**NU2318**	**NJ**	**NUP**	**N**	7.950
95	170	32	2.1	2.1	166.0	195.0	16 900	19 900	4 000	4 700	**NU219**	**NJ**	**NUP**	**N**	2.780
	170	43	2.1	2.1	230.0	298.0	23 500	30 500	3 600	4 300	**NU2219**	**NJ**	**NUP**	**N**	3.790
	200	45	3.0	3.0	259.0	285.0	26 400	29 500	3 400	4 000	**NU319**	**NJ**	**NUP**	**N**	6.130
	200	67	3.0	3.0	370.0	460.0	38 000	47 000	3 000	3 500	**NU2319**	**NJ**	**NUP**	**N**	9.200
100	180	34	2.1	2.1	183.0	217.0	18 600	22 200	3 800	4 500	**NU220**	**NJ**	**NUP**	**N**	3.330
	180	46	2.1	2.1	258.0	340.0	26 300	34 500	3 500	4 100	**NU2220**	**NJ**	**NUP**	**N**	4.570
	215	47	3.0	3.0	299.0	335.0	30 500	34 500	3 300	3 800	**NU320**	**NJ**	**NUP**	**N**	7.490
	215	73	3.0	3.0	410.0	505.0	42 000	51 500	2 900	3 400	**NU2320**	**NJ**	**NUP**	**N**	11.700

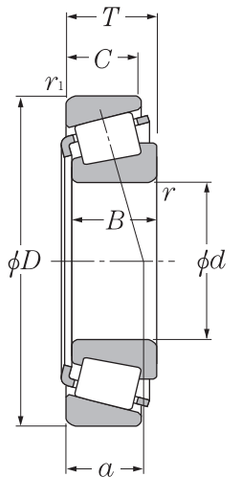
Metric Series



d 15~32mm

Boundary dimensions mm							Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
15	42	14.25	13	11	1.0	1.0	23.2	20.8	2 370	2 120	9 900	13 000	**30302JR**	0.098
	40	13.25	12	11	1.0	1.0	20.5	20.3	2 090	2 070	9 900	13 000	**30203JR**	0.080
17	40	17.25	16	14	1.0	1.0	27.3	28.3	2 790	2 880	9 900	13 000	**32203JR**	0.102
	47	15.25	14	12	1.0	1.0	28.9	26.3	2 940	2 680	9 000	12 000	**30303JR**	0.134
	42	15.00	15	12	0.6	0.6	24.9	27.9	2 540	2 840	9 500	13 000	**32004JR**	0.097
	47	15.25	14	12	1.0	1.0	28.2	28.7	2 870	2 930	8 800	12 000	**30204JR**	0.127
20	47	19.25	18	15	1.0	1.0	36.5	39.5	3 700	4 000	8 800	12 000	**32204JR**	0.160
	52	16.25	16	13	1.5	1.5	35.5	34.0	3 600	3 450	8 000	11 000	**30304JR**	0.176
	52	22.25	21	18	1.5	1.5	46.5	48.5	4 750	4 950	8 000	11 000	**32304JR**	0.245
22	44	15.00	15	11.5	0.6	0.6	27.0	31.5	2 760	3 250	8 900	12 000	**320/22JR**	0.106
	47	15.00	15	11.5	0.6	0.6	27.8	33.5	2 830	3 450	7 900	11 000	**32005JR**	0.114
	47	17.00	17	14	0.6	0.6	32.5	40.5	3 300	4 150	8 000	11 000	**33005JR**	0.130
	52	16.25	15	13	1.0	1.0	31.5	34.0	3 200	3 450	7 300	9 800	**30205JR**	0.154
25	52	19.25	18	16	1.0	1.0	42.0	47.0	4 300	4 800	7 300	9 800	**32205JR**	0.187
	52	22.00	22	18	1.0	1.0	47.5	57.5	4 850	5 850	7 300	9 800	**33205JR**	0.217
	62	18.25	17	15	1.5	1.5	48.5	47.5	4 950	4 850	6 700	8 900	**30305JR**	0.272
	62	18.25	17	13	1.5	1.5	40.5	43.5	4 150	4 450	5 900	7 800	**30305DJR**	0.284
	62	25.25	24	20	1.5	1.5	61.5	64.5	6 250	6 600	6 700	8 900	**32305JR**	0.381
28	52	16.00	16	12	1.0	1.0	33.0	40.5	3 400	4 150	7 300	9 700	**320/28JR**	0.146
	55	17.00	17	13	1.0	1.0	37.5	46.0	3 800	4 700	6 900	9 200	**32006JR**	0.166
	55	20.00	20	16	1.0	1.0	42.5	54.0	4 300	5 500	6 900	9 200	**33006JR**	0.201
	62	17.25	16	14	1.0	1.0	43.5	48.0	4 450	4 900	6 300	8 400	**30206JR**	0.241
30	62	21.25	20	17	1.0	1.0	54.5	64.0	5 600	6 550	6 300	8 400	**32206JR**	0.301
	62	25.00	25	19.5	1.0	1.0	65.0	77.0	6 600	7 850	6 300	8 400	**33206JR**	0.344
	72	20.75	19	16	1.5	1.5	60.0	61.0	6 100	6 200	5 700	7 600	**30306JR**	0.408
	72	20.75	19	14	1.5	1.5	48.5	51.5	4 950	5 250	5 000	6 700	**30306DJR**	0.398
	72	28.75	27	23	1.5	1.5	81.0	90.0	8 250	9 150	5 700	7 600	**32306JR**	0.583
32	58	17.00	17	13	1.0	1.0	37.0	46.5	3 750	4 750	6 600	8 700	**320/32JR**	0.181

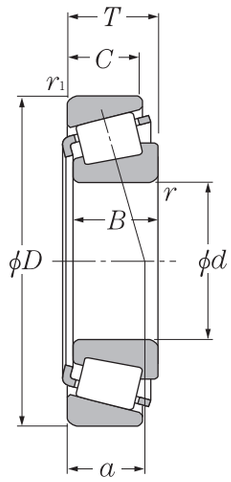
Metric Series



d 35~50mm

Boundary dimensions mm							Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min-1		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
35	62	18.00	18	14	1.0	1.0	41.5	52.5	4 250	5 350	6 100	8 100	**32007JR**	0.224
	62	21.00	21	17	1.0	1.0	50.5	66.5	5 150	6 800	6 100	8 100	**33007JR**	0.263
	72	18.25	17	15	1.5	1.5	55.5	61.5	5 650	6 250	5 500	7 400	**30207JR**	0.344
	72	24.25	23	19	1.5	1.5	72.5	87.0	7 400	8 900	5 500	7 400	**32207JR**	0.457
	72	28.00	28	22	1.5	1.5	87.5	109	8 900	11 200	5 500	7 400	**33207JR**	0.531
	80	22.75	21	18	2.0	1.5	75.0	77.0	7 650	7 900	5 000	6 600	**30307JR**	0.540
	80	22.75	21	15	2.0	1.5	63.5	70.0	6 450	7 100	4 400	5 800	**30307DJR**	0.530
	80	32.75	31	25	2.0	1.5	101	115	10 300	11 700	5 000	6 600	**32307JR**	0.787
40	68	19.00	19	14.5	1.0	1.0	50.0	65.5	5 100	6 650	5 300	7 100	**32008JR**	0.273
	68	22.00	22	18	1.0	1.0	59.5	82.5	6 050	8 400	5 300	7 100	**33008JR**	0.312
	75	26.00	26	20.5	1.5	1.5	79.5	103	8 100	10 500	5 200	6 900	**33108JR**	0.494
	80	19.75	18	16	1.5	1.5	61.0	67.0	6 250	6 850	4 900	6 600	**30208JR**	0.435
	80	24.75	23	19	1.5	1.5	79.5	93.5	8 100	9 550	4 900	6 600	**32208JR**	0.558
	80	32.00	32	25	1.5	1.5	103	132	10 500	13 400	4 900	6 600	**33208JR**	0.728
	90	25.25	23	20	2.0	1.5	91.5	102	9 350	10 400	4 400	5 900	**30308JR**	0.769
	90	25.25	23	17	2.0	1.5	77.0	85.5	7 850	8 700	3 900	5 200	**30308DJR**	0.738
	90	35.25	33	27	2.0	1.5	110	140	11 300	14 300	4 200	5 600	**32308JR**	1.100
45	75	20.00	20	15.5	1.0	1.0	57.5	76.5	5 850	7 800	4 800	6 400	**32009JR**	0.346
	75	24.00	24	19	1.0	1.0	66.0	93.5	6 750	9 550	4 800	6 400	**33009JR**	0.398
	80	26.00	26	20.5	1.5	1.5	84.5	115	8 650	11 700	4 700	6 200	**33109JR**	0.542
	85	20.75	19	16	1.5	1.5	67.5	78.5	6 900	8 000	4 400	5 900	**30209JR**	0.495
	85	24.75	23	19	1.5	1.5	82.0	100	8 350	10 200	4 400	5 900	**32209JR**	0.607
	85	32.00	32	25	1.5	1.5	107	141	10 900	14 400	4 400	5 900	**33209JR**	0.783
	100	27.25	25	22	2.0	1.5	111	126	11 300	12 800	4 000	5 300	**30309JR**	1.010
	100	27.25	25	18	2.0	1.5	96.0	109	9 800	11 100	3 500	4 600	**30309DJR**	0.958
	100	38.25	36	30	2.0	1.5	154	191	15 700	19 500	4 000	5 300	**32309JR**	1.460
50	80	20.00	20	15.5	1.0	1.0	62.5	88.0	6 400	9 000	4 400	5 800	**32010JR**	0.366
	80	24.00	24	19	1.0	1.0	69.5	103	7 100	10 500	4 400	5 800	**33010JR**	0.433
	85	26.00	26	20	1.5	1.5	86.5	121	8 850	12 400	4 200	5 600	**33110JR**	0.580
	90	21.75	20	17	1.5	1.5	77.0	93.0	7 850	9 450	4 000	5 300	**30210JR**	0.563
	90	24.75	23	19	1.5	1.5	87.5	109	8 900	11 100	4 000	5 300	**32210JR**	0.648
	90	32.00	32	24.5	1.5	1.5	115	158	11 700	16 100	4 000	5 300	**33210JR**	0.852
	110	29.25	27	23	2.5	2.0	133	152	13 500	15 500	3 600	4 800	**30310JR**	1.310
	110	29.25	27	19	2.5	2.0	113	130	11 600	13 300	3 200	4 200	**30310DJR**	1.250
	110	42.25	40	33	2.5	2.0	184	232	18 700	23 600	3 600	4 800	**32310JR**	1.920

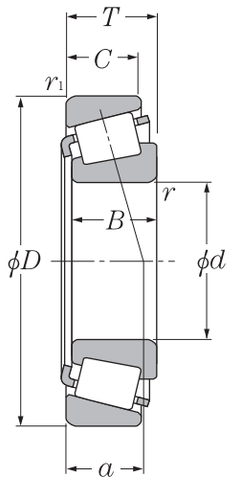
Metric Series



d 55~70mm

Boundary dimensions mm							Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
	90	23.00	23	17.5	1.5	1.5	80.5	118	8 200	12 000	4 000	5 400	**32011JR**	0.563
	90	27.00	27	21	1.5	1.5	91.5	138	9 350	14 100	4 000	5 400	**33011JR**	0.643
	95	30.00	30	23	1.5	1.5	111	155	11 300	15 800	3 900	5 200	**33111JR**	0.846
	100	22.75	21	18	2.0	1.5	93.0	111	9 500	11 300	3 600	4 900	**30211JR**	0.740
55	100	26.75	25	21	2.0	1.5	108	134	11 000	13 700	3 600	4 900	**32211JR**	0.876
	100	35.00	35	27	2.0	1.5	138	188	14 100	19 100	3 600	4 900	**33211JR**	1.150
	120	31.50	29	25	2.5	2.0	155	179	15 800	18 300	3 300	4 400	**30311JR**	1.660
	120	31.50	29	21	2.5	2.0	132	154	13 500	15 700	2 900	3 800	**30311DJR**	1.590
	120	45.50	43	35	2.5	2.0	215	275	21 900	28 000	3 300	4 400	**32311JR**	2.440
	95	23.00	23	17.5	1.5	1.5	82.0	123	8 350	12 500	3 700	4 900	**32012JR**	0.576
	95	27.00	27	21	1.5	1.5	93.5	145	9 550	14 700	3 700	4 900	**33012JR**	0.684
	100	30.00	30	23	1.5	1.5	113	164	11 600	16 700	3 600	4 700	**33112JR**	0.912
	110	23.75	22	19	2.0	1.5	105	125	10 700	12 700	3 400	4 500	**30212JR**	0.949
60	110	29.75	28	24	2.0	1.5	130	164	13 200	16 800	3 400	4 500	**32212JR**	1.180
	110	38.00	38	29	2.0	1.5	161	223	16 400	22 700	3 400	4 500	**33212JR**	1.550
	130	33.50	31	26	3.0	2.5	180	210	18 300	21 400	3 000	4 000	**30312JR**	2.060
	130	33.50	31	22	3.0	2.5	150	176	15 300	17 900	2 700	3 600	**30312DJR**	1.970
	130	48.50	46	37	3.0	2.5	244	315	24 900	32 000	3 000	4 000	**32312JR**	3.020
	100	23.00	23	17.5	1.5	1.5	83.0	128	8 450	13 000	3 400	4 600	**32013JR**	0.630
	100	27.00	27	21	1.5	1.5	97.5	156	9 950	16 000	3 400	4 600	**33013JR**	0.732
	110	34.00	34	26.5	1.5	1.5	144	211	14 700	21 500	3 300	4 400	**33113JR**	1.280
	120	24.75	23	20	2.0	1.5	123	148	12 500	15 000	3 100	4 200	**30213JR**	1.180
65	120	32.75	31	27	2.0	1.5	159	206	16 200	21 000	3 100	4 200	**32213JR**	1.580
	120	41.00	41	32	2.0	1.5	195	265	19 900	27 100	3 100	4 200	**33213JR**	1.980
	140	36.00	33	28	3.0	2.5	203	238	20 700	24 300	2 800	3 700	**30313JR**	2.550
	140	36.00	33	23	3.0	2.5	173	204	17 700	20 900	2 500	3 300	**30313DJR**	2.420
	140	51.00	48	39	3.0	2.5	273	350	27 800	36 000	2 800	3 700	**32313JR**	3.660
	110	25.00	25	19	1.5	1.5	105	160	10 700	16 400	3 200	4 200	**32014JR**	0.630
	110	31.00	31	25.5	1.5	1.5	127	204	12 900	20 800	3 200	4 200	**33014JR**	0.732
	125	26.25	24	21	2.0	1.5	131	162	13 400	16 500	2 900	3 900	**30214JR**	1.280
70	125	33.25	31	27	2.0	1.5	166	220	16 900	22 400	2 900	3 900	**32214JR**	1.180
	125	41.00	41	32	2.0	1.5	201	282	20 500	28 700	2 900	3 900	**33214JR**	1.580
	150	38.00	35	30	3.0	2.5	230	272	23 400	27 800	2 600	3 500	**30314JR**	2.550
	150	38.00	35	25	3.0	2.5	193	229	19 600	23 300	2 300	3 000	**30314DJR**	2.420
	150	54.00	51	42	3.0	2.5	310	405	31 500	41 000	2 600	3 500	**32314JR**	3.660

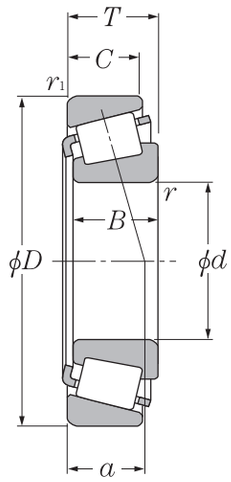
Metric Series



d 75~90mm

d	Boundary dimensions mm D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	Basic load ratings dynamic kN C_r	static kN C_{or}	dynamic kgf C_r	static kgf C_{or}	Limiting speeds min^{-1} grease	oil	Bearing numbers	Mass kg (approx.)
75	115	25.00	25	19	1.5	1.5	106	167	10 800	17 000	3 000	4 000	**32015JR**	0.909
	115	31.00	31	25.5	1.5	1.5	111	186	11 300	19 000	3 000	4 000	**33015JR**	1.110
	130	27.25	25	22	2.0	1.5	139	175	14 200	17 900	2 700	3 600	**30215JR**	1.410
	130	33.25	31	27	2.0	1.5	168	224	17 100	22 800	2 700	3 600	**32215JR**	1.740
	130	41.00	41	31	2.0	1.5	208	298	21 200	30 500	2 700	3 600	**33215JR**	2.200
	160	40.00	37	31	3.0	2.5	255	305	26 000	31 000	2 400	3 200	**30315JR**	3.570
	160	40.00	37	26	3.0	2.5	215	256	21 900	26 100	2 100	2 800	**30315DJR**	3.470
	160	58.00	55	45	3.0	2.5	355	470	36 000	47 500	2 400	3 200	**32315JR**	5.350
80	125	29.00	29	22	1.5	1.5	139	216	14 200	22 000	2 800	3 700	**32016JR**	1.280
	125	36.00	36	29.5	1.5	1.5	173	284	17 600	29 000	2 800	3 700	**33016JR**	1.600
	140	28.25	26	22	2.5	2.0	160	200	16 300	20 400	2 500	3 400	**30216JR**	1.720
	140	35.25	33	28	2.5	2.0	199	265	20 300	27 000	2 500	3 400	**32216JR**	2.180
	140	46.00	46	35	2.5	2.0	250	365	25 500	37 500	2 500	3 400	**33216JR**	2.920
	170	42.50	39	33	3.0	2.5	291	350	29 700	36 000	2 300	3 000	**30316JR**	4.410
	170	42.50	39	27	3.0	2.5	236	283	24 100	28 900	2 000	2 700	**30316DJR**	4.110
	170	61.50	58	48	3.0	2.5	395	525	40 500	53 500	2 300	3 000	**32316JR**	6.410
85	130	29.00	29	22	1.5	1.5	142	224	14 400	22 900	2 600	3 500	**32017JR**	1.350
	130	36.00	36	29.5	1.5	1.5	176	296	18 000	30 000	2 600	3 500	**33017JR**	1.700
	150	30.50	28	24	2.5	2.0	183	232	18 600	23 600	2 400	3 200	**30217JR**	2.140
	150	38.50	36	30	2.5	2.0	224	300	22 900	30 500	2 400	3 200	**32217JR**	2.750
	150	49.00	49	37	2.5	2.0	284	420	29 000	43 000	2 400	3 200	**33217JR**	3.580
	180	44.50	41	34	4.0	3.0	305	365	31 000	37 000	2 100	2 900	**30317JR**	5.200
	180	44.50	41	28	4.0	3.0	247	293	25 200	29 900	1 900	2 500	**30317DJR**	4.850
	180	63.50	60	49	4.0	3.0	405	525	41 000	53 500	2 100	2 900	**32317JR**	7.150
90	140	32.00	32	24	2.0	1.5	168	270	17 200	27 600	2 500	3 300	**32018JR**	1.790
	140	39.00	39	32.5	2.0	1.5	215	360	21 900	36 500	2 500	3 300	**33018JR**	2.180
	160	32.50	30	26	2.5	2.0	208	267	21 200	27 200	2 200	3 000	**30218JR**	2.660
	160	42.50	40	34	2.5	2.0	262	360	26 700	36 500	2 200	3 000	**32218JR**	3.490
	190	46.50	43	36	4.0	3.0	335	405	34 500	41 500	2 000	2 700	**30318JR**	6.030
	190	46.50	43	30	4.0	3.0	270	320	27 600	33 000	1 800	2 400	**30318DJR**	5.660
	190	67.50	64	53	4.0	3.0	450	595	46 000	60 500	2 000	2 700	**32318JR**	8.570

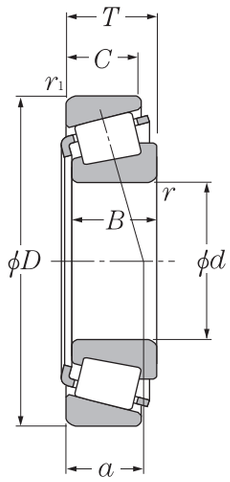
Metric Series



d 95~120mm

Boundary dimensions mm							Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
95	145	32.00	32	24	2.0	1.5	171	280	17 500	28 600	2 300	3 100	**32019JR**	1.830
	145	39.00	39	32.5	2.0	1.5	219	375	22 400	38 000	2 300	3 100	**33019JR**	2.270
	170	34.50	32	27	3.0	2.5	226	290	23 000	29 600	2 100	2 800	**30219JR**	3.070
	170	45.50	43	37	3.0	2.5	299	415	30 500	42 500	2 100	2 800	**32219JR**	4.300
	200	49.50	45	38	4.0	3.0	365	445	37 500	45 500	1 900	2 500	**30319JR**	6.980
	200	49.50	45	32	4.0	3.0	296	355	30 000	36 500	1 700	2 200	**30319DJR**	6.470
	200	71.50	67	55	4.0	3.0	505	670	51 500	68 500	1 900	2 500	**32319JR**	10.100
100	150	32.00	32	24	2.0	1.5	170	281	17 300	28 600	2 200	3 000	**32020JR**	1.910
	150	39.00	39	32.5	2.0	1.5	224	390	22 800	39 500	2 200	3 000	**33020JR**	2.370
	180	37.00	34	29	3.0	2.5	258	335	26 300	34 500	2 000	2 700	**30220JR**	3.780
	180	49.00	46	39	3.0	2.5	330	465	33 500	47 500	2 000	2 700	**32220JR**	5.120
	215	51.50	47	39	4.0	3.0	410	500	41 500	51 000	1 800	2 400	**30320JR**	8.560
	215	56.50	51	35	4.0	3.0	355	435	36 000	44 000	1 800	2 400	**31320JR**	8.670
	215	77.50	73	60	4.0	3.0	570	770	58 500	78 500	1 800	2 400	**32320JR**	12.700
105	160	35.00	35	26	2.5	2.0	201	335	20 500	34 000	2 100	2 800	**32021JR**	2.420
	160	43.00	43	34	2.5	2.0	245	420	25 000	43 000	2 100	2 800	**33021JR**	3.000
	190	39.00	36	30	3.0	2.5	287	380	29 300	38 500	1 900	2 500	**30221JR**	4.390
	190	53.00	50	43	3.0	2.5	380	540	38 500	55 500	1 900	2 500	**32221JR**	6.250
	225	53.50	49	41	4.0	3.0	435	530	44 500	54 500	1 700	2 300	**30321JR**	9.790
	225	58.00	53	36	4.0	3.0	380	470	39 000	47 500	1 700	2 300	**31321JR**	9.680
	225	81.50	77	63	4.0	3.0	610	825	62 500	84 500	1 700	2 300	**32321JR**	14.500
110	170	38.00	38	29	2.5	2.0	236	390	24 000	39 500	2 000	2 700	**32022JR**	3.070
	170	47.00	47	37	2.5	2.0	288	500	29 400	51 000	2 000	2 700	**33022JR**	3.800
	200	41.00	38	32	3.0	2.5	325	435	33 000	44 000	1 800	2 400	**30222JR**	5.180
	200	56.00	53	46	3.0	2.5	420	605	43 000	62 000	1 800	2 400	**32222JR**	7.430
	240	54.50	50	42	4.0	3.0	480	590	49 000	60 000	1 600	2 200	**30322JR**	11.400
	240	63.00	57	38	4.0	3.0	430	535	44 000	54 500	1 600	2 200	**31322JR**	11.900
	240	84.50	80	65	4.0	3.0	705	970	72 000	98 500	1 600	2 200	**32322JR**	18.000
120	180	38.00	38	29	2.5	2.0	245	420	25 000	43 000	1 800	2 500	**32024JR**	3.250
	215	43.50	40	34	3.0	2.5	345	470	35 500	48 000	1 700	2 200	**30224JR**	6.230
	215	61.50	58	50	3.0	2.5	460	680	47 000	69 500	1 700	2 200	**32224JR**	9.080
	260	59.50	55	46	4.0	3.0	560	695	57 000	71 000	1 500	2 000	**30324JR**	14.200
	260	68.00	62	42	4.0	3.0	515	655	52 500	67 000	1 500	2 000	**31324JR**	15.400
	260	90.50	86	69	4.0	3.0	815	1 130	83 000	116 000	1 500	2 000	**32324JR**	22.400

