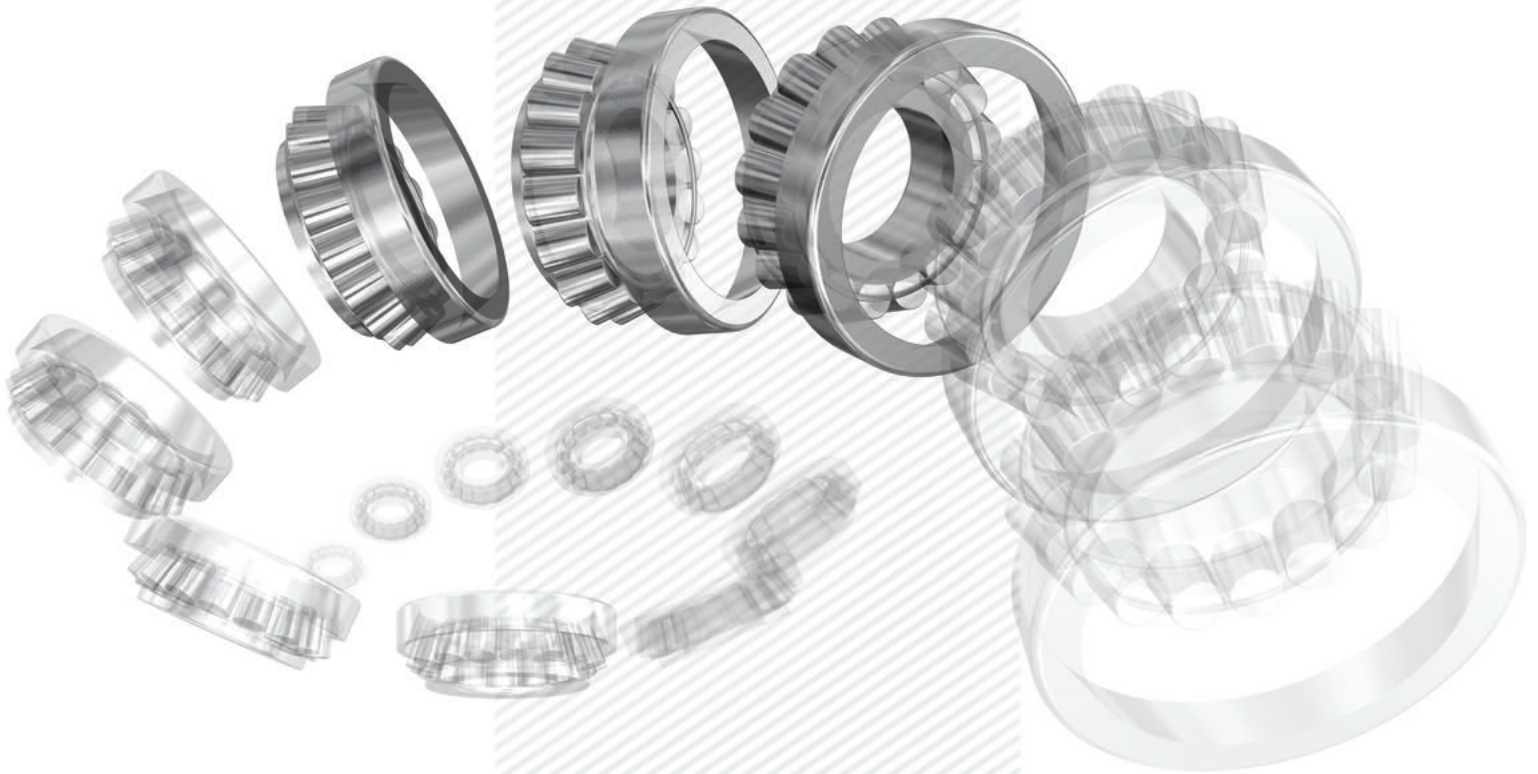




Inch Series

• General Bearings •

TAPERED ROLLER BEARINGS



JTEKT

JTEKT CORPORATION

JTEKT
Koyo | TOYODA

CAT. NO. B2009E-1



Inch Series

TAPERED ROLLER BEARINGS

CAT. NO. B2009E-1

Value & Technology

Publication of New **Koyo** Inch series Tapered Roller Bearing Catalog

Allow us to express our heartfelt appreciation for your valuable patronage.

At this time we are pleased to provide you with our new Koyo Inch Series Tapered Roller Bearing Catalog.

JTEKT Corporation has long enjoyed a strong reputation as a maker of inch-series tapered roller bearings from the time of its predecessor Koyo Seiko, and in recent years we have continued intense R&D activities to make improvements in such areas as the size, weight, and environmental friendliness of these bearings. The fruits of these efforts are reflected in the bearings described in this new catalog.

You will notice that this new catalogue has undergone a thorough revision from the previous version and contains model information based on the latest results.

We believe this catalogue will prove valuable to you in your selection and use of Koyo bearings, and we look forward to your continued patronage.

★The contents of this catalog are subject to change without prior notice. Every possible effort has been made to ensure that the data herein is correct; however, JTEKT cannot assume responsibility for any errors or omissions.

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1 Structure of tapered roller bearings

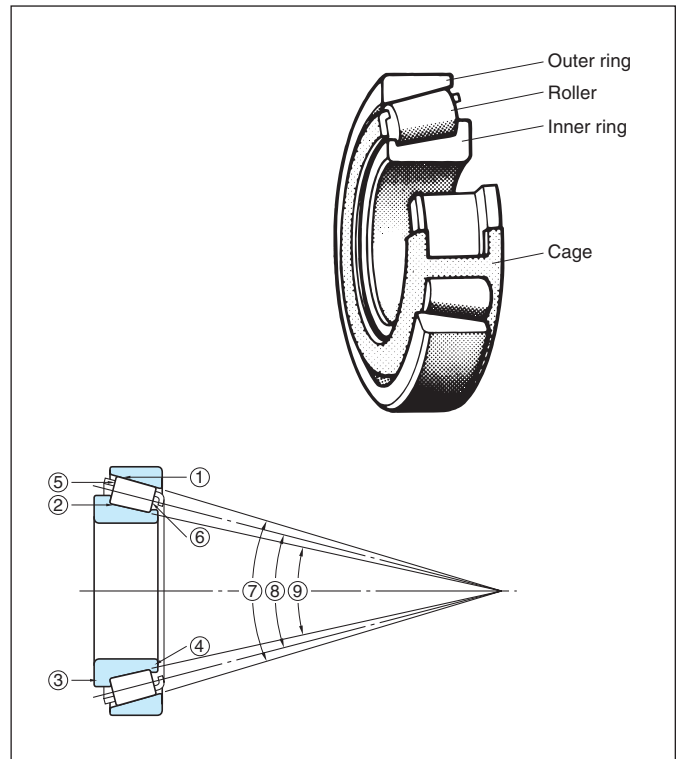
1 Structure of tapered roller bearings

Tapered roller bearings consist of outer ring, inner ring, rollers and a cage. This bearing contains tapered rollers for its rolling element which are guided by the inner ring back-face rib on the roller large end face.