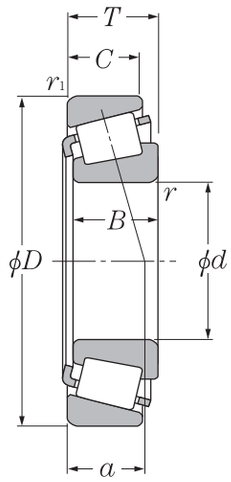
Metric Series



d 130~150mm

Boundary dimensions mm							Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Limiting speeds min-1		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil		(approx.)
	200	45.00	45	34	2.5	2.0	320	545	32 500	55 500	1 700	2 200	**32026JR**	4.960
	230	43.75	40	34	4.0	3.0	375	505	38 000	51 500	1 500	2 000	**30226JR**	7.250
130	230	67.75	64	54	4.0	3.0	530	815	54 000	83 000	1 500	2 000	**32226JR**	11.200
	280	63.75	58	49	5.0	4.0	650	830	66 000	84 500	1 400	1 800	**30326JR**	17.400
	280	72.00	66	44	5.0	4.0	600	780	61 500	79 500	1 400	1 800	**31326JR**	19.000
	210	45.00	45	34	2.5	2.0	330	580	33 500	59 500	1 600	2 100	**32028JR**	5.280
	250	45.75	42	36	4.0	3.0	420	570	43 000	58 500	1 400	1 900	**30228JR**	9.260
140	250	71.75	68	58	4.0	3.0	610	920	62 500	94 000	1 400	1 900	**32228JR**	8.370
	300	67.75	62	53	5.0	4.0	735	950	75 000	97 000	1 300	1 700	**30328JR**	21.200
	300	77.00	70	47	5.0	4.0	685	905	70 000	92 500	1 300	1 700	**31328JR**	23.000
	225	48.00	48	36	3.0	2.5	370	655	37 500	67 000	1 400	1 900	**32030JR**	6.370
	270	49.00	45	38	4.0	3.0	450	605	46 000	61 500	1 300	1 700	**30230JR**	11.200
150	270	77.00	73	60	4.0	3.0	700	1070	71 500	109 000	1 300	1 700	**32230JR**	18.200
	320	72.00	65	55	5.0	4.0	825	1070	84 000	109 000	1 200	1 600	**30330JR**	25.500
	320	82.00	75	50	5.0	4.0	775	1030	79 000	105 000	1 200	1 600	**31330JR**	27.700

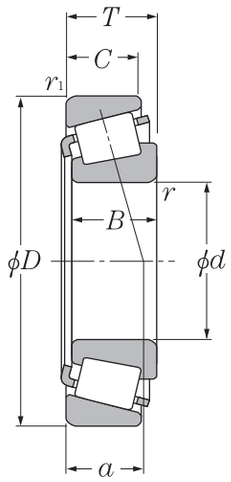
Inch Series



d 15.875~34.925mm

Boundary dimensions mm							Basic load ratings dynamic static kN		Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	grease	oil		(approx.)
15.875	42.862	14.288	14.287	9.525	0.8	0.8	17.600	18.000	8700	12000	**11590/20**	0.103
17.462	39.878	13.843	14.605	10.668	1.2	1.2	25.400	26.000	11000	14000	**LM11749/10**	0.085
19.050	45.237	15.494	16.637	12.065	1.2	1.2	29.400	30.100	9400	13000	**LM11949/10**	0.124
	49.225	18.034	19.050	14.228	0.6	0.6	38.500	39.000	8500	11000	**09067/195**	0.179
21.430	45.237	15.494	16.637	12.065	1.3	1.3	27.500	31.000	8000	11000	**LM12748/10**	0.123
	50.005	17.526	18.288	13.970	1.2	1.2	39.100	40.700	8500	11000	**M12649/10**	0.177
21.986	45.974	15.494	16.637	12.065	1.2	1.2	30.100	34.600	8900	12000	**LM12749/11**	0.121
	45.237	15.494	16.637	12.065	1.3	1.3	27.500	31.000	8000	11000	**LM12749/10**	0.115
22.225	57.150	22.225	22.225	17.462	0.8	1.6	52.600	55.700	7600	10000	**1280/20**	0.293
25.400	57.150	19.431	19.431	14.732	1.5	1.5	38.000	49.000	7500	10000	**M84548/10**	0.237
25.987	57.150	17.462	17.462	13.495	3.5	1.5	37.800	42.700	7450	8430	**HC15579X/20**	0.210
26.988	50.292	14.224	14.732	10.668	3.6	1.2	31.200	37.000	7800	10000	**L44649/10**	0.122
28.575	57.150	19.845	19.355	15.875	3.6	1.6	48.800	57.100	7000	9300	**1988/22**	0.227
	68.262	22.225	22.225	17.462	0.8	1.6	51.000	61.100	6000	8000	**02474/20**	0.408
29.000	50.292	14.224	14.732	10.668	3.6	1.2	28.900	37.200	7600	10000	**L45449/10**	0.115
30.162	64.292	21.432	21.433	16.670	1.6	1.6	55.200	70.700	6400	8500	**M86649/10**	0.340
31.750	59.131	15.875	16.764	11.811	1.2	1.2	35.800	43.100	6600	8800	**LM67048/10**	0.182
	62.000	19.050	19.050	14.288	1.2	1.2	44.600	50.700	6400	8600	**15123/245**	0.238
33.338	68.262	22.225	22.225	17.462	1.5	0.8	50.900	70.400	6300	7500	**M88048/10**	0.382
34.925	65.088	18.034	18.288	13.970	1.3	1.2	48.000	58.500	6000	8000	**LM48548/10**	0.249
	69.012	19.845	19.583	15.875	1.3	1.2	53.900	67.000	5600	7500	**14138A/14276**	0.330
	72.233	25.400	25.400	19.842	2.4	2.4	66.900	87.400	5700	7600	**HM88649/10**	0.487

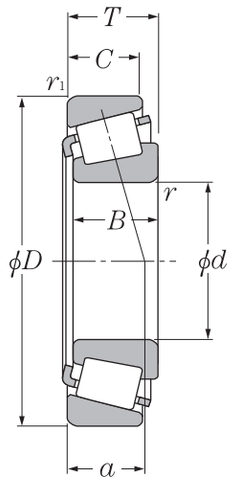
Inch Series



d 34.925~45.242mm

Boundary dimensions mm							Basic load ratings kN dynamic	static	Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	grease	oil		(approx.)
34.925	73.025	23.813	24.608	19.050	1.6	0.8	72.200	87.300	5600	7400	**25877/21**	0.474
	76.200	29.369	28.575	23.020	1.6	1.0	78.100	106.000	4800	6300	**HM89446/10**	0.660
34.988	59.131	15.875	16.764	11.938	3.6	1.2	35.700	48.500	6400	8500	**L68149/10**	0.168
	59.974	15.875	16.764	11.938	3.6	1.2	35.700	48.500	6400	8500	**L68149/11**	0.175
38.000	63.000	17.000	17.000	13.500	1.8	1.3	38.500	52.500	5700	7600	**JL69349/10**	0.198
38.100	65.088	18.034	18.288	13.970	1.9	1.2	42.900	56.500	5800	7800	**LM29748/10**	0.233
	65.088	18.034	18.288	13.970	2.3	1.3	40.000	57.000	5000	7000	**LM29749/10**	0.237
	65.088	19.812	18.288	15.748	2.4	1.2	42.900	56.500	5800	7800	**LM29749/11**	0.251
	76.200	23.775	25.654	19.050	2.0	1.5	730.000	905.000	5100	6800	**2788/20**	0.499
	88.500	26.988	29.083	22.225	3.5	1.5	95.500	107.000	4600	6100	**418/414**	0.840
40.988	67.975	17.500	18.000	13.500	2.6	1.5	46.000	62.500	5300	7000	**57414/LM300811**	0.239
	67.975	17.500	18.000	13.500	2.6	1.5	46.000	62.500	5300	7000	**LM300849/LM300811**	0.239
41.275	73.025	16.667	17.462	12.700	3.6	1.6	45.900	55.800	5200	6900	**18590/20**	0.283
	73.431	19.558	19.812	14.732	3.6	0.8	57.800	73.000	5200	7000	**LM501349/10**	0.334
	76.200	18.009	17.384	14.288	1.6	1.6	51.600	63.300	5200	6900	**11162R/300**	0.348
	87.312	30.163	30.886	23.812	1.5	1.5	102.000	1.320	4500	6000	**3577/3525**	0.850
	88.900	30.162	29.370	23.020	3.6	3.2	99.600	125.000	4600	6100	**HM803146/10**	0.892
42.862	87.312	30.163	30.886	23.812	3.6	3.0	94.000	117.000	4500	5900	**3579/3525**	0.805
44.450	82.931	23.813	25.400	19.050	3.6	1.6	760.000	980.000	4500	6000	**25580/20**	0.560
	83.058	23.813	25.400	19.050	3.5	3.3	760.000	980.000	4500	6000	**25580/21**	0.540
	93.264	30.163	30.302	23.812	3.5	3.3	102.000	134.000	4000	5300	**3782/20**	0.961
	88.900	30.162	29.370	23.020	3.6	3.2	99.600	125.000	4600	6100	**HM803149/10**	0.843
	92.075	30.162	29.370	23.020	3.8	3.3	95.200	127.000	4500	6000	**HM803149/12**	0.850
	95.250	30.958	28.575	22.225	3.6	0.8	99.700	12.000	3700	5100	**HM903249/10**	0.989
	111.125	38.100	36.957	33.338	3.6	3.2	138.000	172.000	3800	5100	**535/532**	1.830
45.230	79.985	30.559	20.638	15.080	2.0	1.3	55.100	70.800	4800	6300	**17887/31**	0.402
45.242	73.431	19.558	19.812	15.748	3.6	0.8	55.600	78.100	5100	6700	**LM102949/10**	0.307
	77.788	19.842	19.842	15.080	3.6	0.8	57.100	73.500	4900	6500	**LM603049/11**	0.363

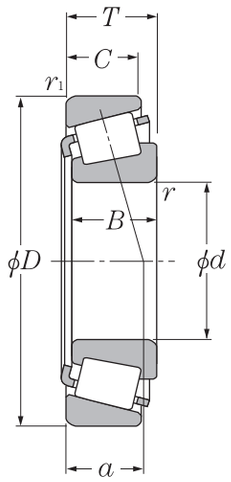
Inch Series



d 45.987~65.088mm

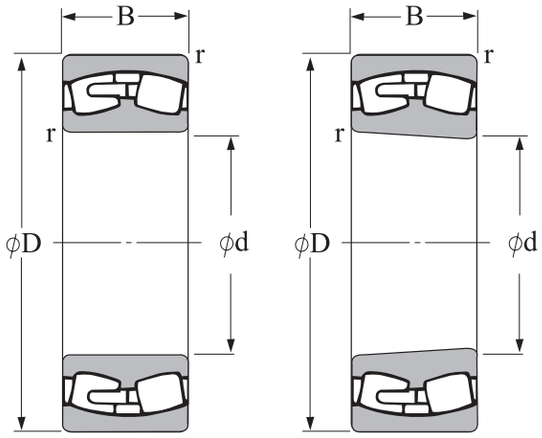
Boundary dimensions mm							Basic load ratings dynamic static kN		Limiting speeds min^{-1}		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	grease	oil		(approx.)
45.987	74.976	18.000	18.000	14.000	2.8	1.0	50.100	71.000	4800	6300	**LM503349/10**	0.310
45.618	82.931	23.813	25.400	19.050	3.5	0.8	53.900	69.500	4500	6000	**25590/20**	0.554
46.038	85.000	20.638	21.692	17.462	2.4	1.2	71.800	81.700	4600	6200	**359S/354A**	0.483
47.625	90.000	20.000	22.225	15.875	3.6	1.2	74.300	87.300	4400	5800	**369S/362**	0.537
	95.250	30.163	29.370	23.020	3.6	3.2	104.000	140.000	3300	4400	**HM804846/10**	0.968
50.000	82.000	21.500	21.500	17.000	3.0	0.5	71.700	97.900	4500	6000	**JLM104948/10**	0.431
	93.264	30.162	30.302	23.812	2.4	0.8	110.000	146.000	4000	4300	**50KW01/3720L**	0.870
50.800	82.550	21.160	22.225	16.510	3.6	1.2	61.200	84.300	4500	6000	**JLM104949/11**	0.131
	88.900	20.637	22.225	16.513	3.6	1.2	74.300	87.300	4400	5800	**368A/362A**	0.494
	92.075	24.607	25.400	19.845	3.6	0.8	84.800	119.000	4200	5600	**28580R/21**	0.700
	93.264	30.163	30.302	23.812	3.6	3.2	103.000	137.000	4200	5500	**3780/20**	0.835
52.388	92.075	24.607	25.400	19.845	3.6	0.8	84.800	119.000	4200	5600	**28584R/21**	0.682
53.975	95.250	27.783	28.575	22.225	2.4	1.0	105.000	137.000	4000	5300	**33895/33822**	0.820
	111.125	38.100	36.957	33.338	3.6	3.2	138.000	172.000	3800	5100	**539/532**	1.460
	123.825	36.512	32.791	25.400	2.8	1.2	154.000	188.000	2900	3900	**72212/72487**	2.030
57.150	96.838	21.000	21.946	15.875	3.6	0.8	80.400	101.000	3900	5200	**387A/382A**	0.603
	98.425	21.000	21.946	17.826	2.4	0.8	80.400	101.000	3900	5200	**387/382**	0.652
	104.775	30.162	29.317	24.605	2.4	3.2	109.000	144.000	3700	4900	**462/453X**	1.060
	104.775	30.162	29.317	24.605	3.6	3.2	109.000	144.000	3700	4900	**469/453X**	1.050
	112.712	30.163	30.162	23.812	3.2	2.4	142.000	204.000	3200	4300	**39581/39520**	1.400
63.500	110.000	22.000	21.996	18.824	3.2	2.2	88.000	118.000	3200	4300	**395/394A**	0.840
	112.712	30.163	30.048	23.812	3.5	3.3	119.000	174.000	3200	4300	**3982/20**	1.260
	122.238	38.100	38.354	29.718	7.0	3.3	159.000	146.000	3400	4300	**HM212047/11**	1.930
	130.048	36.512	36.170	28.575	3.5	0.8	146.000	216.000	3000	4000	**565/562**	0.620
65.088	135.755	53.975	56.007	44.450	3.6	3.2	266.000	357.000	3000	4000	**6379/6320**	3.710

Inch Series



d 66.675~107.950mm

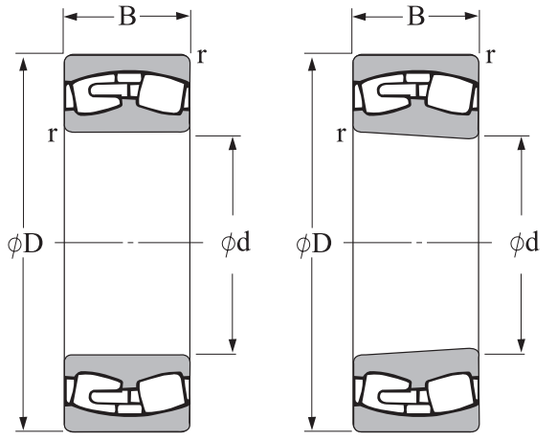
	Boundary dimensions mm						Basic load ratings kN dynamic	static	Limiting speeds min-1		Bearing numbers	Mass kg
d	D	T	B	C	$r_{s\,min}$	$r_{1s\,min}$	C_r	C_{or}	grease	oil		(approx.)
66.675	112.712	30.163	30.048	23.812	3.6	3.3	119.000	174.000	3200	4300	**3984/20**	1.180
	122.238	38.100	38.354	29.718	3.6	1.6	191.000	249.000	3200	4300	**HM212049/10**	1.860
	122.348	38.100	38.354	29.718	3.5	3.3	159.000	146.000	3400	4200	**HM212049/11**	1.850
69.850	117.475	30.162	30.162	23.812	3.6	3.2	118.000	179.000	3200	4200	**33275/462**	1.270
	120.000	32.545	32.545	26.195	3.6	3.2	150.000	218.000	3100	4200	**47487/20**	1.480
	120.000	29.794	29.007	24.237	3.6	2.0	118.000	161.000	3200	4200	**482/472**	1.280
	127.000	36.512	36.170	28.575	3.6	3.2	156.000	226.000	3000	4000	**566/563**	1.890
70.000	130.000	57.000	56.000	35.000	3.2	2.8	209.000	300.000	2400	3400	**534565/528983**	2.775
73.025	112.712	25.400	25.400	19.050	3.6	3.2	97.000	155.000	3200	4300	**29685/20**	0.872
76.200	133.350	33.337	33.338	26.195	3.6	3.3	153.000	235.000	2600	3500	**47679/20**	1.920
	139.992	36.513	36.098	28.575	3.6	3.2	175.000	262.000	2700	3600	**575/572**	2.410
82.550	125.412	25.400	25.400	19.845	3.6	1.6	101.000	162.000	2900	3800	**27687/20**	1.050
	139.992	36.513	36.098	28.575	3.6	3.2	175.000	262.000	2700	3600	**580/572**	2.190
85.026	150.089	44.450	46.672	36.512	3.6	3.2	264.000	368.000	2500	3400	**749/742**	3.180
85.725	133.350	30.163	29.769	22.225	3.6	3.2	133.000	198.000	2700	3600	**497/492A**	1.410
	146.050	41.275	41.275	31.750	3.6	3.2	220.000	320.000	2200	3200	**665/653**	2.600
88.900	152.400	39.688	36.322	33.338	3.5	3.3	180.000	279.000	2300	3100	**593/592**	2.780
	161.925	47.625	48.260	38.100	3.6	3.2	273.000	391.000	2400	3200	**759/752**	4.100
	161.925	53.974	55.100	42.862	2.8	2.2	330.000	510.000	2000	3000	**6580/6535**	4.800
89.974	146.975	40.000	40.000	32.500	7.1	3.6	206.000	310.000	2500	3300	**HM218248/10**	2.440
92.075	152.400	39.688	36.322	30.162	6.4	3.3	211.000	315.000	1900	2800	**598A/592A**	2.670
95.250	152.400	39.688	36.322	30.162	5.2	0.8	183.000	287.000	2400	3300	**594A/592A**	2.070
	168.275	41.275	41.275	30.162	3.6	3.2	224.000	349.000	2200	3000	**683/672**	3.680
107.950	158.750	23.020	21.438	15.875	3.6	3.2	104.000	169.000	2200	3000	**37425/625**	1.380



Cylindrical Bore Tapered Bore

d 25~40mm

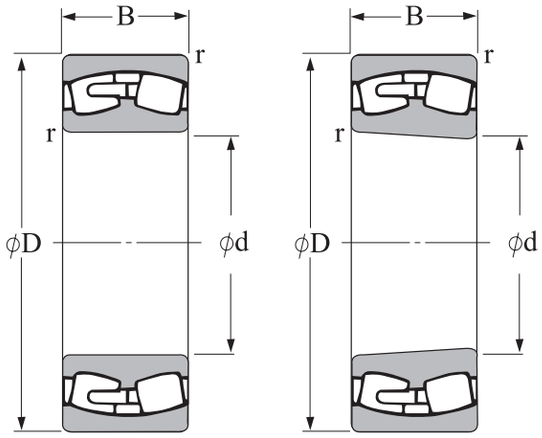
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
25	52	18	1.0	35.80	34.70	3,652	3,539	7500	10000	**22205CC**		0.175
	52	18	1.0	35.80	34.70	3,652	3,539	7500	10000	**22205CK**	H305	0.175
	52	18	1.0	35.80	34.70	3,652	3,539	7000	9800	**22205KMBW33**	H305	0.176
	52	18	1.0	35.80	34.70	3,652	3,539	7000	9800	**22205MBW33**		0.177
30	72	19	1.1	51.50	49.40	5,253	5,039	5800	7800	**21306CC**		0.420
	72	19	1.1	51.50	49.40	5,253	5,039	5800	7800	**21306CK**	H306	0.420
	72	19	1.1	51.50	49.40	5,253	5,039	5200	7400	**21306KMBW33**	H306	0.420
	72	19	1.1	51.50	49.40	5,253	5,039	5200	7400	**21306MBW33**		0.420
	62	20	1.0	49.40	48.70	5,039	4,967	6300	8500	**22206CC**		0.280
	62	20	1.0	49.40	48.70	5,039	4,967	6300	8500	**22206CK**	H306	0.280
	62	20	1.0	49.40	48.70	5,039	4,967	6000	8000	**22206KMBW33**	H306	0.280
	62	20	1.0	49.40	48.70	5,039	4,967	6000	8000	**22206MBW33**		0.290
35	80	21	1.5	63.10	61.30	6,436	6,253	5000	6700	**21307CC**		0.560
	80	21	1.5	63.10	61.30	6,436	6,253	5000	6700	**21307CK**	H307	0.560
	80	21	1.5	63.10	61.30	6,436	6,253	5000	6700	**21307KMBW33**	H307	0.560
	80	21	1.5	63.10	61.30	6,436	6,253	4500	6000	**21307MBW33**		0.560
	72	23	1.1	68.70	70.30	7,007	7,171	5300	7000	**22207CC**		0.430
	72	23	1.1	68.70	70.30	7,007	7,171	5300	7000	**22207CK**	H307	0.430
	72	23	1.1	68.70	70.30	7,007	7,171	5000	6600	**22207KMBW33**	H307	0.450
	72	23	1.1	68.70	70.30	7,007	7,171	5000	6600	**22207MBW33**		0.450
	80	31	1.5	105.00	107.00	10,710	10,914	5100	6700	**22307CC**		0.733
	80	31	1.5	105.00	107.00	10,710	10,914	5100	6700	**22307CK**	H2307	0.733
	80	31	1.5	105.00	107.00	10,710	10,914	5100	6700	**22307KMBW33**	H2307	0.733
	80	31	1.5	105.00	107.00	10,710	10,914	5100	6000	**22307MBW33**		0.733
40	90	23	1.5	82.80	82.20	8,446	8,384	4500	6000	**21308CC**		0.710
	90	23	1.5	82.80	82.20	8,446	8,384	4500	6000	**21308CK**	H308	0.700
	90	23	1.5	82.80	82.20	8,446	8,384	4200	5600	**21308KMBW33**	H308	0.750
	90	23	1.5	82.80	82.20	8,446	8,384	4200	5800	**21308MBW33**		0.750
	80	23	1.1	77.50	81.50	7,905	8,313	4800	6300	**22208CC**		0.520
	80	23	1.1	77.50	81.50	7,905	8,313	4800	6300	**22208CK**	H308	0.510
	80	23	1.1	77.50	81.50	7,905	8,313	4800	6000	**22208KMBW33**	H308	0.550
	80	23	1.1	77.50	81.50	7,905	8,313	4500	6000	**22208MBW33**		0.550
	90	33	1.5	125.00	134.00	12,750	13,668	4300	5600	**22308CC**		1.100
	90	33	1.5	125.00	134.00	12,750	13,668	4300	5600	**22308CK**	H2308	1.000



Cylindrical Bore Tapered Bore

d 40~55mm

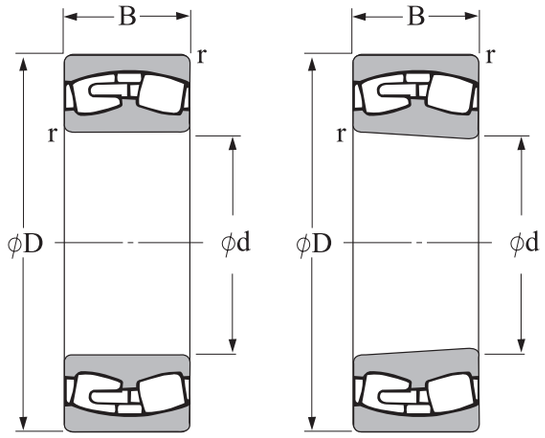
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
40	90	33	1.5	125.00	134.00	12,750	13,668	3800	5000	**22308KMBW33**	H2308	1.200
	90	33	1.5	125.00	134.00	12,750	13,668	3800	5000	**22308MBW33**		1.200
45	100	25	1.5	102.00	103.00	10,404	10,506	4000	5300	**21309CC**		0.950
	100	25	1.5	102.00	103.00	10,404	10,506	4000	5300	**21309CK**	H309	0.940
	100	25	1.5	102.00	103.00	10,404	10,506	3800	5000	**21309KMBW33**	H309	1.020
	100	25	1.5	102.00	103.00	10,404	10,506	3800	5000	**21309MBW33**		1.020
	85	23	1.1	82.30	85.90	8,395	8,762	4500	6000	**22209CC**		0.560
	85	23	1.1	82.30	85.90	8,395	8,762	4500	6000	**22209CK**	H309	0.550
	85	23	1.1	82.30	85.90	8,395	8,762	4300	5800	**22209KMBW33**	H309	0.550
	85	23	1.1	82.30	85.90	8,395	8,762	4300	5800	**22209MBW33**		0.590
	100	36	1.5	150.00	156.00	15,300	15,912	3800	5000	**22309CC**		1.350
	100	36	1.5	150.00	156.00	15,300	15,912	3800	5000	**22309CK**	H2309	1.300
	100	36	1.5	150.00	156.00	15,300	15,912	3400	4500	**22309KMBW33**	H2309	1.360
	100	36	1.5	150.00	156.00	15,300	15,912	3400	4500	**22309MBW33**		1.360
50	110	27	2.0	121.00	124.00	12,342	12,648	3600	4800	**21310CC**		1.250
	110	27	2.0	121.00	124.00	12,342	12,648	3600	4800	**21310CK**	H310	1.200
	110	27	2.0	121.00	124.00	12,342	12,648	3200	4500	**21310KMBW33**	H310	1.300
	110	27	2.0	121.00	124.00	12,342	12,648	3200	4500	**21310MBW33**		1.300
	90	23	1.1	87.40	93.90	8,915	9,578	4000	5300	**22210CC**		0.610
	90	23	1.1	87.40	93.90	8,915	9,578	4000	5300	**22210CK**	H310	0.600
	90	23	1.1	87.40	93.90	8,915	9,578	3700	5000	**22210KMBW33**	H310	0.870
	90	23	1.1	87.40	93.90	8,915	9,578	3700	5000	**22210MBW33**		0.870
	110	40	2.0	184.00	203.00	18,768	20,706	3400	4500	**22310CC**		1.850
	110	40	2.0	184.00	203.00	18,768	20,706	3400	4500	**22310CK**	H2310	1.800
	110	40	2.0	184.00	203.00	18,768	20,706	3000	4000	**22310KMBW33**	H2310	1.840
	110	40	2.0	184.00	203.00	18,768	20,706	3000	4000	**22310MBW33**		1.840
55	120	29	2.0	158.00	191.00	16,116	19,482	3200	4300	**21311CC**		1.650
	120	29	2.0	158.00	191.00	16,116	19,482	3200	4300	**21311CK**	H311	1.600
	120	29	2.0	158.00	191.00	16,116	19,482	3000	4000	**21311KMBW33**	H311	1.650
	120	29	2.0	158.00	191.00	16,116	19,482	2800	3600	**21311MBW33**		2.430
	100	25	1.5	109.00	118.00	11,118	12,036	3800	5000	**22211CC**		0.820
	100	25	1.5	109.00	118.00	11,118	12,036	3800	500	**22211CK**	H311	0.800
	100	25	1.5	109.00	118.00	11,118	12,036	3500	4700	**22211KMBW33**	H311	0.860
	100	25	1.5	109.00	118.00	11,118	12,036	3500	4700	**22211MBW33**		0.860



Cylindrical Bore Tapered Bore

d 55~70mm

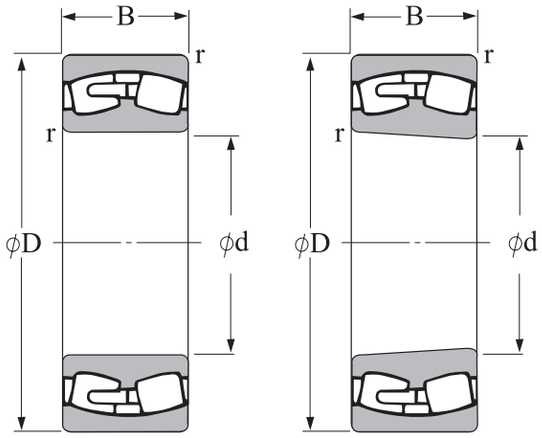
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
55	120	43	2.0	205.00	241.00	20,910	24,582	3000	4000	**22311CC**		2.350
	120	43	2.0	205.00	241.00	20,910	24,582	3000	4000	**22311CK**	H2311	2.300
	120	43	2.0	205.00	241.00	20,910	24,582	2800	3600	**22311KMBW33**	H2311	2.430
	120	43	2.0	205.00	241.00	20,910	24,582	2800	3600	**22311MBW33**		2.430
60	130	31	2.1	173.00	204.00	17,646	20,808	3400	4500	**21312CC**		1.950
	130	31	2.1	173.00	204.00	17,646	20,808	3000	4000	**21312CK**	H312	1.900
	130	31	2.1	173.00	204.00	17,646	20,808	3100	4100	**21312KMBW33**	H312	2.100
	130	31	2.1	173.00	204.00	17,646	20,808	3100	4100	**21312MBW33**		2.100
	110	28	1.5	130.00	144.00	13,260	14,688	3400	4500	**22212CC**		1.160
	110	28	1.5	130.00	144.00	13,260	14,688	3400	4500	**22212CK**	H312	1.100
	110	28	1.5	130.00	144.00	13,260	14,688	3100	4200	**22212KMBW33**	H312	1.220
	110	28	1.5	130.00	144.00	13,260	14,688	3100	4200	**22212MBW33**		1.220
	130	46	2.1	239.00	279.00	24,378	28,458	2800	3800	**22312CC**		2.950
	130	46	2.1	239.00	279.00	24,378	28,458	2800	3800	**22312CK**	H2312	2.850
	130	46	2.1	239.00	279.00	24,378	28,458	2600	3400	**22312KMBW33**	H2312	2.980
	130	46	2.1	239.00	279.00	24,378	28,458	2600	3400	**22312MBW33**		2.980
65	140	33	2.1	198.00	239.00	20,196	24,378	2800	3800	**21313CC**		2.450
	140	33	2.1	198.00	239.00	20,196	24,378	2800	3800	**21313CK**	H313	2.400
	140	33	2.1	198.00	239.00	20,196	24,378	2300	3500	**21313KMBW33**	H313	2.570
	140	33	2.1	198.00	239.00	20,196	24,378	2300	3500	**21313MBW33**		2.570
	120	31	1.5	149.00	190.00	15,198	19,380	3000	4000	**22213CC**		1.450
	120	31	1.5	149.00	190.00	15,198	19,380	3000	4000	**22213CK**	H313	1.400
	120	31	1.5	149.00	190.00	15,198	19,380	2800	3600	**22213KMBW33**	H313	1.730
	120	31	1.5	149.00	190.00	15,198	19,380	2800	3600	**22213MBW33**		1.730
	140	48	2.1	262.00	309.00	26,724	31,518	2800	3600	**22313CC**		3.550
	140	48	2.1	262.00	309.00	26,724	31,518	2800	3600	**22313CK**	H2313	3.450
	140	48	2.1	262.00	309.00	26,724	31,518	2400	3200	**22313KMBW33**	H2313	3.510
	140	48	2.1	262.00	309.00	26,724	31,518	2400	3200	**22313MBW33**		3.510
70	150	35	2.1	231.00	286.00	23,562	29,172	2600	3400	**21314CC**		3.100
	150	35	2.1	231.00	286.00	23,562	29,172	2600	3400	**21314CK**	H314	3.000
	150	35	2.1	231.00	286.00	23,562	29,172	2200	3000	**21314KMBW33**	H314	3.110
	150	35	2.1	231.00	286.00	23,562	29,172	2200	3000	**21314MBW33**		3.110
	125	31	1.5	161.00	208.00	16,422	21,216	2800	3800	**22214CC**		1.550
	125	31	1.5	161.00	208.00	16,422	21,216	2800	3800	**22214CK**	H314	1.500



Cylindrical Bore Tapered Bore

d 70~85mm

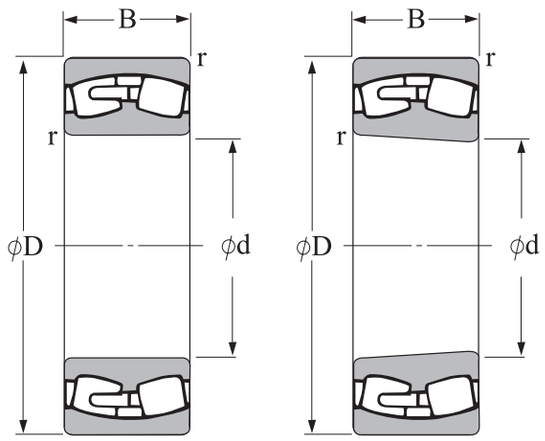
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	125	31	1.5	161.00	208.00	16,422	21,216	2200	3300	**22214KMBW33**	H314	1.660
	125	31	1.5	161.00	208.00	16,422	21,216	2200	3300	**22214MBW33**		1.660
70	150	51	2.1	311.00	364.00	31,722	37,128	2400	3200	**22314CC**		4.350
	150	51	2.1	311.00	364.00	31,722	37,128	2400	3200	**22314CK**	H2314	4.300
	150	51	2.1	311.00	364.00	31,722	37,128	2200	2800	**22314KMBW33**	H2314	4.300
	150	51	2.1	311.00	364.00	31,722	37,128	2200	2800	**22314MBW33**		4.300
	160	37	2.1	250.00	312.00	25,500	31,824	2400	3200	**21315CC**		3.550
	160	37	2.1	250.00	312.00	25,500	31,824	2400	3200	**21315CK**	H315	3.500
	160	37	2.1	250.00	312.00	25,500	31,824	2100	2900	**21315KMBW33**	H315	3.760
	160	37	2.1	250.00	312.00	25,500	31,824	2100	2900	**21315MBW33**		3.760
	130	31	1.5	167.00	221.00	17,034	22,542	2800	3800	**22215CC**		1.650
75	130	31	1.5	167.00	221.00	17,034	22,542	2800	3800	**22215CK**	H315	1.600
	130	31	1.5	167.00	221.00	17,034	22,542	2600	3400	**22215KMBW33**	H315	1.720
	130	31	1.5	167.00	221.00	17,034	22,542	2600	3400	**22215MBW33**		1.720
	160	55	2.1	342.00	412.00	34,884	42,024	2200	3000	**22315CC**		5.250
	160	55	2.1	342.00	412.00	34,884	42,024	2200	3000	**22315CK**	H2315	5.150
	160	55	2.1	342.00	412.00	34,884	42,024	2200	2800	**22315KMBW33**	H2315	5.260
	160	55	2.1	342.00	412.00	34,884	42,024	2200	2800	**22315MBW33**		5.260
	170	39	2.1	256.00	316.00	26,112	32,232	2200	3000	**21316CC**		4.250
	170	39	2.1	256.00	316.00	26,112	32,232	2200	3000	**21316CK**	H316	4.200
	170	39	2.1	256.00	316.00	26,112	32,232	1800	2400	**21316KMBW33**	H316	6.200
	170	39	2.1	256.00	316.00	26,112	32,232	1800	2400	**21316MBW33**		6.200
	140	33	2.0	201.00	249.00	20,502	25,398	2600	3400	**22216CC**		2.050
80	140	33	2.0	201.00	249.00	20,502	25,398	2600	3400	**22216CK**	H316	2.050
	140	33	2.0	201.00	249.00	20,502	25,398	2200	3000	**22216KMBW33**	H316	2.140
	140	33	2.0	201.00	249.00	20,502	25,398	2200	3000	**22216MBW33**		2.140
	170	58	2.1	392.00	480.00	39,984	48,960	2000	2600	**22316CC**		6.290
	170	58	2.1	392.00	480.00	39,984	48,960	2000	2600	**22316CK**	H2316	6.290
	170	58	2.1	392.00	480.00	39,984	48,960	1800	2400	**22316KMBW33**	H2316	6.100
	170	58	2.1	392.00	480.00	39,984	48,960	1800	2400	**22316MBW33**		6.200
	180	41	3.0	304.00	387.00	31,008	39,474	2200	2800	**21317CC**		5.100
85	180	41	3.0	304.00	387.00	31,008	39,474	2200	2800	**21317CK**	H317	5.000
	180	41	3.0	304.00	387.00	31,008	39,474	1900	2400	**21317KMBW33**	H317	5.230
	180	41	3.0	304.00	387.00	31,008	39,474	1900	2400	**21317MBW33**		5.230



Cylindrical Bore Tapered Bore

d 85~95mm

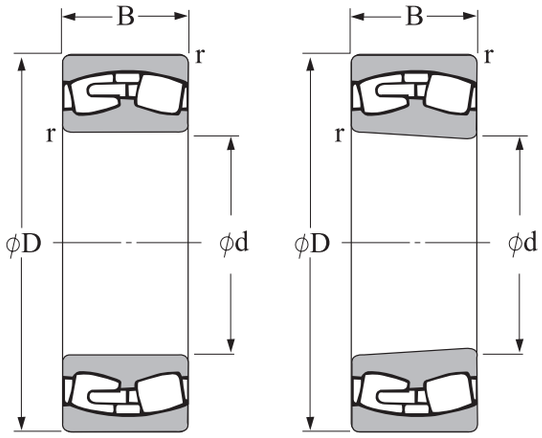
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	150	36	2.0	224.00	285.00	22,848	29,070	2400	3200	**22217CC**		2.570
	150	36	2.0	224.00	285.00	22,848	29,070	2400	3200	**22217CK**	H317	2.500
	150	36	2.0	224.00	285.00	22,848	29,070	2200	2800	**22217KMBW33**	H317	2.780
85	150	36	2.0	224.00	285.00	22,848	29,070	2200	2800	**22217MBW33**		2.780
	180	60	3.0	397.00	481.00	40,494	49,062	1800	2400	**22317CC**		8.590
	180	60	3.0	397.00	481.00	40,494	49,062	1800	2400	**22317CK**	H2317	8.590
	180	60	3.0	397.00	481.00	40,494	49,062	1700	2200	**22317KMBW33**	H2317	7.200
	180	60	3.0	397.00	481.00	40,494	49,062	1700	2200	**22317MBW33**		7.220
	190	43	3.0	347.00	443.00	35,394	45,186	2200	2800	**21318CC**		5.800
	190	43	3.0	347.00	443.00	35,394	45,186	2200	2800	**21318CK**	H318	5.700
	190	43	3.0	347.00	443.00	35,394	45,186	1800	2500	**21318KMBW33**	H318	6.170
	190	43	3.0	347.00	443.00	35,394	45,186	1800	2500	**21318MBW33**		6.170
	160	40	2.0	246.00	330.00	25,092	33,660	2200	3000	**22218CC**		3.400
	160	40	2.0	246.00	330.00	25,092	33,660	2200	300	**22218CK**	H318	3.200
	160	40	2.0	246.00	330.00	25,092	33,660	2200	2800	**22218KMBW33**	H318	3.570
90	160	40	2.0	246.00	330.00	25,092	33,660	2200	2800	**22218MBW33**		3.570
	190	64	3.0	458.00	556.00	46,716	56,712	1800	2400	**22318CC**		8.700
	190	64	3.0	458.00	556.00	46,716	56,712	1800	2400	**22318CK**	H2318	8.500
	190	64	3.0	458.00	556.00	46,716	56,712	1700	2200	**22318KMBW33**	H2318	8.690
	190	64	3.0	458.00	556.00	46,716	56,712	1700	2200	**22318MBW33**		8.690
	160	52.4	2.0	317.00	459.00	32,334	46,818	2200	3000	**23218CC**		4.400
	160	52.4	2.0	317.00	459.00	32,334	46,818	2200	3000	**23218CK**	H2318	4.700
	160	52.4	2.0	317.00	459.00	32,334	46,818	1500	2000	**23218KMBW33**	H2318	4.600
	160	52.4	2.0	317.00	459.00	32,334	46,818	1500	2000	**23218MBW33**		4.600
	200	45	3.0	373.00	480.00	38,046	48,960	1900	2600	**21319CC**		7.150
	200	45	3.0	373.00	480.00	38,046	48,960	1900	2600	**21319CK**	H319	7.150
	200	45	3.0	373.00	480.00	38,046	48,960	1800	2400	**21319KMBW33**	H319	7.000
	200	45	3.0	373.00	480.00	38,046	48,960	1800	2400	**21319MBW33**		7.150
	170	43	2.1	296.00	386.00	30,192	39,372	2200	2800	**22219CC**		4.260
95	170	43	2.1	296.00	386.00	30,192	39,372	2200	2800	**22219CK**	H319	4.260
	170	43	2.1	296.00	386.00	30,192	39,372	2000	2600	**22219KMBW33**	H319	4.000
	170	43	2.1	296.00	386.00	30,192	39,372	2000	2600	**22219MBW33**		4.240
	200	67	3.0	504.00	623.00	51,408	63,546	1700	2200	**22319CC**		11.300
	200	67	3.0	504.00	623.00	51,408	63,546	1700	2200	**22319CK**	H2319	11.300
	200	67	3.0	504.00	623.00	51,408	63,546	1500	2000	**22319KMBW33**	H2319	10.000



Cylindrical Bore Tapered Bore

d 95~110mm

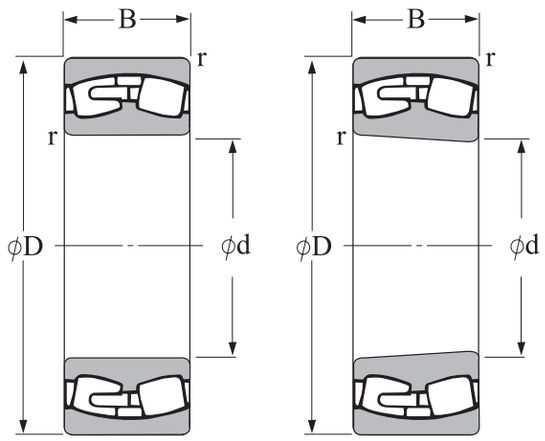
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
95	200	67	3.0	504.00	623.00	51,408	63,546	1500	2000	**22319MBW33**		10.100
	215	47	3.0	414.00	528.00	42,228	53,856	1800	2400	**21320CC**		8.810
	215	47	3.0	414.00	528.00	42,228	53,856	1800	2400	**21320CK**	H320	8.810
	215	47	3.0	414.00	528.00	42,228	53,856	1700	2200	**21320KMBW33**	H320	8.300
	215	47	3.0	414.00	528.00	42,228	53,856	1700	2200	**21320MBW33**		8.800
	180	46	2.1	335.00	453.00	34,170	46,206	2200	2800	**22220CC**		5.240
	180	46	2.1	335.00	453.00	34,170	46,206	2200	2800	**22220CK**	H320	5.240
	180	46	2.1	335.00	453.00	34,170	46,206	2000	2600	**22220KMBW33**	H320	4.800
	180	46	2.1	335.00	453.00	34,170	46,206	2000	2600	**22220MBW33**		4.850
	215	73	3.0	579.00	713.00	59,058	72,726	1500	2000	**22320CC**		13.200
	215	73	3.0	579.00	713.00	59,058	72,726	1500	2000	**22320CK**	H2320	13.000
	215	73	3.0	579.00	713.00	59,058	72,726	1400	1800	**22320KMBW33**	H2320	12.700
100	215	73	3.0	579.00	713.00	59,058	72,726	1400	1800	**22320MBW33**		12.700
	165	52	2.0	297.00	493.00	30,294	50,286	2200	3000	**23120CC**		4.310
	165	52	2.0	297.00	493.00	30,294	50,286	2200	3000	**23120CK**	H3120	4.310
	165	52	2.0	297.00	493.00	30,294	50,286	2000	2600	**23120KMBW33**	H3120	4.400
	165	52	2.0	297.00	493.00	30,294	50,286	2000	2600	**23120MBW33**		4.500
	180	60.3	2.1	415.00	599.00	42,330	61,098	1700	2200	**23220CC**		7.340
	180	60.3	2.1	415.00	599.00	42,330	61,098	1700	2200	**23220CK**	H2320	7.340
	180	60.3	2.1	415.00	599.00	42,330	61,098	1500	2000	**23220KMBW33**	H2320	6.500
	180	60.3	2.1	415.00	599.00	42,330	61,098	1500	2000	**23220MBW33**		6.700
	150	50	1.5	251.00	448.00	25,602	45,696	1600	2100	**24020CC**		3.035
	150	50	1.5	251.00	448.00	25,602	45,696	1600	2100	**24020CK**		3.035
	150	50	1.5	251.00	448.00	25,602	45,696	1600	2100	**24020K30MBW33**		3.035
	150	50	1.5	251.00	448.00	25,602	45,696	1600	2100	**24020MBW33**		3.035
	200	53	2.1	411.00	553.00	41,922	56,406	1900	2500	**22222CC**		7.250
	200	53	2.1	411.00	553.00	41,922	56,406	1900	2500	**22222CK**	H322	7.250
	200	53	2.1	411.00	553.00	41,922	56,406	1700	2200	**22222KMBW33**	H322	7.000
	200	53	2.1	411.00	553.00	41,922	56,406	1700	2200	**22222MBW33**		7.100
110	240	80	3.0	713.00	884.00	72,726	90,168	1400	1900	**22322CC**		18.000
	240	80	3.0	713.00	884.00	72,726	90,168	1400	1900	**22322CK**	H2322	17.500
	240	80	3.0	713.00	884.00	72,726	90,168	1300	1700	**22322KMBW33**	H2322	17.700
	240	80	3.0	713.00	884.00	72,726	90,168	1300	1700	**22322MBW33**		17.700
	170	45	2.0	286.00	478.00	29,172	48,756	2100	2800	**23022CC**		3.680
	170	45	2.0	286.00	478.00	29,172	48,756	2100	2800	**23022CK**	H3022	3.680



Cylindrical Bore Tapered Bore

d 110~120mm

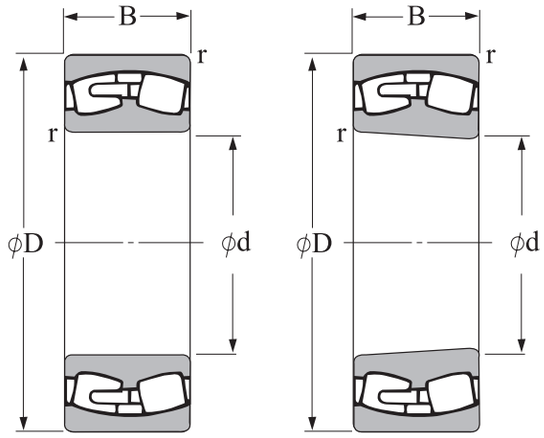
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	170	45	2.0	286.00	478.00	29,172	48,756	2000	2600	**23022KMBW33**	H3022	3.750
	170	45	2.0	286.00	478.00	29,172	48,756	2000	2600	**23022MBW33**		3.750
	180	56	2.0	346.00	591.00	35,292	60,282	2000	2600	**23122CC**		6.260
	180	56	2.0	346.00	591.00	35,292	60,282	2000	2600	**23122CK**	H3122	6.260
	180	56	2.0	346.00	591.00	35,292	60,282	1800	2400	**23122KMBW33**	H3122	5.500
	180	56	2.0	346.00	591.00	35,292	60,282	1800	2400	**23122MBW33**		5.550
110	200	69.8	2.1	525.00	786.00	53,550	80,172	1400	1800	**23222CC**		10.800
	200	69.8	2.1	525.00	786.00	53,550	80,172	1400	1800	**23222CK**	H2322	10.800
	200	69.8	2.1	525.00	786.00	53,550	80,172	1200	1600	**23222KMBW33**	H2322	9.500
	200	69.8	2.1	525.00	786.00	53,550	80,172	1200	1600	**23222MBW33**		9.700
	180	69	2.0	472.00	798.00	48,144	81,396	1600	2000	**24122CC**		6.630
	180	69	2.0	472.00	798.00	48,144	81,396	1600	2000	**24122CK**		6.630
	180	69	2.0	472.00	798.00	48,144	81,396	1600	2000	**24122K30MBW33**		6.630
	180	69	2.0	472.00	798.00	48,144	81,396	1600	2000	**24122MBW33**		6.630
	215	58	2.1	492.00	673.00	50,184	68,646	1700	2200	**22224CC**		8.700
	215	58	2.1	492.00	673.00	50,184	68,646	1700	2200	**22224CK**	H3124	8.600
	215	58	2.1	492.00	673.00	50,184	68,646	1500	2000	**22224KMBW33**	H3124	9.040
	215	58	2.1	492.00	673.00	50,184	68,646	1500	2000	**22224MBW33**		9.040
	260	86	3.0	812.00	1,050.00	82,824	107,100	1300	1700	**22324CC**		24.500
	260	86	3.0	812.00	1,050.00	82,824	107,100	1300	1700	**22324CK**	H2324	24.500
	260	86	3.0	812.00	1,050.00	82,824	107,100	1100	1500	**22324KMBW33**	H2324	21.800
	260	86	3.0	812.00	1,050.00	82,824	107,100	1100	1500	**22324MBW33**		22.000
	180	46	2.0	299.00	517.00	30,498	52,734	2000	2600	**23024CC**		4.250
	180	46	2.0	299.00	517.00	30,498	52,734	2000	2600	**23024CK**	H3024	4.250
120	180	46	2.0	299.00	517.00	30,498	52,734	1800	2400	**23024KMBW33**	H3024	4.100
	180	46	2.0	299.00	517.00	30,498	52,734	1800	2400	**23024MBW33**		4.200
	200	62	2.0	447.00	760.00	45,594	77,520	1800	2400	**23124CC**		7.670
	200	62	2.0	447.00	760.00	45,594	77,520	1800	2400	**23124CK**	H3124	7.670
	200	62	2.0	447.00	760.00	45,594	77,520	1700	2200	**23124KMBW33**	H3124	7.600
	200	62	2.0	447.00	760.00	45,594	77,520	1700	2200	**23124MBW33**		7.800
	215	76	2.1	583.00	894.00	59,466	91,188	1300	1700	**23224CC**		13.100
	215	76	2.1	583.00	894.00	59,466	91,188	1300	1700	**23224CK**	H2324	13.100
	215	76	2.1	583.00	894.00	59,466	91,188	1100	1500	**23224KMBW33**	H2324	11.800
	215	76	2.1	583.00	894.00	59,466	91,188	1100	1500	**23224MBW33**		12.000
	180	60	2.0	391.00	695.00	39,882	70,890	1500	2000	**24024CC**		5.050
	180	60	2.0	391.00	695.00	39,882	70,890	1500	2000	**24024CK**		5.050
	180	60	2.0	391.00	695.00	39,882	70,890	1500	2000	**24024K30MBW33**		5.300



Cylindrical Bore Tapered Bore

d 120~140mm

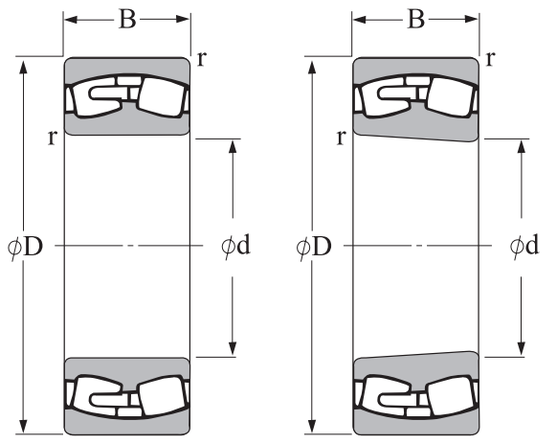
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	180	60	2.0	391.00	695.00	39,882	70,890	1400	1800	**24024MBW33**		5.120
	200	80	2.0	592.00	1,028.00	60,384	104,856	1400	1800	**24124CC**		9.650
120	200	80	2.0	592.00	1,028.00	60,384	104,856	1400	1800	**24124CK**		9.650
	200	80	2.0	592.00	1,028.00	60,384	104,856	1000	1300	**24124K30MBW33**		10.000
	200	80	2.0	592.00	1,028.00	60,384	104,856	1000	1300	**24124MBW33**		10.200
	230	64	3.0	569.00	789.00	58,038	80,478	1700	2200	**22226CC**		14.000
	230	64	3.0	569.00	789.00	58,038	80,478	1700	2200	**22226CK**	H3126	14.000
	230	64	3.0	569.00	789.00	58,038	80,478	1500	2000	**22226KMBW33**	H3126	11.200
	230	64	3.0	569.00	789.00	58,038	80,478	1500	2000	**22226MBW33**		11.200
	280	93	4.0	948.00	1,200.00	96,696	122,400	1200	1600	**22326CC**		34.200
	280	93	4.0	948.00	1,200.00	96,696	122,400	1200	1600	**22326CK**	H2326	34.200
	280	93	4.0	948.00	1,200.00	96,696	122,400	1100	1400	**22326KMBW33**	H2326	28.300
	280	93	4.0	948.00	1,200.00	96,696	122,400	1100	1400	**22326MBW33**		28.500
	200	52	2.0	377.00	654.00	38,454	66,708	1800	2400	**23026CC**		4.590
	200	52	2.0	377.00	654.00	38,454	66,708	1400	1800	**23026CK**	H3026	7.550
	200	52	2.0	377.00	654.00	38,454	66,708	1700	2200	**23026KMBW33**	H3026	6.000
	200	52	2.0	377.00	654.00	38,454	66,708	1700	2200	**23026MBW33**		6.100
	210	64	2.0	506.00	826.00	51,612	84,252	1700	2200	**23126CC**		9.700
130	210	64	2.0	506.00	826.00	51,612	84,252	1700	2200	**23126CK**	H3126	9.700
	210	64	2.0	506.00	826.00	51,612	84,252	1500	2000	**23126KMBW33**	H3126	8.300
	210	64	2.0	506.00	826.00	51,612	84,252	1500	2000	**23126MBW33**		8.550
	230	80	3.0	668.00	1,030.00	68,136	105,060	1300	1700	**23226CC**		15.800
	230	80	3.0	668.00	1,030.00	68,136	105,060	1300	1700	**23226CK**	H2326	15.800
	230	80	3.0	668.00	1,030.00	68,136	105,060	1100	1500	**23226KMBW33**	H2326	13.800
	230	80	3.0	668.00	1,030.00	68,136	105,060	1100	1500	**23226MBW33**		14.000
	200	69	2.0	486.00	878.00	49,572	89,556	1400	1800	**24026CC**		7.550
	200	69	2.0	486.00	878.00	49,572	89,556	1400	1800	**24026CK**		7.550
	200	69	2.0	486.00	878.00	49,572	89,556	1200	1600	**24026K30MBW33**		7.850
	200	69	2.0	486.00	878.00	49,572	89,556	1200	1600	**24026MBW33**		7.950
	210	80	2.0	603.00	1,061.00	61,506	108,222	1300	1700	**24126CC**		10.300
	210	80	2.0	603.00	1,061.00	61,506	108,222	1300	1700	**24126CK**		10.300
	210	80	2.0	603.00	1,061.00	61,506	108,222	900	1200	**24126K30MBW33**		10.800
	210	80	2.0	603.00	1,061.00	61,506	108,222	900	1200	**24126MBW33**		11.000
	250	68	3.0	658.00	928.00	67,116	94,656	1400	1900	**22228CC**		14.400
140	250	68	3.0	658.00	928.00	67,116	94,656	1400	1900	**22228CK**	H3128	20.800
	250	68	3.0	658.00	928.00	67,116	94,656	1300	1700	**22228KMBW33**	H3128	13.800



Cylindrical Bore Tapered Bore

d 140~150mm

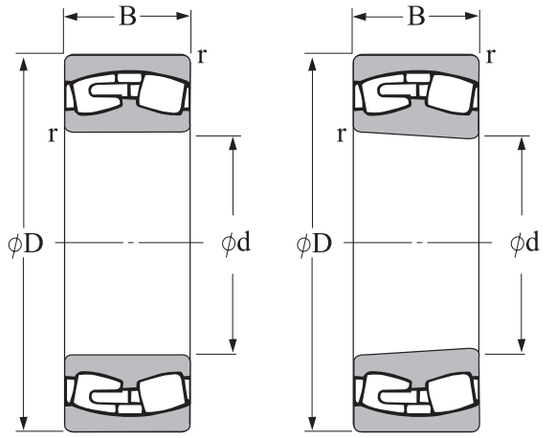
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	250	68	3.0	658.00	928.00	67,116	94,656	1300	1700	**22228MBW33**		14.000
	300	102	4.0	1,100.00	1,410.00	112,200	143,820	1100	1400	**22328CC**		45.700
	300	102	4.0	1,100.00	1,410.00	112,200	143,820	1100	1400	**22328CK**	H2328	45.700
	300	102	4.0	1,100.00	1,410.00	112,200	143,820	1000	1300	**22328KMBW33**	H2328	34.100
	300	102	4.0	1,100.00	1,410.00	112,200	143,820	1000	1300	**22328MBW33**		34.500
	210	53	2.0	428.00	737.00	43,656	75,174	1700	2200	**23028CC**		7.200
	210	53	2.0	428.00	737.00	43,656	75,174	1700	2200	**23028CK**	H3028	7.200
	210	53	2.0	428.00	737.00	43,656	75,174	1500	2000	**23028KMBW33**	H3028	6.000
	210	53	2.0	428.00	737.00	43,656	75,174	1500	2000	**23028MBW33**		6.550
	225	68	2.1	561.00	934.00	57,222	95,268	1500	2000	**23128CC**		11.800
	225	68	2.1	561.00	934.00	57,222	95,268	1200	1600	**23128CK**	H3128	12.500
140	225	68	2.1	561.00	934.00	57,222	95,268	1400	1800	**23128KMBW33**	H3128	10.200
	225	68	2.1	561.00	934.00	57,222	95,268	1400	1800	**23128MBW33**		10.500
	250	88	3.0	787.00	1,230.00	80,274	125,460	1100	1400	**23228CC**		20.800
	250	88	3.0	787.00	1,230.00	80,274	125,460	1100	1400	**23228CK**	H2328	20.800
	250	88	3.0	787.00	1,230.00	80,274	125,460	1000	1300	**23228KMBW33**	H2328	18.200
	250	88	3.0	787.00	1,230.00	80,274	125,460	1000	1300	**23228MBW33**		18.500
	210	69	2.0	503.00	922.00	51,306	94,044	1300	1700	**24028CC**		8.010
	210	69	2.0	503.00	922.00	51,306	94,044	1300	1700	**24028CK**		8.010
	210	69	2.0	503.00	922.00	51,306	94,044	1100	1500	**24028K30MBW33**		8.350
	210	69	2.0	503.00	922.00	51,306	94,044	1100	1500	**24028MBW33**		8.450
	225	85	2.1	690.00	1,236.00	70,380	126,072	1200	1600	**24128CC**		12.500
	225	85	2.1	690.00	1,236.00	70,380	126,072	1200	1600	**24128CK**		12.500
	225	85	2.1	690.00	1,236.00	70,380	126,072	850	1100	**24128K30MBW33**		13.000
	225	85	2.1	690.00	1,236.00	70,380	126,072	850	1100	**24128MBW33**		13.200
	270	73	3.0	720.00	1,020.00	73,440	104,040	1200	1600	**22230KMBW33**	H3130	17.710
	270	73	3.0	720.00	1,020.00	73,440	104,040	1200	1600	**22230MBW33**		18.000
	320	108	4.0	1,230.00	1,600.00	125,460	163,200	1000	1300	**22330KMBW33**	H2330	43.100
	320	108	4.0	1,230.00	1,600.00	125,460	163,200	1000	1300	**22330MBW33**		43.500
	225	56	2.1	467.00	812.00	47,634	82,824	1500	2000	**23030CC**		8.570
150	225	56	2.1	467.00	812.00	47,634	82,824	1500	2000	**23030CK**	H3030	8.570
	225	56	2.1	467.00	812.00	47,634	82,824	1400	1800	**23030KMBW33**	H3030	7.800
	225	56	2.1	467.00	812.00	47,634	82,824	1400	1800	**23030MBW33**		7.950
	250	80	2.1	689.00	1,230.00	70,278	125,460	1400	1900	**23130CC**		15.700
	250	80	2.1	689.00	1,230.00	70,278	125,460	1400	1900	**23130CK**	H3130	15.700
	250	80	2.1	689.00	1,230.00	70,278	125,460	1300	1700	**23130KMBW33**	H3130	16.000
	250	80	2.1	689.00	1,230.00	70,278	125,460	1300	1700	**23130MBW33**		16.300



Cylindrical Bore Tapered Bore

d 150~170mm

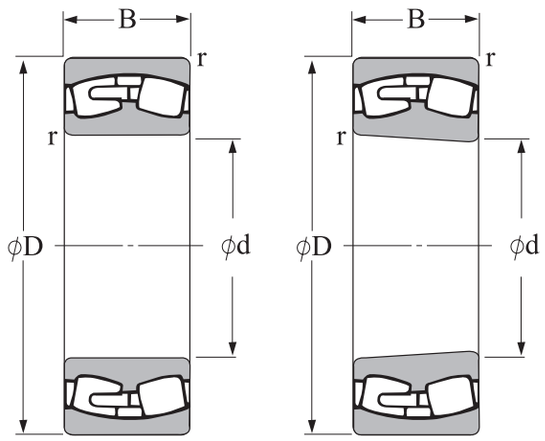
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r kgf	C_{or} kgf	grease	oil			(approx.)
150	270	96	3.0	924.00	1,470.00	94,248	149,940	1000	1300	**23230KMBW33**	H2330	24.000
	270	96	3.0	924.00	1,470.00	94,248	149,940	1000	1300	**23230MBW33**		24.500
	225	75	2.1	587.00	1,100.00	59,874	112,200	1200	1500	**24030CC**		10.100
	225	75	2.1	587.00	1,100.00	59,874	112,200	1200	1500	**24030CK**		10.100
	225	75	2.1	587.00	1,100.00	59,874	112,200	1100	1400	**24030K30MBW33**		10.500
	225	75	2.1	587.00	1,100.00	59,874	112,200	1100	1400	**24030MBW33**		10.500
	250	100	2.1	910.00	1,650.00	92,820	168,300	1100	1400	**24130CC**		19.000
	250	100	2.1	910.00	1,650.00	92,820	168,300	1100	1400	**24130CK**		19.000
	250	100	2.1	910.00	1,650.00	92,820	168,300	850	1100	**24130K30MBW33**		19.100
	250	100	2.1	910.00	1,650.00	92,820	168,300	850	1100	**24130MBW33**		19.500
160	290	80	3.0	885.00	1,270.00	90,270	129,540	1100	1500	**22232KMBW33**	H3132	22.900
	290	80	3.0	885.00	1,270.00	90,270	129,540	1100	1500	**22232MBW33**		23.300
	340	114	4.0	1,380.00	1,790.00	140,760	182,580	1000	1200	**22332KMBW33**	H2332	50.000
	340	114	4.0	1,380.00	1,790.00	140,760	182,580	1000	1200	**22332MBW33**		50.800
	240	60	2.1	539.00	944.00	54,978	96,288	900	1100	**23032KMBW33**	H3032	9.500
	240	60	2.1	539.00	944.00	54,978	96,288	900	1100	**23032MBW33**		9.700
	270	86	2.1	796.00	1,380.00	81,192	140,760	840	1000	**23132KMBW33**	H3132	20.100
	270	86	2.1	796.00	1,380.00	81,192	140,760	840	1000	**23132MBW33**		20.500
	290	104	3.0	1,030.00	1,650.00	105,060	168,300	800	950	**23232KMBW33**	H2332	31.100
	290	104	3.0	1,030.00	1,650.00	105,060	168,300	800	950	**23232MBW33**		31.700
	240	80	2.1	670.00	1,260.00	68,340	128,520	725	900	**24032K30MBW33**		13.000
	240	80	2.1	670.00	1,260.00	68,340	128,520	725	900	**24032MBW33**		13.300
	270	109	2.1	1,070.00	1,930.00	109,140	196,860	725	900	**24132K30MBW33**		24.600
	270	109	2.1	1,070.00	1,930.00	109,140	196,860	725	900	**24132MBW33**		24.600
170	310	86	4.0	952.00	1,390.00	97,104	141,780	1100	1400	**22234KMBW33**	H3134	28.400
	310	86	4.0	952.00	1,390.00	97,104	141,780	1100	1400	**22234MBW33**		28.900
	360	120	4.0	1,460.00	1,920.00	148,920	195,840	1000	1100	**22334KMBW33**	H2334	60.200
	360	120	4.0	1,460.00	1,920.00	148,920	195,840	1000	1100	**22334MBW33**		62.200
	260	67	2.1	609.00	1,110.00	62,118	113,220	900	1000	**23034KMBW33**	H3034	13.300
	260	67	2.1	609.00	1,110.00	62,118	113,220	900	1000	**23034MBW33**		13.400
	280	88	2.1	888.00	1,490.00	90,576	151,980	850	950	**23134KMBW33**	H3134	22.000
	280	88	2.1	888.00	1,490.00	90,576	151,980	850	950	**23134MBW33**		22.300
	310	110	4.0	1,150.00	1,870.00	117,300	190,740	850	950	**23234KMBW33**	H2334	37.200
	310	110	4.0	1,150.00	1,870.00	117,300	190,740	850	950	**23234MBW33**		37.800
	260	90	2.1	816.00	1,565.00	83,232	159,630	750	900	**24034K30MBW33**		17.200



Cylindrical Bore Tapered Bore

d 170~200mm

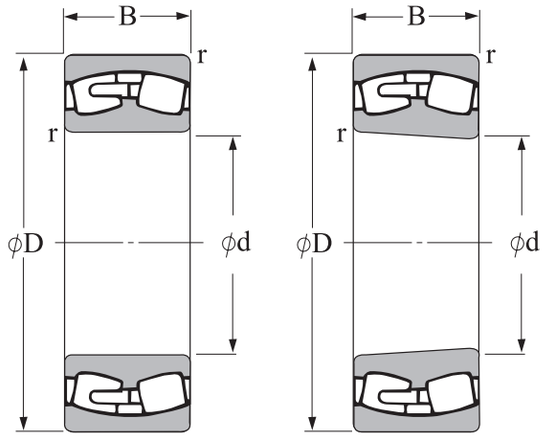
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1} grease	oil	Bearing numbers	Adapter sleeve	Mass kg (approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}					
	260	90	2.1	816.00	1,565.00	83,232	159,630	750	900	**24034MBW33**		17.700
170	280	109	2.1	1,100.00	1,980.00	112,200	201,960	750	900	**24134K30MBW33**		26.000
	280	109	2.1	1,100.00	1,980.00	112,200	201,960	750	900	**24134MBW33**		26.400
	320	86	4.0	978.00	1,450.00	99,756	147,900	1100	1400	**22236KMBW33**	H3136	29.400
	320	86	4.0	978.00	1,450.00	99,756	147,900	1100	1400	**22236MBW33**		30.400
	380	126	4.0	1,740.00	2,360.00	177,480	240,720	1000	1300	**22336KMBW33**	H2336	68.200
	380	126	4.0	1,740.00	2,360.00	177,480	240,720	1000	1300	**22336MBW33**		69.000
	280	74	2.1	710.00	1,290.00	72,420	131,580	1050	1200	**23036KMBW33**	H3036	17.000
	280	74	2.1	710.00	1,290.00	72,420	131,580	1050	1200	**23036MBW33**		17.600
180	300	96	3.0	1,000.00	1,800.00	102,000	183,600	1000	1100	**23136KMBW33**	H3136	28.000
	300	96	3.0	1,000.00	1,800.00	102,000	183,600	1000	1100	**23136MBW33**		28.400
	320	112	4.0	1,190.00	1,980.00	121,380	201,960	950	1000	**23236KMBW33**	H2336	40.100
	320	112	4.0	1,190.00	1,980.00	121,380	201,960	950	1000	**23236MBW33**		40.800
	280	100	2.1	955.00	1,870.00	97,410	190,740	900	1200	**24036K30MBW33**		23.000
	280	100	2.1	955.00	1,870.00	97,410	190,740	900	1200	**24036MBW33**		23.200
	300	118	3.0	1,240.00	2,280.00	126,480	232,560	900	1200	**24136K30MBW33**		32.000
	300	118	3.0	1,240.00	2,280.00	126,480	232,560	900	1200	**24136MBW33**		32.000
	340	92	4.0	1,110.00	1,730.00	113,220	176,460	1000	1300	**22238KMBW33**	H3138	37.200
	340	92	4.0	1,110.00	1,730.00	113,220	176,460	1000	1300	**22238MBW33**		37.700
	400	132	5.0	1,900.00	2,610.00	193,800	266,220	1000	1200	**22338KMBW33**	H2338	83.000
	400	132	5.0	1,900.00	2,610.00	193,800	266,220	1000	1200	**22338MBW33**		84.800
	290	75	2.1	736.00	1,370.00	75,072	139,740	850	1100	**23038KMBW33**	H3038	18.000
	290	75	2.1	736.00	1,370.00	75,072	139,740	850	1100	**23038MBW33**		18.600
190	320	104	3.0	1,090.00	2,000.00	111,180	204,000	850	1100	**23138KMBW33**	H3138	35.000
	320	104	3.0	1,090.00	2,000.00	111,180	204,000	850	1100	**23138MBW33**		35.600
	340	120	4.0	1,410.00	2,210.00	143,820	225,420	750	1000	**23238KMBW33**	H2338	48.100
	340	120	4.0	1,410.00	2,210.00	143,820	225,420	750	1000	**23238MBW33**		48.900
	290	100	2.1	1,004.00	1,960.00	102,408	199,920	700	900	**24038K30MBW33**		24.000
	290	100	2.1	1,004.00	1,960.00	102,408	199,920	700	900	**24038MBW33**		24.300
	320	128	3.0	1,450.00	2,660.00	147,900	271,320	600	800	**24138K30MBW33**		41.200
	320	128	3.0	1,450.00	2,660.00	147,900	271,320	600	800	**24138MBW33**		41.800
	360	98	4.0	1,230.00	1,930.00	125,460	196,860	930	1200	**22240KMBW33**	H3140	47.700
200	360	98	4.0	1,230.00	1,930.00	125,460	196,860	930	1200	**22240MBW33**		47.700
	420	138	5.0	2,010.00	2,750.00	205,020	280,500	700	1000	**22340KMBW33**	H2340	95.000



Cylindrical Bore Tapered Bore

d 200~240mm

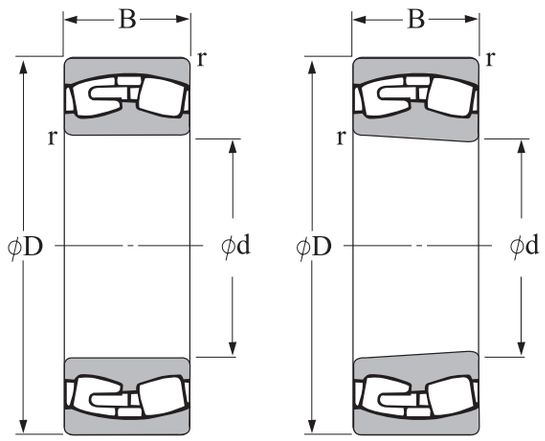
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	420	138	5.0	2,010.00	2,750.00	205,020	280,500	700	1000	**22340MBW33**		95.000
	310	82	2.1	890.00	1,670.00	90,780	170,340	850	1000	**23040KMBW33**	H3040	23.500
	310	82	2.1	890.00	1,670.00	90,780	170,340	850	1000	**23040MBW33**		23.500
	340	112	3.0	1,240.00	2,250.00	126,480	229,500	850	1000	**23140KMBW33**	H3140	43.500
	340	112	3.0	1,240.00	2,250.00	126,480	229,500	850	1000	**23140MBW33**		43.500
200	360	128	4.0	1,550.00	2,610.00	158,100	266,220	750	900	**23240KMBW33**	H2340	58.500
	360	128	4.0	1,550.00	2,610.00	158,100	266,220	750	900	**23240MBW33**		58.500
	310	109	2.1	1,150.00	2,280.00	117,300	232,560	700	800	**24040K30MBW33**		30.500
	310	109	2.1	1,150.00	2,280.00	117,300	232,560	700	800	**24040MBW33**		30.500
	340	140	3.0	1,620.00	3,030.00	165,240	309,060	560	750	**24140K30MBW33**		51.500
	340	140	3.0	1,620.00	3,030.00	165,240	309,060	560	750	**24140MBW33**		51.500
	400	108	4.0	1,630.00	2,450.00	166,260	249,900	850	1100	**22244KMBW33**	H3144	63.000
	400	108	4.0	1,630.00	2,450.00	166,260	249,900	850	1100	**22244MBW33**		63.000
	460	145	5.0	2,380.00	3,380.00	242,760	344,760	720	960	**22344KMBW33**	H2344	120.000
	460	145	5.0	2,380.00	3,380.00	242,760	344,760	720	960	**22344MBW33**		120.000
	340	90	3.0	984.00	1,890.00	100,368	192,780	720	920	**23044KMBW33**	H3044	31.500
	340	90	3.0	984.00	1,890.00	100,368	192,780	720	920	**23044MBW33**		31.500
	370	120	4.0	1,440.00	2,700.00	146,880	275,400	720	920	**23144KMBW33**	H3144	54.500
220	370	120	4.0	1,440.00	2,700.00	146,880	275,400	720	920	**23144MBW33**		54.500
	400	144	4.0	1,880.00	3,200.00	191,760	326,400	600	800	**23244KMBW33**	H2344	82.500
	400	144	4.0	1,880.00	3,200.00	191,760	326,400	600	800	**23244MBW33**		82.500
	340	118	3.0	1,370.00	2,760.00	139,740	281,520	550	750	**24044K30MBW33**		39.500
	340	118	3.0	1,370.00	2,760.00	139,740	281,520	550	750	**24044MBW33**		39.500
	370	150	4.0	1,900.00	3,580.00	193,800	365,160	530	700	**24144K30MBW33**		65.000
	370	150	4.0	1,900.00	3,580.00	193,800	365,160	530	700	**24144MBW33**		65.000
	440	120	4.0	1,960.00	3,050.00	199,920	311,100	750	1000	**22248KMBW33**	H3148	85.500
	440	120	4.0	1,960.00	3,050.00	199,920	311,100	750	1000	**22248MBW33**		85.500
	500	155	5.0	2,610.00	4,020.00	266,220	410,040	700	900	**22348KMBW33**	H2348	151.000
	500	155	5.0	2,610.00	4,020.00	266,220	410,040	700	900	**22348MBW33**		151.000
240	360	92	3.0	1,100.00	2,170.00	112,200	221,340	860	840	**23048KMBW33**	H3048	34.500
	360	92	3.0	1,100.00	2,170.00	112,200	221,340	860	840	**23048MBW33**		34.500
	400	128	4.0	1,630.00	3,080.00	166,260	314,160	600	800	**23148KMBW33**	H3148	67.500
	400	128	4.0	1,630.00	3,080.00	166,260	314,160	600	800	**23148MBW33**		67.500
	440	160	4.0	2,340.00	3,990.00	238,680	406,980	560	750	**23248KMBW33**	H2348	110.000
	440	160	4.0	2,340.00	3,990.00	238,680	406,980	560	750	**23248MBW33**		110.000



Cylindrical Bore Tapered Bore

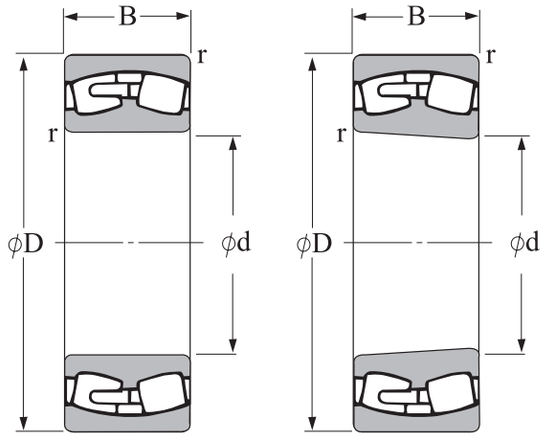
d 240~300mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
	360	118	3.0	1,440.00	2,930.00	146,880	298,860	500	700	**24048K30MBW33**		42.500
240	360	118	3.0	1,440.00	2,930.00	146,880	298,860	500	700	**24048MBW33**		42.500
	400	160	4.0	2,160.00	4,090.00	220,320	417,180	480	630	**24148K30MBW33**		80.500
	400	160	4.0	2,160.00	4,090.00	220,320	417,180	480	630	**24148MBW33**		80.500
	480	130	5.0	2,240.00	3,450.00	228,480	351,900	670	900	**22252KMBW33**	H3152	111.000
	480	130	5.0	2,240.00	3,450.00	228,480	351,900	670	900	**22252MBW33**		111.000
	540	165	6.0	2,830.00	4,380.00	288,660	446,760	620	780	**22352KMBW33**	H2352	95.300
	540	165	6.0	2,830.00	4,380.00	288,660	446,760	620	780	**22352MBW33**		95.300
	400	104	4.0	1,330.00	2,570.00	135,660	262,140	600	720	**23052KMBW33**	H3052	50.500
	400	104	4.0	1,330.00	2,570.00	135,660	262,140	600	720	**23052MBW33**		50.500
260	440	144	4.0	2,100.00	3,860.00	214,200	393,720	550	690	**23152KMBW33**	H3152	93.500
	440	144	4.0	2,100.00	3,860.00	214,200	393,720	550	690	**23152MBW33**		93.500
	480	174	5.0	2,750.00	4,640.00	280,500	473,280	500	670	**23252KMBW33**	H2352	142.000
	480	174	5.0	2,750.00	4,640.00	280,500	473,280	500	670	**23252MBW33**		142.000
	400	140	4.0	1,840.00	3,850.00	187,680	392,700	600	800	**24052K30MBW33**		66.000
	400	140	4.0	1,840.00	3,850.00	187,680	392,700	600	800	**24052MBW33**		66.000
	440	180	4.0	2,730.00	5,330.00	278,460	543,660	500	670	**24152K30MBW33**		114.000
	440	180	4.0	2,730.00	5,330.00	278,460	543,660	500	670	**24152MBW33**		114.000
	500	130	5.0	2,360.00	3,650.00	240,720	372,300	630	850	**22256KMBW33**	H3156	116.000
	500	130	5.0	2,360.00	3,650.00	240,720	372,300	630	850	**22256MBW33**		116.000
	580	175	6.0	3,150.00	4,910.00	321,300	500,820	530	710	**22356KMBW33**	H2356	238.000
	580	175	6.0	3,150.00	4,910.00	321,300	500,820	530	710	**22356MBW33**		238.000
	420	106	4.0	1,430.00	2,860.00	145,860	291,720	750	1000	**23056KMBW33**	H3056	53.000
	420	106	4.0	1,430.00	2,860.00	145,860	291,720	750	1000	**23056MBW33**		53.000
280	460	146	5.0	2,140.00	4,280.00	218,280	436,560	670	900	**23156KMBW33**	H3156	100.000
	460	146	5.0	2,140.00	4,280.00	218,280	436,560	670	900	**23156MBW33**		100.000
	500	176	5.0	2,690.00	4,910.00	274,380	500,820	480	630	**23256KMBW33**	H2356	153.000
	500	176	5.0	2,690.00	4,910.00	274,380	500,820	480	630	**23256MBW33**		153.000
	420	140	4.0	1,960.00	4,100.00	199,920	418,200	560	750	**24056K30MBW33**		68.500
	420	140	4.0	1,960.00	4,100.00	199,920	418,200	560	750	**24056MBW33**		68.500
	460	180	5.0	2,810.00	5,480.00	286,620	558,960	400	530	**24156K30MBW33**		118.000
	460	180	5.0	2,810.00	5,480.00	286,620	558,960	400	530	**24156MBW33**		118.000
300	460	118	4.0	1,750.00	3,480.00	178,500	354,960	670	900	**23060KMBW33**	H3060	73.500
	460	118	4.0	1,750.00	3,480.00	178,500	354,960	670	900	**23060MBW33**		73.500



d 300~360mm

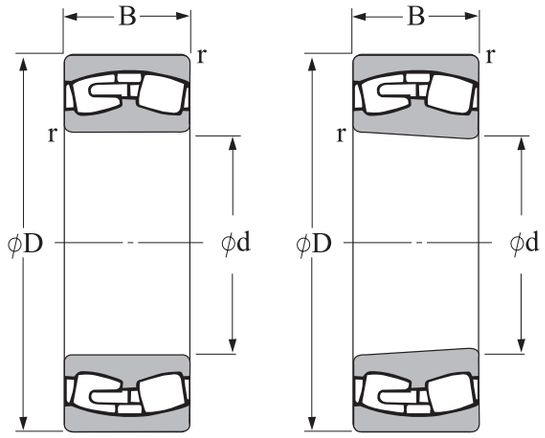
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
300	500	160	5.0	2,490.00	4,850.00	253,980	494,700	630	850	**23160KMBW33**	H3160	130.000
	500	160	5.0	2,490.00	4,850.00	253,980	494,700	630	850	**23160MBW33**		130.000
	540	192	5.0	3,430.00	5,910.00	349,860	602,820	450	600	**23260KMBW33**	H2360	195.000
	540	192	5.0	3,430.00	5,910.00	349,860	602,820	450	600	**23260MBW33**		195.000
	460	160	4.0	2,430.00	5,160.00	247,860	526,320	560	750	**24060K30MBW33**		97.000
	460	160	4.0	2,430.00	5,160.00	247,860	526,320	560	750	**24060MBW33**		97.000
	500	200	5.0	3,213.00	6,011.00	327,726	613,122	430	560	**24160K30MBW33**		159.000
	500	200	5.0	3,213.00	6,011.00	327,726	613,122	430	560	**24160MBW33**		159.000
320	580	150	5.0	3,050.00	4,900.00	311,100	499,800	560	750	**22264KMBW33**	H3164	181.000
	580	150	5.0	3,050.00	4,900.00	311,100	499,800	560	750	**22264MBW33**		181.000
	480	121	4.0	1,830.00	3,740.00	186,660	381,480	630	850	**23064KMBW33**	H3064	79.500
	480	121	4.0	1,830.00	3,740.00	186,660	381,480	630	850	**23064MBW33**		79.500
	540	176	5.0	3,200.00	6,000.00	326,400	612,000	670	900	**23164KMBW33**	H3164	165.000
	540	176	5.0	3,200.00	6,000.00	326,400	612,000	600	800	**23164MBW33**		171.000
	580	208	5.0	3,900.00	6,950.00	397,800	708,900	430	560	**23264KMBW33**	H3164	247.000
	580	208	5.0	3,900.00	6,950.00	397,800	708,900	430	560	**23264MBW33**		247.000
	480	160	4.0	2,480.00	5,100.00	252,960	520,200	530	700	**24064K30MBW33**		106.000
	480	160	4.0	2,480.00	5,100.00	252,960	520,200	530	700	**24064MBW33**		106.000
	540	218	5.0	3,800.00	7,350.00	387,600	749,700	400	530	**24164K30MBW33**		215.000
	540	218	5.0	3,800.00	7,350.00	387,600	749,700	400	530	**24164MBW33**		215.000
340	520	133	5.0	2,360.00	4,550.00	240,720	464,100	600	800	**23068KMBW33**	H3064	108.000
	520	133	5.0	2,360.00	4,550.00	240,720	464,100	600	800	**23068MBW33**		108.000
	580	190	5.0	3,650.00	6,950.00	372,300	708,900	560	750	**23168KMBW33**	H3168	216.000
	580	190	5.0	3,650.00	6,950.00	372,300	708,900	560	750	**23168MBW33**		216.000
	620	224	6.0	4,500.00	8,150.00	459,000	831,300	450	600	**23268KMBW33**	H3268	305.000
	620	224	6.0	4,500.00	8,150.00	459,000	831,300	450	600	**23268MBW33**		305.000
	520	180	5.0	3,100.00	6,550.00	316,200	668,100	500	670	**24068K30MBW33**		143.000
	520	180	5.0	3,100.00	6,550.00	316,200	668,100	500	670	**24068MBW33**		143.000
	580	243	5.0	4,400.00	8,500.00	448,800	867,000	340	450	**24168K30MBW33**		283.000
	580	243	5.0	4,400.00	8,500.00	448,800	867,000	340	450	**24168MBW33**		283.000
360	540	134	5.0	2,450.00	4,800.00	249,900	489,600	560	750	**23072KMBW33**	H3072	111.000
	540	134	5.0	2,450.00	4,800.00	249,900	489,600	560	750	**23072MBW33**		111.000
	600	192	5.0	3,800.00	7,350.00	387,600	749,700	530	700	**23172KMBW33**	H3172	228.000
	600	192	5.0	3,800.00	7,350.00	387,600	749,700	530	700	**23172MBW33**		228.000



Cylindrical Bore Tapered Bore

d 360~420mm

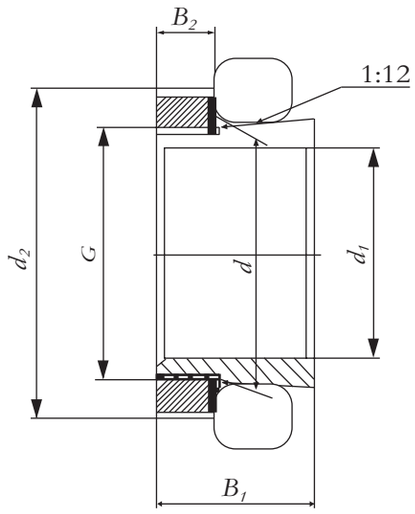
Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1} grease	oil	Bearing numbers	Adapter sleeve	Mass kg (approx.)
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r kgf	C_{or}					
360	650	232	6.0	4,900.00	9,150.00	499,800	933,300	430	800	**23272KMBW33**	H3272	341.000
	650	232	6.0	4,900.00	9,150.00	499,800	933,300	430	800	**23272MBW33**		341.000
	540	180	5.0	3,250.00	6,800.00	331,500	693,600	480	630	**24072K30MBW33**		145.000
	540	180	5.0	3,250.00	6,800.00	331,500	693,600	480	630	**24072MBW33**		145.000
	600	243	5.0	4,500.00	9,000.00	459,000	918,000	360	480	**24172K30MBW33**		279.000
	600	243	5.0	4,500.00	9,000.00	459,000	918,000	360	480	**24172MBW33**		279.000
380	560	135	5.0	2,550.00	5,300.00	260,100	540,600	530	700	**23076KMBW33**	H3076	117.000
	560	135	5.0	2,550.00	5,300.00	260,100	540,600	530	700	**23076MBW33**		117.000
	620	194	5.0	4,050.00	8,150.00	413,100	831,300	500	670	**23176KMBW33**	H3176	242.000
	620	194	5.0	4,050.00	8,150.00	413,100	831,300	500	670	**23176MBW33**		242.000
	680	240	6.0	5,300.00	9,800.00	540,600	999,600	360	480	**23276KMBW33**	H3276	390.000
	680	240	6.0	5,300.00	9,800.00	540,600	999,600	360	480	**23276MBW33**		390.000
	560	180	5.0	3,350.00	7,200.00	341,700	734,400	450	600	**24076K30MBW33**		152.000
	560	180	5.0	3,350.00	7,200.00	341,700	734,400	450	600	**24076MBW33**		152.000
	620	243	5.0	4,650.00	9,500.00	474,300	969,000	340	450	**24176K30MBW33**		300.000
	620	243	5.0	4,650.00	9,500.00	474,300	969,000	340	450	**24176MBW33**		300.000
400	600	148	5.0	3,050.00	6,200.00	311,100	632,400	500	670	**23080KMBW33**	H3080	152.000
	600	148	5.0	3,050.00	6,200.00	311,100	632,400	500	670	**23080MBW33**		152.000
	650	200	6.0	4,250.00	8,500.00	433,500	867,000	480	630	**23180KMBW33**	H3180	270.000
	650	200	6.0	4,250.00	8,500.00	433,500	867,000	480	630	**23180MBW33**		270.000
	720	256	6.0	5,700.00	10,800.00	581,400	1,101,600	380	700	**23280KMBW33**	H3280	468.000
	720	256	6.0	5,700.00	10,800.00	581,400	1,101,600	380	700	**23280MBW33**		468.000
	600	200	5.0	3,900.00	8,500.00	397,800	867,000	430	560	**24080K30MBW33**		205.000
	600	200	5.0	3,900.00	8,500.00	397,800	867,000	430	560	**24080MBW33**		205.000
	650	250	6.0	5,100.00	10,400.00	520,200	1,060,800	320	430	**24180K30MBW33**		340.000
	650	250	6.0	5,100.00	10,400.00	520,200	1,060,800	320	430	**24180MBW33**		340.000
420	620	150	5.0	3,150.00	6,550.00	321,300	668,100	500	670	**23084KMBW33**	H3084	160.000
	620	150	5.0	3,150.00	6,550.00	321,300	668,100	500	670	**23084MBW33**		160.000
	700	224	6.0	5,000.00	9,650.00	510,000	984,300	500	670	**23184KMBW33**	H3184	363.000
	700	224	6.0	5,000.00	9,650.00	510,000	984,300	500	670	**23184MBW33**		363.000
	760	272	7.5	6,550.00	12,200.00	668,100	1,244,400	320	430	**23284KMBW33**	H3284	553.000
	760	272	7.5	6,550.00	12,200.00	668,100	1,244,400	320	430	**23284MBW33**		553.000
	620	200	5.0	4,000.00	8,800.00	408,000	897,600	430	560	**24084K30MBW33**		210.000
	620	200	5.0	4,000.00	8,800.00	408,000	897,600	430	560	**24084MBW33**		210.000



Cylindrical Bore Tapered Bore

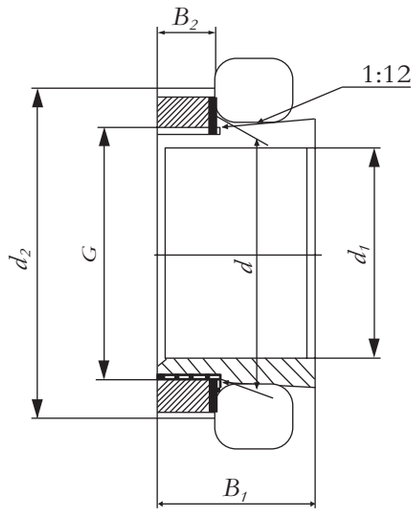
d 420~460mm

Boundary dimensions mm				Basic load ratings dynamic kN		static kN		Limiting speeds min^{-1}		Bearing numbers	Adapter sleeve	Mass kg
				dynamic kgf		static kgf						
d	*D*	*B*	$r_{s\,min}$	C_r	C_{or}	C_r	C_{or}	grease	oil			(approx.)
420	700	280	6.0	6,200.00	12,700.00	632,400	1,295,400	300	400	**24184K30MBW33**		445.000
	700	280	6.0	6,200.00	12,700.00	632,400	1,295,400	300	400	**24184MBW33**		445.000
	650	157	6.0	3,400.00	7,100.00	346,800	724,200	530	700	**23088KMBW33**	H3088	180.000
	650	157	6.0	3,400.00	7,100.00	346,800	724,200	530	700	**23088MBW33**		180.000
	720	226	6.0	5,200.00	10,400.00	530,400	1,060,800	500	670	**23188KMBW33**	H3188	360.000
	720	226	6.0	5,200.00	10,400.00	530,400	1,060,800	500	670	**23188MBW33**		360.000
440	790	280	7.5	7,100.00	13,400.00	724,200	1,366,800	360	480	**23288KMBW33**	H3288	595.000
	790	280	7.5	7,100.00	13,400.00	724,200	1,366,800	360	480	**23288MBW33**		595.000
	650	212	6.0	4,300.00	9,650.00	438,600	984,300	400	530	**24088K30MBW33**		245.000
	650	212	6.0	4,300.00	9,650.00	438,600	984,300	400	530	**24088MBW33**		245.000
	720	280	6.0	6,400.00	13,200.00	652,800	1,346,400	300	400	**24188K30MBW33**		460.000
	720	280	6.0	6,400.00	13,200.00	652,800	1,346,400	300	400	**24188MBW33**		460.000
	680	163	6.0	3,650.00	7,650.00	372,300	780,300	450	600	**23092KMBW33**	H3092	209.000
	680	163	6.0	3,650.00	7,650.00	372,300	780,300	450	600	**23092MBW33**		209.000
	760	240	7.5	5,850.00	11,600.00	596,700	1,183,200	480	630	**23192KMBW33**	H3192	441.000
	760	240	7.5	5,850.00	11,600.00	596,700	1,183,200	480	630	**23192MBW33**		441.000
460	830	296	7.5	7,800.00	15,000.00	795,600	1,530,000	340	450	**23292KMBW33**	H3292	695.000
	830	296	7.5	7,800.00	15,000.00	795,600	1,530,000	340	450	**23292MBW33**		695.000
	680	218	6.0	4,750.00	10,600.00	484,500	1,081,200	380	500	**24092K30MBW33**		280.000
	680	218	6.0	4,750.00	10,600.00	484,500	1,081,200	380	500	**24092MBW33**		280.000
	760	300	7.5	7,500.00	15,600.00	765,000	1,591,200	280	380	**24192K30MBW33**		560.000
	760	300	7.5	7,500.00	15,600.00	765,000	1,591,200	280	380	**24192MBW33**		560.000



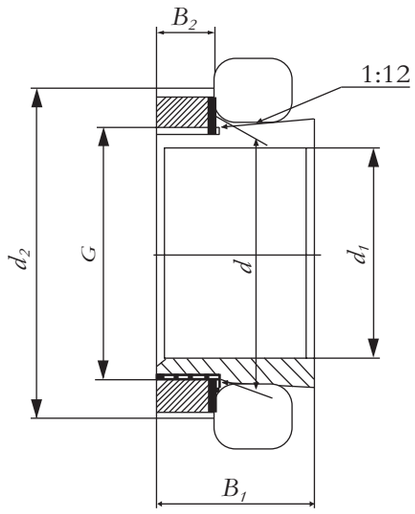
d 17~55mm

Shaft Dia	Boundary dimensions mm					Adapter Sleeve	Thread	Mass kg	Composition		
	d	d_1	D_m	B_1	B_2		G	(approx.)	Sleeve	Locknut	Lockwasher
17	20	17	32	24	7	**H204**	M20x1	0.04	A204	KM4	MB4
	20	17	32	28	7	**H304**	M20x1	0.05	A304	KM4	MB4
	20	17	32	31	7	**H2304**	M20x1	0.05	A2304	KM4	MB4
20	25	20	38	26	9	**H205**	M25x1.5	0.07	A205	KM5	MB5
	25	20	38	29	9	**H305**	M25x1.5	0.08	A305	KM5	MB5
	25	20	38	35	9	**H2305**	M25x1.5	0.09	A2305	KM5	MB5
25	30	25	45	27	9	**H206**	M30x1.5	0.10	A206	KM6	MB6
	30	25	45	31	9	**H306**	M30x1.5	0.11	A306	KM6	MB6
	30	25	45	38	9	**H2306**	M30x1.5	0.13	A2306	KM6	MB6
30	35	30	52	29	10	**H207**	M35x1.5	0.13	A207	KM7	MB7
	35	30	52	35	10	**H307**	M35x1.5	0.14	A307	KM7	MB7
	35	30	52	43	10	**H2307**	M35x1.5	0.17	A2307	KM7	MB7
35	40	35	58	31	11	**H208**	M40x1.5	0.17	A208	KM8	MB8
	40	35	58	36	11	**H308**	M40x1.5	0.19	A308	KM8	MB8
	40	35	58	46	11	**H2308**	M40x1.5	0.22	A2308	KM8	MB8
40	45	40	65	33	12	**H209**	M45x1.5	0.23	A209	KM9	MB9
	45	40	65	39	12	**H309**	M45x1.5	0.25	A309	KM9	MB9
	45	40	65	50	12	**H2309**	M45x1.5	0.28	A2309	KM9	MB9
45	50	45	70	35	13	**H210**	M50x1.5	0.27	A210	KM10	MB10
	50	45	70	42	13	**H310**	M50x1.5	0.30	A310	KM10	MB10
	50	45	70	55	13	**H2310**	M50x1.5	0.36	A2310	KM10	MB10
50	55	50	75	37	13	**H211**	M55x2	0.31	A211	KM11	MB11
	55	50	75	45	13	**H311**	M55x2	0.35	A311	KM11	MB11
	55	50	75	59	13	**H2311**	M55x2	0.42	A2311	KM11	MB11
55	60	55	80	38	13	**H212**	M60x2	0.35	A212	KM12	MB12
	60	55	80	47	13	**H312**	M60x2	0.39	A312	KM12	MB12
	60	55	80	62	13	**H2312**	M60x2	0.48	A2312	KM12	MB12



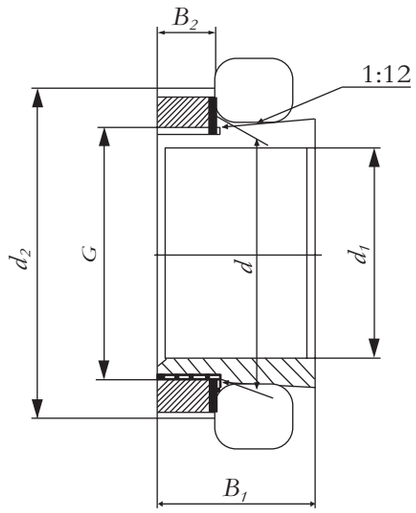
d 60~95mm

Shaft Dia	Boundary dimensions mm					Adapter Sleeve	Thread	Mass kg	Composition		
	d	d_1	D_m	B_1	B_2		G	(approx.)	Sleeve	Locknut	Lockwasher
60	65	60	85	40	14	**H213**	M65x2	0.40	A213	KM13	MB13
	65	60	85	50	14	**H313**	M65x2	0.46	A313	KM13	MB13
	65	60	85	65	14	**H2313**	M65x2	0.56	A2313	KM13	MB13
	70	60	92	41	14	**H214**	M70x2	0.60	A214	KM14	MB14
	70	60	92	52	14	**H314**	M70x2	0.72	A314	KM14	MB14
	70	60	92	68	14	**H2314**	M70x2	0.90	A2314	KM14	MB14
65	75	65	98	43	15	**H215**	M75x2	0.71	A215	KM15	MB15
	75	65	98	55	15	**H315**	M75x2	0.83	A315	KM15	MB15
	75	65	98	73	15	**H2315**	M75x2	1.05	A2315	KM15	MB15
70	80	70	105	46	17	**H216**	M80x2	0.88	A216	KM16	MB16
	80	70	105	59	17	**H316**	M80x2	1.00	A316	KM16	MB16
	80	70	105	78	17	**H2316**	M80x2	1.28	A2316	KM16	MB16
75	85	75	110	50	18	**H217**	M85x2	1.02	A217	KM17	MB17
	85	75	110	63	18	**H317**	M85x2	1.20	A317	KM17	MB17
	85	75	110	82	18	**H2317**	M85x2	1.45	A2317	KM17	MB17
80	90	80	120	52	18	**H218**	M90x2	1.20	A218	KM18	MB18
	90	80	120	65	18	**H318**	M90x2	1.35	A318	KM18	MB18
	90	80	120	86	18	**H2318**	M90x2	1.69	A2318	KM18	MB18
85	95	85	125	55	19	**H219**	M95x2	1.35	A219	KM19	MB19
	95	85	125	68	19	**H319**	M95x2	1.55	A319	KM19	MB19
	95	85	125	90	19	**H2319**	M95x2	1.92	A2319	KM19	MB19
90	100	90	130	58	20	**H220**	M100x2	1.50	A220	KM20	MB20
	100	90	130	71	20	**H320**	M100x2	1.70	A320	KM20	MB20
	100	90	130	76	20	**H3120**	M100x2	1.80	A3120	KM20	MB20
	100	90	130	97	20	**H2320**	M100x2	2.15	A2320	KM20	MB20
95	105	95	140	60	20	**H221**	M105x2	1.70	A221	KM21	MB21
	105	95	140	74	20	**H321**	M105x2	1.95	A321	KM21	MB21
	105	95	140	101	20	**H2321**	M105x2	2.46	A2321	KM21	MB21



d 100~170mm

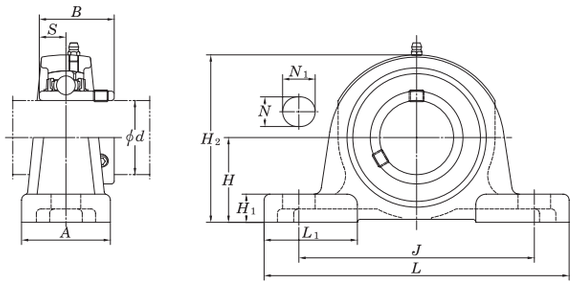
Shaft Dia	Boundary dimensions mm					Adapter Sleeve	Thread	Mass kg	Composition		
	d	d_1	D_m	B_1	B_2		G	(approx.)	Sleeve	Locknut	Lockwasher
100	110	100	145	63	21	**H222**	M110x2	1.90	A222	KM22	MB22
	110	100	145	77	21	**H322**	M110x2	2.20	A322	KM22	MB22
	110	100	145	81	21	**H3122**	M110x2	2.40	A3122	KM22	MB22
	110	100	145	105	21	**H2322**	M110x2	2.75	A2322	KM22	MB22
110	120	110	145	72	22	**H3024**	M120x2	1.95	A3024	KML24	MBL24
	120	110	155	88	22	**H3124**	M120x2	2.65	A3124	KM24	MB24
	120	110	155	112	22	**H2324**	M120x2	3.20	A2324	KM24	MB24
115	130	115	155	80	23	**H3026**	M130x2	2.85	A3026	KML26	MBL26
	130	115	165	92	23	**H3126**	M130x2	3.65	A3126	KM26	MB26
	130	115	165	121	23	**H2326**	M130x2	4.60	A2326	KM26	MB26
125	140	125	165	82	24	**H3028**	M140x2	3.15	A3028	KML28	MBL28
	140	125	180	97	24	**H3128**	M140x2	4.35	A3128	KM28	MB28
	140	125	180	131	24	**H2328**	M140x2	5.55	A2328	KM28	MB28
135	150	135	180	87	26	**H3030**	M150x2	3.90	A3030	KML30	MBL30
	150	135	195	111	26	**H3130**	M150x2	5.50	A3130	KM30	MB30
	150	135	195	139	26	**H2330**	M150x2	6.63	A2330	KM30	MB30
140	160	140	190	93	28	**H3032**	M160x3	5.20	A3032	KML32	MBL32
	160	140	210	119	28	**H3132**	M160x3	7.65	A3132	KM32	MB32
	160	140	210	147	28	**H2332**	M160x3	9.15	A2332	KM32	MB32
150	170	150	200	101	29	**H3034**	M170x3	6.00	A3034	KML34	MBL34
	170	150	220	122	29	**H3134**	M170x3	8.40	A3134	KM34	MB34
	170	150	220	154	29	**H2334**	M170x3	10.20	A2334	KM34	MB34
180	180	160	210	109	30	**H3036**	M180x3	6.85	A3036	KML36	MBL36
	180	160	230	131	30	**H3136**	M180x3	9.50	A3136	KM36	MB36
	180	160	230	161	30	**H2336**	M180x3	11.30	A2336	KM36	MB36
170	190	170	220	112	31	**H3038**	M190x3	7.45	A3038	KML38	MBL38
	190	170	240	141	31	**H3138**	M190x3	11.00	A3138	KM38	MB38
	190	170	240	169	31	**H2338**	M190x3	12.60	A2338	KM38	MB38



d 180~300mm

Shaft Dia	Boundary dimensions mm					Adapter Sleeve	Thread	Mass kg	Composition		
	d	d_1	D_m	B_1	B_2		G	(approx.)	Sleeve	Locknut	Lockwasher
180	200	180	240	120	32	**H3040**	M200x3	9.20	A3040	KML40	MBL40
	200	180	250	150	32	**H3140**	M200x3	12.00	A3140	KM40	MB40
	200	180	250	176	32	**H2340**	M200x3	14.00	A2340	KM40	MB40
200	220	200	260	126	40	**H3044**	Tr220x4	10.50	A3044	HM3044	MS3044
	220	200	280	161	35	**H3144**	Tr220x4	15.00	A3144	HM44T	MB44
	220	200	280	186	35	**H2344**	Tr220x4	16.70	A2344	HM44T	MB44
220	240	220	290	133	45	**H3048**	Tr240x4	13.00	A3048	HM3048	MS3048
	240	220	300	172	37	**H3148**	Tr240x4	18.00	A3148	KM48T	MB48
	240	220	300	199	37	**H2348**	Tr240x4	29.70	A2348	KM48T	MB49
240	260	240	310	145	45	**H3052**	Tr260x4	15.50	A3052	HM3052	MS3048
	260	240	330	190	39	**H3152**	Tr260x4	22.50	A3152	KM52T	MB52
	260	240	330	211	39	**H2352**	Tr260x4	24.20	A2352	KM52T	MB52
260	280	260	330	152	49	**H3056**	Tr280x4	17.50	A3056	HM3056	MS3056
	280	260	350	195	41	**H3156**	Tr280x4	25.00	A3156	HM56T	MB56
	280	260	350	224	41	**H2356**	Tr280x4	27.80	A2356	HM56T	MB56
280	300	280	360	168	53	**H3060**	Tr300x4	23.00	A3060	HM3060	MS3160
	300	280	380	208	53	**H3160**	Tr300x4	30.00	A3160	HM3160	MS3160
300	320	300	380	171	56	**H3064**	Tr320x5	24.50	A3064	HM3064	MS3064
	320	300	400	226	56	**H3164**	Tr320x5	35.00	A3164	HM3164	MS3164

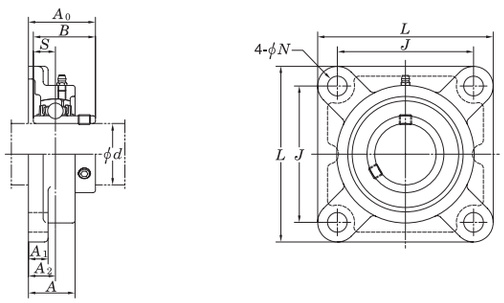
UCP 200



d 12~90mm

Shaff Dia mm	Unit No.	Boundary dimensions mm										Bolt size mm	Insert No.	Housing No.	Mass kg (approx.)
		H	*L*	*J*	*A*	*N*	N_1	H_1	H_2	*B*	*S*				
12	**UCP 201**	30.2	127	95	38	13	19	15	62	31.0	12.7	M 10	**UC 201**	**P 203**	0.65
15	**UCP 202**	30.2	127	95	38	13	19	15	62	31.0	12.7	M 10	**UC 202**	**P 203**	0.63
17	**UCP 203**	30.2	127	95	38	13	19	15	62	31.0	12.7	M 10	**UC 203**	**P 203**	0.62
20	**UCP 204**	33.3	127	95	38	13	19	15	65	31.0	12.7	M 10	**UC 204**	**P 204**	0.65
25	**UCP 205**	36.5	140	105	38	13	16	16	70	34.1	14.3	M 10	**UC 205**	**P 205**	0.79
30	**UCP 206**	42.9	165	121	48	17	21	18	83	38.1	15.9	M 14	**UC 206**	**P 206**	1.26
35	**UCP 207**	47.6	167	127	48	17	21	19	94	42.9	17.5	M 14	**UC 207**	**P 207**	1.59
40	**UCP 208**	49.2	184	137	54	17	25	19	100	49.2	19.0	M 14	**UC 208**	**P 208**	1.92
45	**UCP 209**	54.0	190	146	54	17	22	20	108	49.2	19.0	M 14	**UC 209**	**P 209**	2.19
50	**UCP 210**	57.2	206	159	60	20	25	22	114	51.6	19.0	M 16	**UC 210**	**P 210**	2.59
55	**UCP 211**	63.5	219	171	60	20	25	22	126	55.6	22.2	M 16	**UC 211**	**P 211**	3.30
60	**UCP 212**	69.8	241	184	70	20	25	25	138	65.1	25.4	M 16	**UC 212**	**P 212**	4.70
65	**UCP 213**	76.2	265	203	70	25	29	27	150	65.1	25.4	M 20	**UC 213**	**P 213**	5.60
70	**UCP 214**	79.4	266	210	72	25	31	27	156	74.6	30.2	M 20	**UC 214**	**P 214**	7.30
75	**UCP 215**	82.6	275	217	74	25	31	28	163	77.8	33.3	M 20	**UC 215**	**P 215**	7.90
80	**UCP 216**	88.9	292	232	78	25	31	30	175	82.6	33.3	M 20	**UC 216**	**P 216**	10.00
85	**UCP 217**	95.2	310	247	83	25	31	32	187	85.7	34.1	M 20	**UC 217**	**P 217**	12.20
90	**UCP 218**	101.6	327	262	88	27	33	34	200	96.0	39.7	M 22	**UC 218**	**P 218**	14.70

UCF 200

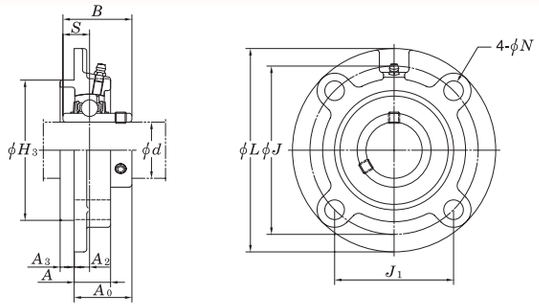


d 12~90mm

Shaff Dia mm	Unit No.	Boundary dimensions mm									Bolt size mm	Insert No.	Housing No.	Mass kg (approx.)
		L	*J*	A_2	A_1	*A*	*N*	A_0	*B*	*S*				
12	**UCF 201**	86	64	15	12	25.5	12	33.3	31.0	12.7	M 10	**UC 201**	**F 204**	0.63
15	**UCF 202**	86	64	15	12	25.5	12	33.3	31.0	12.7	M 10	**UC 202**	**F 204**	0.61
17	**UCF 203**	86	64	15	12	25.5	12	33.3	31.0	12.7	M 10	**UC 203**	**F 204**	0.60
20	**UCF 204**	86	64	15	12	25.5	12	33.3	31.0	12.7	M 10	**UC 204**	**F 204**	0.58
25	**UCF 205**	95	70	16	14	27.0	12	35.8	34.1	14.3	M 10	**UC 205**	**F 205**	0.72
30	**UCF 206**	108	83	18	14	31.0	12	40.2	38.1	15.9	M 10	**UC 206**	**F 206**	1.01
35	**UCF 207**	117	92	19	16	34.0	14	44.4	42.9	17.5	M 12	**UC 207**	**F 207**	1.38
40	**UCF 208**	130	102	21	16	36.0	16	51.2	49.2	19.0	M 14	**UC 208**	**F 208**	1.77
45	**UCF 209**	137	105	22	18	38.0	16	52.2	49.2	19.0	M 14	**UC 209**	**F 209**	2.07
50	**UCF 210**	143	111	22	18	40.0	16	54.6	51.6	19.0	M 14	**UC 210**	**F 210**	2.36
55	**UCF 211**	162	130	25	20	43.0	19	58.4	55.6	22.2	M 16	**UC 211**	**F 211**	3.40
60	**UCF 212**	175	143	29	20	48.0	19	68.7	65.1	25.4	M 16	**UC 212**	**F 212**	4.02
65	**UCF 213**	187	149	30	20	50.0	19	69.7	65.1	25.4	M 16	**UC 213**	**F 213**	4.98
70	**UCF 214**	193	152	31	24	54.0	19	75.4	74.6	30.2	M 16	**UC 214**	**F 214**	5.56
75	**UCF 215**	200	159	34	24	56.0	19	78.5	77.8	33.3	M 16	**UC 215**	**F 215**	6.22
80	**UCF 216**	208	165	34	24	58.0	23	83.3	82.6	33.3	M 20	**UC 216**	**F 216**	7.48
85	**UCF 217**	220	175	36	26	63.0	23	87.6	85.7	34.1	M 20	**UC 217**	**F 217**	8.77
90	**UCF 218**	235	187	40	26	68.0	23	96.3	96.0	39.7	M 20	**UC 218**	**F 218**	10.74

KYK

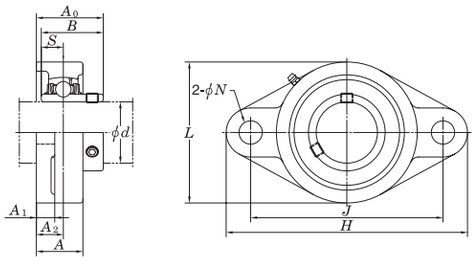
UCFC 200



d 12~90mm

Shaff Dia mm	Unit No.	Boundary dimensions mm												Bolt size No.	Insert No.	Housing No.	Mass kg (approx.)
		H	*J*	J_1	A_2	*N*	A_3	A_1	*A*	H_3	A_0	*B*	*S*				
12	**UCFC 201**	100	78	55.1	10	12	5	7	20.5	62	28.3	31.0	12.7	M 10	**UC 201**	**FC 204**	0.89
15	**UCFC 202**	100	78	55.1	10	12	5	7	20.5	62	28.3	31.0	12.7	M 10	**UC 202**	**FC 204**	0.87
17	**UCFC 203**	100	78	55.1	10	12	5	7	20.5	62	28.3	31.0	12.7	M 10	**UC 203**	**FC 204**	0.86
20	**UCFC 204**	100	78	55.1	10	12	5	7	20.5	62	28.3	31.0	12.7	M 10	**UC 204**	**FC 204**	0.84
25	**UCFC 205**	115	90	63.6	10	12	6	7	21.0	70	29.8	34.1	14.3	M 10	**UC 205**	**FC 205**	0.97
30	**UCFC 206**	125	100	70.7	10	12	8	8	23.0	80	32.2	38.1	15.9	M 10	**UC 206**	**FC 206**	1.18
35	**UCFC 207**	135	110	77.8	11	14	8	9	26.0	90	36.4	42.9	17.5	M 12	**UC 207**	**FC 207**	1.55
40	**UCFC 208**	145	120	84.8	11	14	10	9	26.0	100	41.2	49.2	19.0	M 12	**UC 208**	**FC 208**	1.85
45	**UCFC 209**	160	132	93.3	10	16	12	14	26.0	105	40.2	49.2	19.0	M 14	**UC 209**	**FC 209**	2.42
50	**UCFC 210**	165	138	97.6	10	16	12	14	28.0	110	42.6	51.6	19.0	M 14	**UC 210**	**FC 210**	2.71
55	**UCFC 211**	185	150	106.1	13	19	12	15	31.0	125	46.4	55.6	22.2	M 16	**UC 211**	**FC 211**	3.90
60	**UCFC 212**	195	160	113.1	17	19	12	15	36.0	135	56.7	65.1	25.4	M 16	**UC 212**	**FC212**	4.55
65	**UCFC 213**	205	170	120.2	16	19	14	15	36.0	145	55.7	65.1	25.4	M 16	**UC 213**	**FC 213**	5.11
70	**UCFC 214**	215	177	125.1	17	19	14	18	40.0	150	61.4	74.6	30.2	M 16	**UC 214**	**FC 214**	6.40
75	**UCFC 215**	220	184	130.1	18	19	16	18	40.0	160	62.5	77.8	33.3	M 16	**UC 215**	**FC 215**	6.92
80	**UCFC 216**	240	200	141.4	18	23	16	18	42.0	170	67.3	82.6	33.3	M 20	**UC 216**	**FC 216**	8.60
85	**UCFC 217**	250	208	147.1	18	23	18	20	45.0	180	69.6	85.7	34.1	M 20	**UC 217**	**FC 217**	9.83
90	**UCFC 218**	265	220	155.5	22	23	18	20	50.0	190	78.3	96.0	39.7	M 20	**UC 218**	**FC 218**	12.24

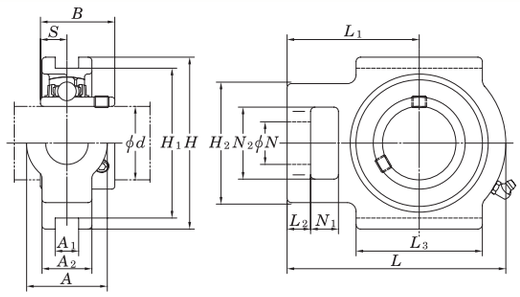
UCFL 200



d 12~90mm

Shaff Dia mm	Unit No.	Boundary dimensions mm										Bolt size mm	Insert No.	Housing No.	Mass kg (approx.)
		H	*J*	A_2	A_1	*A*	*N*	*L*	A_0	*B*	*S*				
12	**UCFL 201**	113	90	15	12	25.5	12	60	33.3	31.0	12.7	M 10	**UC 201**	**FL 204**	0.47
15	**UCFL 202**	113	90	15	12	25.5	12	60	33.3	31.0	12.7	M 10	**UC 202**	**FL 204**	0.45
17	**UCFL 203**	113	90	15	12	25.5	12	60	33.3	31.0	12.7	M 10	**UC 203**	**FL 204**	0.44
20	**UCFL 204**	113	90	15	12	25.5	12	60	33.3	31.0	12.7	M 10	**UC 204**	**FL 204**	0.42
25	**UCFL 205**	130	99	16	14	27.0	16	68	35.8	34.1	14.3	M 14	**UC 205**	**FL 205**	0.59
30	**UCFL 206**	148	117	18	14	31.0	16	80	40.2	38.1	15.9	M 14	**UC 206**	**FL 206**	0.90
35	**UCFL 207**	161	130	19	16	34.0	16	90	44.4	42.9	17.5	M 14	**UC 207**	**FL 207**	1.20
40	**UCFL 208**	175	144	21	16	36.0	16	100	51.2	49.2	19.0	M 14	**UC 208**	**FL 208**	1.51
45	**UCFL 209**	188	148	22	18	38.0	19	108	52.2	49.2	19.0	M 16	**UC 209**	**FL 209**	1.90
50	**UCFL 210**	197	157	22	18	40.0	19	115	54.6	51.6	19.0	M 16	**UC 210**	**FL 210**	2.20
55	**UCFL 211**	224	184	25	20	43.0	19	130	58.4	55.6	22.2	M 16	**UC 211**	**FL 211**	3.20
60	**UCFL 212**	250	202	29	20	48.0	23	140	68.7	65.1	25.4	M 20	**UC 212**	**FL 212**	4.10
65	**UCFL 213**	258	210	30	24	50.0	23	155	69.7	65.1	25.4	M 20	**UC 213**	**FL 213**	5.10
70	**UCFL 214**	265	216	31	24	54.0	23	160	75.4	74.6	30.2	M 20	**UC 214**	**FL 214**	6.00
75	**UCFL 215**	275	225	34	24	56.0	23	165	78.5	77.8	33.3	M 20	**UC 215**	**FL 215**	6.50
80	**UCFL 216**	290	233	34	24	58.0	25	180	83.3	82.6	33.3	M 22	**UC 216**	**FL 216**	8.00
85	**UCFL 217**	305	248	36	26	63.0	25	190	87.6	85.7	34.1	M 22	**UC 217**	**FL 217**	9.50
90	**UCFL 218**	320	265	40	26	68.0	25	205	96.3	96.0	39.7	M 22	**UC 218**	**FL 218**	11.90

UCT 200



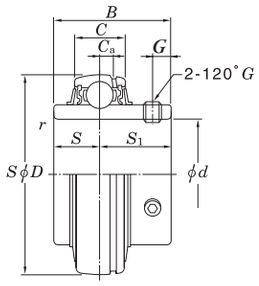
d 12~85mm

Shaff Dia mm	Unit No.	Boundary dimensions mm															Insert No.	Housing No.	Mass kg (approx.)
		N	L_2	H_2	N_2	N	L_3	A_1	H_1	H	L	A	A_2	L_1	B	S			
12	**UCT 201**	16	10	51	32	19	51	12	76	89	94	32	21	61	31.0	12.7	**UC 201**	**T 204**	0.79
15	**UCT 202**	16	10	51	32	19	51	12	76	89	94	32	21	61	31.0	12.7	**UC 202**	**T 204**	0.77
17	**UCT 203**	16	10	51	32	19	51	12	76	89	94	32	21	61	31.0	12.7	**UC 203**	**T 204**	0.76
20	**UCT 204**	16	10	51	32	19	51	12	76	89	94	32	21	61	31.0	12.7	**UC 204**	**T 204**	0.74
25	**UCT 205**	16	10	51	32	19	51	12	76	89	97	32	24	62	34.1	14.3	**UC 205**	**T 205**	0.82
30	**UCT 206**	16	10	56	37	22	57	12	89	102	113	37	28	70	38.1	15.9	**UC 206**	**T 206**	1.30
35	**UCT 207**	16	13	64	37	22	64	12	89	102	129	37	30	78	42.9	17.5	**UC 207**	**T 207**	1.60
40	**UCT 208**	19	16	83	49	29	83	16	102	114	144	49	33	88	49.2	19.0	**UC 208**	**T 208**	2.40
45	**UCT 209**	19	16	83	49	29	83	16	102	117	144	49	35	87	49.2	19.0	**UC 209**	**T 209**	2.40
50	**UCT 210**	19	16	83	49	29	86	16	102	117	149	49	37	90	51.6	19.0	**UC 210**	**T 210**	2.50
55	**UCT 211**	25	19	102	64	35	95	22	130	146	171	64	38	106	55.6	22.2	**UC 211**	**T 211**	4.00
60	**UCT 212**	32	19	102	64	35	102	22	130	146	194	64	42	119	65.1	25.4	**UC 212**	**T 212**	5.10
65	**UCT 213**	32	21	111	70	41	121	26	151	167	224	70	44	137	65.1	25.4	**UC 213**	**T 213**	7.00
70	**UCT 214**	32	21	111	70	41	121	26	151	167	224	70	46	137	74.6	30.2	**UC 214**	**T 214**	7.10
75	**UCT 215**	32	21	111	70	41	121	26	151	167	232	70	48	140	77.8	33.3	**UC 215**	**T 215**	7.50
80	**UCT 216**	32	21	111	70	41	121	26	165	184	235	70	51	140	82.6	33.3	**UC 216**	**T 216**	8.50
85	**UCT 217**	38	29	124	73	48	157	30	173	198	260	73	54	162	85.7	34.1	**UC 217**	**T 217**	11.20

Insert Ball Bearings

UC 200

Metric series



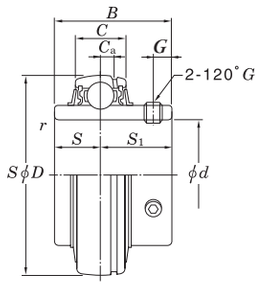
d 12~90mm

Bearing No.	Boundary dimensions mm											Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Mass kg (approx.)
	d	D	B	C	r	S	S_1	G	d_s	C_a	d_4	C_r	C_{or}	C_r	C_{or}	
UC201	12	47	31.0	17	1.0	12.7	18.3	4.5	M6X0.75	4.5	29.0	12.8	6.6	1,300	670	0.21
UC202	15	47	31.0	17	1.0	12.7	18.3	4.5	M6X0.75	4.5	29.0	12.8	6.6	1,300	670	0.19
UC203	17	47	31.0	17	1.0	12.7	18.3	4.5	M6X0.75	4.5	29.0	12.8	6.6	1,300	670	0.18
UC204	20	47	31.0	17	1.5	12.7	18.3	4.5	M6X0.75	4.5	29.0	12.8	6.6	1,300	670	0.16
UC205	25	52	34.1	17	1.5	14.3	19.8	5.0	M6X0.75	4.5	34.0	14.0	7.9	1,420	800	0.19
UC206	30	62	38.1	19	1.5	15.9	22.2	5.0	M6X0.75	5.1	40.5	19.6	11.3	2,000	1,150	0.31
UC207	35	72	42.9	20	2.0	17.5	25.4	6.0	M8X1	5.8	48.0	25.9	15.4	2,640	1,550	0.48
UC208	40	80	49.2	21	2.0	19.0	30.2	8.0	M8X1	6.2	53.0	29.3	17.9	2,980	1,820	0.62
UC209	45	85	49.2	22	2.0	19.0	30.2	8.0	M8X1	6.5	57.3	33.0	20.5	3,350	2,090	0.67
UC210	50	90	51.6	23	2.0	19.0	32.6	9.0	M10X1.25	6.5	63.0	35.5	23.2	3,600	2,360	0.78
UC211	55	100	55.6	24	2.5	22.2	33.4	9.0	M10X1.25	7.3	70.0	43.0	29.4	4,350	3,000	1.03
UC212	60	110	65.1	26	2.5	25.4	39.7	10.0	M10X1.25	7.7	77.0	52.5	36.1	5,350	3,680	1.45
UC213	65	120	65.1	27	2.5	25.4	39.7	10.0	M10X1.25	8.3	82.1	57.5	40.0	5,850	4,080	1.71
UC214	70	125	74.6	29	2.5	30.2	44.4	12.0	M12X1.5	8.7	87.0	62.0	44.0	6,300	4,480	2.06
UC215	75	130	77.8	30	2.5	33.3	44.5	14.0	M12X1.5	9.2	91.5	66.0	48.2	6,700	4,910	2.22
UC216	80	140	82.6	32	3.0	33.3	49.3	14.0	M12X1.5	9.6	98.5	72.5	53.0	7,400	5,400	2.82
UC217	85	150	85.7	34	3.0	34.1	51.6	14.0	M12X1.5	10.5	105.0	83.5	61.8	8,500	6,300	3.38
UC218	90	160	96.0	36	3.0	39.7	56.3	15.0	M12X1.5	11.1	111.5	95.5	71.4	9,750	7,280	4.34

Insert Ball Bearings

UC 200

Inch series

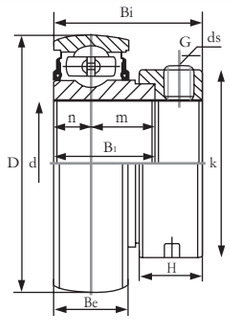


d 1/2~3 1/2inch

Bearing No.	Shaft dia inch	Boundary dimensions mm										Basic load ratings dynamic kN	static kN	dynamic kgf	static kgf	Mass kg
	d	*D*	*B*	*C*	*r*	*S*	S_1	*G*	d_s(UNF)	C_a	d_4	C_r	C_{or}	C_r	C_{or}	(approx.)
UC202-8	1/2	1.8504	1.2200	0.6690	0.0390	0.5000	0.7200	0.1770	1/4-28	0.1770	1.1420	12.8	6.6	1,300	670	0.21
UC202-10	5/8	1.8504	1.2200	0.6690	0.0390	0.5000	0.7200	0.1770	1/4-28	0.1770	1.1420	12.8	6.6	1,300	670	0.19
UC203-11	11/16	1.8504	1.2200	0.6690	0.0390	0.0500	0.7200	0.1770	1/4-28	0.1770	1.1420	12.8	6.6	1,300	670	0.18
UC204-12	3/4	1.8504	1.2200	0.6690	0.0590	0.5000	0.7200	0.1770	1/4-28	0.1770	1.1420	12.8	6.6	1,300	670	0.16
UC205-14	7/8	2.0472	1.3420	0.6690	0.0590	0.5630	0.7800	0.1970	1/4-28	0.1770	1.3390	14.0	7.9	1,420	800	0.19
UC205-16	1	2.0472	1.3420	0.6690	0.0590	0.5630	0.7800	0.1970	1/4-28	0.1770	1.3390	14.0	7.9	1,420	800	0.19
UC206-18	1 1/8	2.4409	1.5000	0.7480	0.0590	0.6260	0.8740	0.1970	1/4-28	0.2010	1.5940	19.6	11.3	2,000	1,150	0.31
UC206-19	1 3/16	2.4409	1.5000	0.7480	0.0590	0.6260	0.8740	0.1970	1/4-28	0.2010	1.5940	19.6	11.3	2,000	1,150	0.31
UC207-20	1 1/4	2.8346	1.6890	0.7870	0.0790	0.6890	1.0000	0.2360	5/16-24	0.2280	1.8900	25.9	15.4	2,640	1,550	0.48
UC207-21	1 5/16	2.8346	1.6890	0.7870	0.0790	0.6890	1.0000	0.2360	5/16-24	0.2280	1.8900	25.9	15.4	2,640	1,550	0.48
UC207-22	1 3/8	2.8346	1.6890	0.7870	0.0790	0.6890	1.0000	0.2360	5/16-24	0.2280	1.8900	25.9	15.4	2,640	1,550	0.48
UC207-23	1 7/16	2.8346	1.6890	0.7870	0.0790	0.6890	1.0000	0.2360	5/16-24	0.2280	1.8900	25.9	15.4	2,640	1,550	0.48
UC208-24	1 1/2	3.1496	1.9370	0.8270	0.0790	0.7480	1.1890	0.3150	5/16-24	0.2440	2.0870	29.3	17.9	2,980	1,820	0.62
UC209-26	1 5/8	3.3465	1.9370	0.8660	0.0790	0.7480	1.1890	0.3150	5/16-24	0.2560	2.2560	33.0	20.5	3,350	2,090	0.67
UC209-27	1 11/16	3.3465	1.9370	0.8660	0.0790	0.7480	1.1890	0.3150	5/16-24	0.2560	2.2560	33.0	20.5	3,350	2,090	0.67
UC209-28	1 3/4	3.3465	1.9370	0.8660	0.0790	0.7480	1.1890	0.3150	5/16-24	0.2560	2.2560	33.0	20.5	3,350	2,090	0.67
UC210-30	1 7/8	3.5433	2.0310	0.9060	0.0790	0.7480	1.2830	0.3540	3/8-24	0.2560	2.4800	35.5	23.2	3,600	2,360	0.78
UC210-31	1 15/16	3.5433	2.0310	0.9060	0.0790	0.7480	1.2830	0.3540	3/8-24	0.2560	2.4800	35.5	23.2	3,600	2,360	0.78
UC211-32	2	3.9370	2.1890	0.9450	0.0980	0.8740	1.3150	0.3540	3/8-24	0.2870	2.7560	43.0	29.4	4,350	3,000	1.03
UC211-35	2 3/16	3.9370	2.1890	0.9450	0.0980	0.8740	1.3150	0.3540	3/8-24	0.2870	2.7560	43.0	29.4	4,350	3,000	1.03
UC212-36	2 1/4	4.3307	2.5630	1.0240	0.0980	1.0000	1.5630	0.3940	3/8-24	0.3030	3.0310	52.5	36.1	5,350	3,680	1.45
UC212-38	2 3/8	4.3307	2.5630	1.0240	0.0980	1.0000	1.5630	0.3940	3/8-24	0.3030	3.0310	52.5	36.1	5,350	3,680	1.45
UC212-39	2 7/16	4.3307	2.5630	1.0240	0.0980	1.0000	1.5630	0.3940	3/8-24	0.3030	3.0310	52.5	36.1	5,350	3,680	1.45
UC213-40	2 1/2	4.7244	2.5630	1.0630	0.0980	1.0000	1.5630	0.3940	3/8-24	0.3270	3.2320	57.5	40.0	5,850	4,080	1.71
UC214-44	2 3/4	4.9213	2.9370	1.1420	0.0980	1.1890	1.7480	0.4720	7/16-20	0.3430	3.4250	62.0	44.0	6,300	4,480	2.06
UC215-48	3	5.1181	3.0630	1.1810	0.0980	1.3110	1.7520	0.5510	7/16-20	0.3620	3.6020	66.0	48.2	6,700	4,910	2.22
UC216-50	3 1/8	5.5118	3.2520	1.2600	0.1180	1.3110	1.9410	0.5510	7/16-20	0.3780	3.8780	72.5	53.0	7,400	5,400	2.82
UC217-52	3 1/4	5.9055	3.3740	1.3390	0.1180	1.3430	2.0310	0.5510	7/16-20	0.4130	4.1340	83.5	61.8	8,500	6,300	3.38
UC218-56	3 1/2	6.2992	3.7800	1.4170	0.1180	1.5630	2.2170	0.5910	1/2-20	0.4370	4.3900	95.5	71.4	9,750	7,280	4.34

SA 200

Metric Series



d 12~60mm

Bearing No	Shaff Dia mm	Boundary dimensions mm										Set Screw Dia mm
	d	B_e	D	B_1	n	m	B_i	K	H	G	h	d_s
SA 201	12	12	40	19.1	6.0	13.1	28.6	28.6	13.5	5.0	3.6	M6X1.0
SA 202	15	12	40	19.1	6.0	13.1	28.6	28.6	13.5	5.0	3.6	M6X1.0
SA 203	17	12	40	19.1	6.0	13.1	28.6	28.6	13.5	5.0	3.6	M6X1.0
SA 204	20	14	47	21.5	7.0	14.5	31.0	33.3	13.5	5.0	3.9	M6X1.0
SA 205	25	15	52	21.5	7.5	14.0	31.0	38.1	13.5	5.0	3.9	M6X1.0
SA 206	30	16	62	23.8	8.0	15.8	35.7	44.5	15.9	6.0	5.0	M8X1.0
SA 207	35	17	72	25.4	8.5	16.9	38.9	55.6	17.5	6.5	5.5	M8X1.0
SA 208	40	18	80	30.2	9.0	21.2	43.7	60.3	18.3	6.5	6.0	M8X1.0
SA 209	45	19	85	30.2	9.5	20.7	43.7	63.5	18.3	6.5	6.3	M8X1.0
SA 210	50	20	90	30.2	10.0	20.2	43.7	69.9	18.3	6.5	6.5	M8X1.0
SA 211	55	24	100	32.4	12.0	20.4	48.4	76.2	20.7	8.0	7.2	M10X1.0
SA 212	60	24	110	33.4	12.0	21.4	53.1	84.2	22.3	8.0	8.0	M10X1.0

SA 200

Inch Series

d $^1/_2$~2 $^7/_{16}$inch

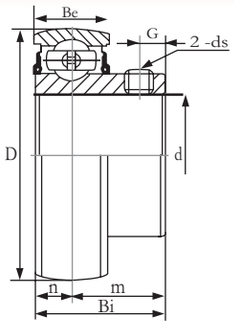
Bearing No	Shaff Dia Inch	Boundary dimensions mm										Set Screw Dia inch
	d	B_e	D	B_1	n	m	B_i	K	H	G	h	d_s
SA 201-8	$^1/_2$	0.4724	1.5748	0.7520	0.2362	0.5157	1.1260	1.1260	0.5315	0.1968	0.1417	$^1/_4$-28UNF
SA 202-10	$^5/_8$	0.4724	1.5748	0.7520	0.2362	0.5157	1.1260	1.1260	0.5315	0.1968	0.1417	$^1/_4$-28UNF
SA 203-11	$^{11}/_6$	0.4724	1.5748	0.7520	0.2362	0.5157	1.1260	1.1260	0.5315	0.1968	0.1417	$^1/_4$-28UNF
SA 204-12	$^3/_4$	0.5512	1.8504	0.8465	0.2756	0.5708	1.2205	1.3110	0.5315	0.1968	0.1535	$^1/_4$-28UNF
SA 205-14	$^7/_8$	0.5906	2.0472	0.8465	0.2953	0.5511	1.2205	1.5000	0.5315	0.1968	0.1535	$^1/_4$-28UNF
SA 205-16	1	0.5906	2.0472	0.8465	0.2953	0.5511	1.2205	1.5000	0.5315	0.1968	0.1535	$^1/_4$-28UNF
SA 206-18	$1^1/_8$	0.6299	2.4409	0.9370	0.3150	0.6220	1.4055	1.7520	0.6260	0.2362	0.1969	$^5/_{16}$-24UNF
SA 206-19	$1^3/_{16}$	0.6299	2.4409	0.9370	0.3150	0.6220	1.4055	1.7520	0.6260	0.2362	0.1969	$^5/_{16}$-24UNF
SA 206-20	$1^1/_4$	0.6299	2.4409	0.9370	0.3150	0.6220	1.4055	1.7520	0.6260	0.2362	0.1969	$^5/_{16}$-24UNF
SA 207-20	$1^1/_4$	0.6693	2.8346	1.0000	0.3346	0.6653	1.5315	2.1890	0.6890	0.2559	0.2165	$^5/_{16}$-24UNF
SA 207-22	$1^3/_8$	0.6693	2.8346	1.0000	0.3346	0.6653	1.5315	2.1890	0.6890	0.2559	0.2165	$^5/_{16}$-24UNF
SA 207-23	$1^7/_{16}$	0.6693	2.8346	1.0000	0.3346	0.6653	1.5315	2.1890	0.6890	0.2559	0.2165	$^5/_{16}$-24UNF
SA 208-24	$1^1/_2$	0.7087	3.1496	1.1890	0.3540	0.8346	1.7205	2.3740	0.7205	0.2559	0.2362	$^5/_{16}$-24UNF
SA 208-25	$1^9/_{16}$	0.7087	3.1496	1.1890	0.3540	0.8346	1.7205	2.3740	0.7205	0.2559	0.2362	$^5/_{16}$-24UNF
SA 209-26	$1^5/_8$	0.7480	3.3465	1.1890	0.3540	0.8150	1.7205	2.5000	0.7205	0.2559	0.2480	$^5/_{16}$-24UNF
SA 209-27	$1^{11}/_{16}$	0.7480	3.3465	1.1890	0.3540	0.8150	1.7205	2.5000	0.7205	0.2559	0.2480	$^5/_{16}$-24UNF
SA 209-28	$1^3/_4$	0.7480	3.3465	1.1890	0.3540	0.8150	1.7205	2.5000	0.7205	0.2559	0.2480	$^5/_{16}$-24UNF
SA 210-30	$1^7/_8$	0.7874	3.5433	1.1890	0.3937	0.7954	1.7205	2.7520	0.7205	0.2559	0.2559	$^5/_{16}$-24UNF
SA 210-31	$1^{15}/_{16}$	0.7874	3.5433	1.1890	0.3937	0.7954	1.7205	2.7520	0.7205	0.2559	0.2559	$^5/_{16}$-24UNF
SA 211-32	2	0.9449	3.9370	1.2756	0.4724	0.8032	1.9055	3.0000	0.8150	0.3150	0.2835	$^3/_8$-24UNF
SA 211-34	$2^1/_8$	0.9449	3.9370	1.2756	0.4724	0.8032	1.9055	3.0000	0.8150	0.3150	0.2835	$^3/_8$-24UNF
SA 211-35	$2^3/_{16}$	0.9449	3.9370	1.2756	0.4724	0.8032	1.9055	3.0000	0.8150	0.3150	0.2835	$^3/_8$-24UNF
SA 212-36	$2^1/_4$	0.9449	4.3307	1.3150	0.4724	0.8426	2.0905	3.3150	0.8780	0.3150	0.3150	$^3/_8$-24UNF
SA 212-38	$2^3/_8$	0.9449	4.3307	1.3150	0.4724	0.8426	2.0905	3.3150	0.8780	0.3150	0.3150	$^3/_8$-24UNF
SA 212-39	$2^7/_{16}$	0.9449	4.3307	1.3150	0.4724	0.8426	2.0905	3.3150	0.8780	0.3150	0.3150	$^3/_8$-24UNF

Basic load ratings				Mass
dynamic	static	dynamic	static	kg
kN		kgf		
C_r	C_{or}	C_r	C_{or}	(approx.)
9.4	4.7	960	480	0.130
9.4	4.7	960	480	0.130
9.4	4.7	960	480	0.130
9.8	6.2	1,000	630	0.150
10.8	7.0	1,100	710	0.220
14.9	10.0	1,520	1,020	0.300
19.7	13.6	2,010	1,390	0.500
25.1	17.7	2,560	1,810	0.670
32.4	20.6	3,300	2,100	0.730
34.3	22.5	3,500	2,300	0.830
43.1	29.4	4,400	3,000	0.870
47.5	29.0	4,850	2,960	1.300

Basic load ratings				Mass
dynamic	static	dynamic	static	kg
kN		kgf		
C_r	C_{or}	C_r	C_{or}	(approx.)
9.4	4.7	960	480	0.130
9.4	4.7	960	480	0.130
9.4	4.7	960	480	0.130
9.8	6.2	1,000	630	0.150
10.8	7.0	1,100	710	0.220
10.8	7.0	1,100	710	0.220
14.9	10.0	1,520	1,020	0.300
14.9	10.0	1,520	1,020	0.300
14.9	10.0	1,520	1,020	0.300
19.7	13.6	2,010	1,390	0.500
19.7	13.6	2,010	1,390	0.500
19.7	13.6	2,010	1,390	0.500
25.1	17.7	2,560	1,810	0.670
25.1	17.7	2,560	1,810	0.670
32.4	20.6	3,300	2,100	0.730
32.4	20.6	3,300	2,100	0.730
32.4	20.6	3,300	2,100	0.730
34.3	22.5	3,500	2,300	0.830
34.3	22.5	3,500	2,300	0.830
43.1	29.4	4,400	3,000	0.870
43.1	29.4	4,400	3,000	0.870
43.1	29.4	4,400	3,000	0.870
47.5	29.0	4,850	2,960	1.300
47.5	29.0	4,850	2,960	1.300
47.5	29.0	4,850	2,960	1.300

SB 200

Metric Series



d 12~60mm

Bearing No	Shaff Dia mm	Boundary dimensions mm							Set Screw Dia mm
	d	B_e	D	B_i	n	m	G	h	d_s
SB 201	12	12	40	22.0	6.0	16.0	4.5	3.6	M5X0.8
SB 202	15	12	40	22.0	6.0	16.0	4.5	3.6	M5X0.8
SB 203	17	12	40	22.0	6.0	16.0	4.5	3.6	M5X0.8
SB 204	20	14	47	25.0	7.0	18.0	4.5	3.9	M6X1.0
SB 205	25	15	52	27.0	7.5	19.5	5.5	3.9	M6X1.0
SB 206	30	16	62	30.0	8.0	22.0	5.5	5.0	M6X1.0
SB 207	35	17	72	32.0	8.5	23.5	6.5	5.5	M8X1.0
SB 208	40	18	80	34.0	9.0	25.0	7.0	6.0	M8X1.0
SB 209	45	19	85	41.2	9.5	31.7	8.2	6.3	M8X1.0
SB 210	50	20	90	41.6	10.0	31.6	9.2	6.5	M8X1.0
SB 211	55	23	100	45.3	11.8	33.5	9.8	7.2	M8X1.0
SB 212	60	24	110	53.7	14.9	38.8	9.8	8.0	M10X1.25

SB 200

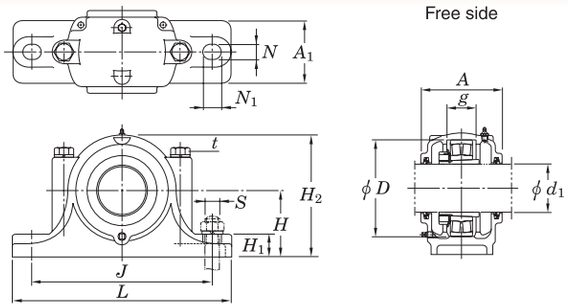
Inch Series

d $^1/_2$~2 $^1/_4$inch

Bearing No	Shaff Dia Inch	Boundary dimensions mm							Set Screw Dia inch
	d	B_e	D	B_i	n	m	G	h	d_s
SB 201-8	$^1/_2$	0.4724	1.5748	0.8661	0.2362	0.6299	0.1772	0.1417	10-32UNF
SB 202-10	$^5/_8$	0.4724	1.5748	0.8661	0.2362	0.6299	0.1772	0.1417	10-32UNF
SB 203-11	$^{11}/_{16}$	0.4724	1.5748	0.8661	0.2362	0.6299	0.1772	0.1417	10-32UNF
SB 204-12	$^3/_4$	0.5512	1.8504	0.9843	0.2756	0.7087	0.1772	0.1535	$^1/_4$-28UNF
SB 205-14	$^7/_8$	0.5906	2.0472	1.0630	0.2953	0.7677	0.2165	0.1535	$^1/_4$-28UNF
SB 205-16	1	0.5906	2.0472	1.0630	0.2953	0.7677	0.2165	0.1535	$^1/_4$-28UNF
SB 206-18	$1^5/_8$	0.6299	2.4409	1.1811	0.3150	0.8661	0.2165	0.1969	$^1/_4$-28UNF
SB 206-19	$1^3/_{16}$	0.6299	2.4409	1.1811	0.3150	0.8661	0.2165	0.1969	$^1/_4$-28UNF
SB 206-20	$1^1/_4$	0.6299	2.4409	1.1811	0.3150	0.8661	0.2165	0.1969	$^1/_4$-28UNF
SB 207-20	$1^1/_4$	0.6693	2.8346	1.2598	0.3346	0.9252	0.2559	0.2165	$^5/_{16}$-24UNF
SB 207-22	$1^3/_8$	0.6693	2.8346	1.2598	0.3346	0.9252	0.2559	0.2165	$^5/_{16}$-24UNF
SB 207-23	$1^7/_{16}$	0.6693	2.8346	1.2598	0.3346	0.9252	0.2559	0.2165	$^5/_{16}$-24UNF
SB 208-24	$1^1/_2$	0.7087	3.1496	1.3386	0.3543	0.9843	0.2756	0.2362	$^5/_{16}$-24UNF
SB 209-26	$1^5/_8$	0.7480	3.3465	1.6220	0.3740	1.2480	0.3228	0.2480	$^5/_{16}$-24UNF
SB 209-27	$1^{11}/_{16}$	0.7480	3.3465	1.6220	0.3740	1.2480	0.3228	0.2480	$^5/_{16}$-24UNF
SB 209-28	$1^3/_4$	0.7480	3.3465	1.6220	0.3740	1.2480	0.3228	0.2480	$^5/_{16}$-24UNF
SB 210-30	$1^7/_8$	0.7874	3.5433	1.6378	0.3937	1.2441	0.3622	0.2559	$^5/_{16}$-24UNF
SB 210-31	$1^{15}/_{16}$	0.7874	3.5433	1.6378	0.3937	1.2441	0.3622	0.2559	$^5/_{16}$-24UNF
SB211-32	2	0.9055	3.9370	1.7835	0.4646	1.3189	0.3858	0.2835	$^5/_{16}$-24UNF
SB 211-34	$2^1/_8$	0.9055	3.9370	1.7835	0.4646	1.3189	0.3858	0.2835	$^5/_{16}$-24UNF
SB 211-35	$2^3/_{16}$	0.9055	3.9370	1.7835	0.4646	1.3189	0.3858	0.2835	$^5/_{16}$-24UNF
SB 212-36	$2^1/_4$	0.9449	4.3307	2.1142	0.5866	1.5276	0.3858	0.315	$^3/_8$-24UNF

Basic load ratings				Mass
dynamic	static	dynamic	static	kg
kN		kgf		
C_r	C_{or}	C_r	C_{or}	(approx.)
7.5	4.4	760	450	0.100
7.5	4.4	760	450	0.100
7.5	4.4	760	450	0.100
9.8	6.2	1000	630	0.150
10.8	7.0	1100	710	0.180
14.9	10.0	1520	1020	0.270
19.7	13.3	2010	1360	0.420
25.1	17.7	2560	1810	0.600
32.0	24.0	3260	2450	0.800
35.1	22.5	3580	2300	0.830
43.1	29.0	4400	2960	1.100
47.5	32.4	4850	3300	1.300

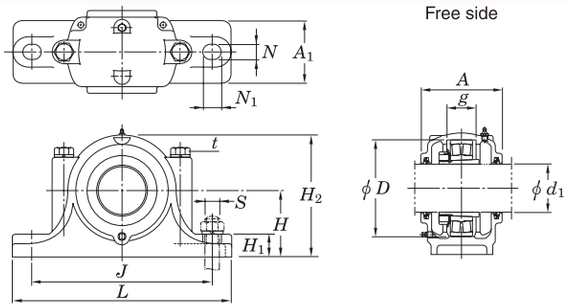
Basic load ratings				Mass
dynamic	static	dynamic	static	kg
kN		kgf		
C_r	C_{or}	C_r	C_{or}	(approx.)
7.5	4.4	760	450	0.100
7.5	4.4	760	450	0.100
7.5	4.4	760	450	0.100
9.8	6.2	1000	630	0.150
10.8	7.0	1100	710	0.180
10.8	7.0	1100	710	0.180
14.9	10.0	1520	1020	0.270
14.9	10.0	1520	1020	0.270
14.9	10.0	1520	1020	0.270
19.7	13.3	2010	1360	0.420
19.7	13.3	2010	1360	0.420
19.7	13.3	2010	1360	0.420
25.1	17.7	2560	1810	0.600
32.0	24.0	3260	2450	0.800
32.0	24.0	3260	2450	0.800
32.0	24.0	3260	2450	0.800
35.1	22.5	3580	2300	0.830
35.1	22.5	3580	2300	0.830
43.1	29.0	4400	2960	1.100
43.1	29.0	4400	2960	1.100
43.1	29.0	4400	2960	1.100
47.5	32.4	4850	3300	1.300



d 20~65mm

d_1	D	H	J	L	A	A_1	H_1	H_2	N	N_1	g	Bolt size t	Bolt size S	Housing No.	Mass kg (approx.)
							Boundary dimensions mm								
20	52	40	130	165	67	46	22	75	15	20	25	M8	M12	**SN505**	1.20
	62	50	150	185	80	52	22	90	15	20	34	M8	M12	**SN605**	1.80
25	62	50	150	185	77	52	22	90	15	20	30	M8	M12	**SN506**	1.90
	72	50	150	185	82	52	22	95	15	20	37	M10	M12	**SN606**	2.10
30	72	50	150	185	82	52	22	95	15	20	33	M10	M12	**SN507**	2.30
	80	60	170	205	90	60	25	110	15	20	41	M10	M12	**SN607**	2.60
35	80	60	170	205	85	60	25	110	15	20	33	M10	M12	**SN508**	2.40
	90	60	170	205	95	60	25	115	15	20	43	M10	M12	**SN608**	2.80
40	85	60	170	205	85	60	25	112	15	20	31	M10	M12	**SN509**	2.70
	100	70	210	255	105	70	28	130	18	23	46	M12	M16	**SN609**	4.30
45	90	60	170	205	90	60	25	115	15	20	33	M10	M12	**SN510**	3.50
	110	70	210	255	115	70	30	135	18	23	50	M12	M16	**SN610**	4.70
50	100	70	210	255	95	70	28	130	18	23	33	M12	M16	**SN511**	3.70
	120	80	230	275	120	80	30	150	18	23	53	M12	M16	**SN611**	5.80
55	110	70	210	255	105	70	30	135	18	23	38	M12	M16	**SN512**	4.40
	130	80	230	280	125	80	30	155	18	23	56	M12	M16	**SN612**	6.40
60	120	80	230	275	110	80	30	150	18	23	43	M12	M16	**SN513**	5.40
	140	95	260	315	130	90	32	175	22	27	58	M16	M20	**SN613**	8.60
65	130	80	230	280	115	80	30	155	18	23	41	M12	M16	**SN515**	6.10
	160	100	290	345	140	100	35	195	22	27	65	M16	M20	**SN615**	11.80

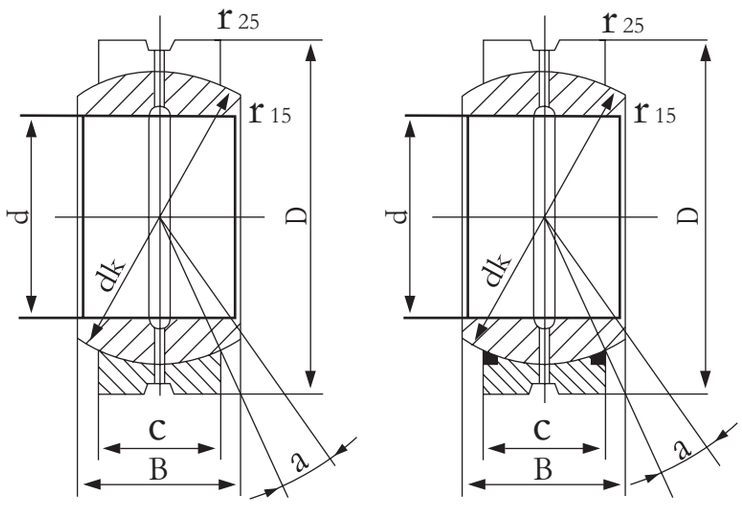
Bearing No.		Adapter Sleeve		Locating Ring Number	Quantity
1205K	22205K	H205	HE205	SR52x5	2
2205K		H305	HE305	SR52x7	1
1305K		H305	HE305	SR62x8.5	2
2305K		H2305	HE2305	SR62x10	1
1206K	22206K	H206	HE206	SR62x7	2
2206K		H306	HE306	SR62x10	1
1306K		H306	HE306	SR72x9	2
2306K		H2306	HE2306	SR72x10	1
1207K	22207K	H207	HE207	SR72x8	2
2207K		H307	HE307	SR72x10	1
1307K		H307	HE307	SR80x10	2
2307K		H2307	HE2307	SR80x10	1
1208K	22208K	H208	HE208	SR80x7.5	2
2208K		H308	HE308	SR80x10	1
1308K	21308K	H308	HE308	SR90x10	2
2308K	22308K	H2308	HE2308	SR90x10	1
1209K	22209K	H209	HE209	SR85x6	2
2209K		H309	HE309	SR85x8	1
1309K	21309K	H309	HE309	SR100x10.5	2
2309K	22309K	H2309	HE2309	SR100x10	1
1210K	22210K	H210	HE210	SR90x6.5	2
2210K		H310	HE310	SR90x10	1
1310K	21310K	H310	HE310	SR110x11.5	2
2310K	22310K	H2310	HE2310	SR110x10	1
1211K	22211K	H211	HE211	SR100x6	2
2211K		H311	HE311	SR100x8	1
1311K	21311K	H311	HE311	SR120x12	2
2311K	22311K	H2311	HE2311	SR120x10	1
1212K	22212K	H212	HE212	SR110x8	2
2212K		H312	HE312	SR110x10	1
1312K	21312K	H312	HE312	SR130x12.5	2
2312K	22312K	H2312	HE2312	SR130x10	1
1213K	22213K	H213	HE213	SR120x10	2
2213K		H313	HE313	SR120x12	1
1313K	21313K	H313	HE313	SR140x12.5	2
2313K	22313K	H2313	HE2313	SR140x10	1
1215K	22215K	H215	HE215	SR130x8	2
2215K		H315	HE315	SR130x10	1
1315K	21315K	H315	HE315	SR160x14	2
2315K	22315K	H2315	HE2315	SR160x10	1



d 70~135mm

Boundary dimensions mm												Bolt size	Bolt size	Housing No.	Mass kg
d_1	D	H	J	L	A	A_1	H_1	H_2	N	N_1	g	t	S		(approx.)
70	140	95	260	315	120	90	32	175	22	27	43	M16	M20	**SN516**	8.20
	170	112	290	345	145	100	35	212	22	27	68	M16	M20	**SN616**	13.60
75	150	95	260	320	125	90	32	185	22	27	46	M16	M20	**SN517**	9.30
	180	112	320	380	155	110	40	223	26	32	70	M20	M24	**SN617**	16.80
80	160	100	290	345	145	100	35	195	22	27	62.4	M16	M20	**SN518**	12.00
	190	112	320	380	160	110	40	230	26	32	74	M20	M24	**SN618**	21.00
85	170	112	290	345	140	100	35	210	22	27	53	M16	M20	**SN519**	13.00
	200	125	350	410	170	120	45	250	26	32	77	M20	M24	**SN619**	23.00
90	180	112	320	380	160	110	40	223	26	32	70.3	M20	M24	**SN520**	17.00
	215	140	350	410	175	120	45	270	26	32	83	M20	M24	**SN620**	31.00
100	200	125	350	410	175	120	45	245	26	32	80	M20	M24	**SN522**	20.00
	240	150	390	450	190	130	50	300	28	36	90	M24	M24	**SN622**	38.00
110	215	140	350	410	185	120	45	270	26	32	86	M20	M24	**SN524**	23.00
	260	160	450	530	200	160	60	320	33	42	96	M24	M30	**SN624**	48.00
115	230	150	380	445	190	130	50	290	28	36	90	M24	M24	**SN526**	33.00
	280	170	470	550	210	160	60	340	33	42	103	M24	M30	**SN626**	78.00
125	250	150	420	500	205	150	50	305	33	42	98	M24	M30	**SN528**	40.00
	300	180	520	610	235	170	65	365	35	45	112	M30	M30	**SN628**	97.00
135	270	160	450	530	220	160	60	325	33	42	106	M24	M30	**SN530**	45.00
	320	190	560	650	245	180	65	385	35	45	118	M30	M30	**SN630**	110.00

Bearing No.		Adapter Sleeve		Locating Ring Number	Quantity
1216K	22216K	H216	HE216	SR140x8.5	2
2216K		H316	HE316	SR140x10	1
1316K	21316K	H316	HE316	SR170x14.5	2
2316K	22316K	H2316	HE2316	SR170x10	1
1217K	22217K	H217	HE217	SR150x9	2
2217K		H317	HE317	SR150x10	1
1317K	21317K	H317	HE317	SR180x14.5	2
2317K	22317K	H2317	HE2317	SR180x10	1
1218K	22218K	H218	HE218	SR160x16.2	2
2218K	23218K	H318	HE318	SR160x11.2	2
		H2318	HE2318	SR160x10	1
1318K	22318K	H318	HE318	SR190x15.5	2
2318K		H2318	HE2318	SR190x10	1
1219K	22219K	H219	HE219	SR170x10.5	2
2219K		H319	HE319	SR170x10	1
1319K	22319K	H319	HE319	SR200x16	2
2319K		H2319	HE2319	SR200x10	1
2220K	22220K	H320	HE320	SR180x12.1	2
23220K		H2320	HE2320	SR180x10	1
1320K	22320K	H320	HE320	SR215x18	2
2320K		H2320	HE2320	SR215x10	1
2222K	22222K	H322	HE322	SR200x13.5	2
	23222K	H2322	HE2322	SR200x10	1
1322K	22322K	H322	HE322	SR240x20	2
2322K		H2322	HE2322	SR240x10	1
	22224K	H3124	HE3124	SR215x14	2
	23224K	H2324	HE2324	SR215x10	1
	22324K	H2324	HE2324	SR260x10	1
	22226K	H3126	HE3126	SR230x13	2
	23226K	H2326	HE2326	SR230x10	1
	22326K	H2326	HE2326	SR280x10	1
	22228K	H3128	HE3128	SR250x15	2
	23228K	H2328	HE2328	SR250x10	1
	22328K	H2328	HE2328	SR300x10	1
	22230K	H3130	HE3130	SR270x16.5	2
	23230K	H2330	HE2330	SR270x10	1
	22330K	H2330	HE2330	SR320x10	1



GEG… ES GEG… ES-2RS

d 15~120mm

Bearing No		Boundary dimensions mm					Tilting angle a (deg)	Basic load ratings kN dynamic	Basic load ratings kN static	Basic load ratings kgf dynamic	Basic load ratings kgf static	Mass kg
		d	*D*	*B*	*C*	*dk*		C_r	C_{or}	C_r	C_{or}	(approx.)
GE15ES	**GE15ES-2RS**	15	26	12	9	22.0	8	17	85	1730	8670	0.025
GE17ES	**GE17ES-2RS**	17	30	14	10	25.0	10	21	106	2160	10810	0.041
GE20ES	**GE20ES-2RS**	20	35	16	12	29.0	9	30	146	3060	14890	0.061
GE25ES	**GE25ES-2RS**	25	42	20	16	35.5	7	48	240	4890	24480	0.110
GE30ES	**GE30ES-2RS**	30	47	22	18	40.7	6	62	310	6300	31600	0.140
GE35ES	**GE35ES-2RS**	35	55	25	20	47.0	6	80	400	8160	40800	0.220
GE40ES	**GE40ES-2RS**	40	62	28	22	53.0	7	100	500	10200	51000	0.300
GE45ES	**GE45ES-2RS**	45	68	32	25	60.0	7	127	640	12950	65280	0.400
GE50ES	**GE50ES-2RS**	50	75	35	28	66.0	6	156	780	15900	79560	0.540
GE55ES	**GE55ES-2RS**	55	85	40	32	74.0	7	200	1,000	20400	102000	0.940
GE60ES	**GE60ES-2RS**	60	90	44	36	80.0	6	245	1,220	24990	124440	1.000
GE70ES	**GE70ES-2RS**	70	105	49	40	92.0	6	315	1,560	32130	159120	1.500
GE80ES	**GE80ES-2RS**	80	120	55	45	105.0	6	400	2,000	40800	204000	2.200
GE90ES	**GE90ES-2RS**	90	130	60	50	115.0	5	490	2,450	49980	249900	2.700
GE100ES	**GE100ES-2RS**	100	150	70	55	130.0	7	610	3,050	62220	311100	4.300
GE110ES	**GE110ES-2RS**	110	160	70	55	140.0	6	655	3,250	66810	331500	4.700
GE120ES	**GE120ES-2RS**	120	180	85	70	160.0	6	950	4,750	96900	484500	8.000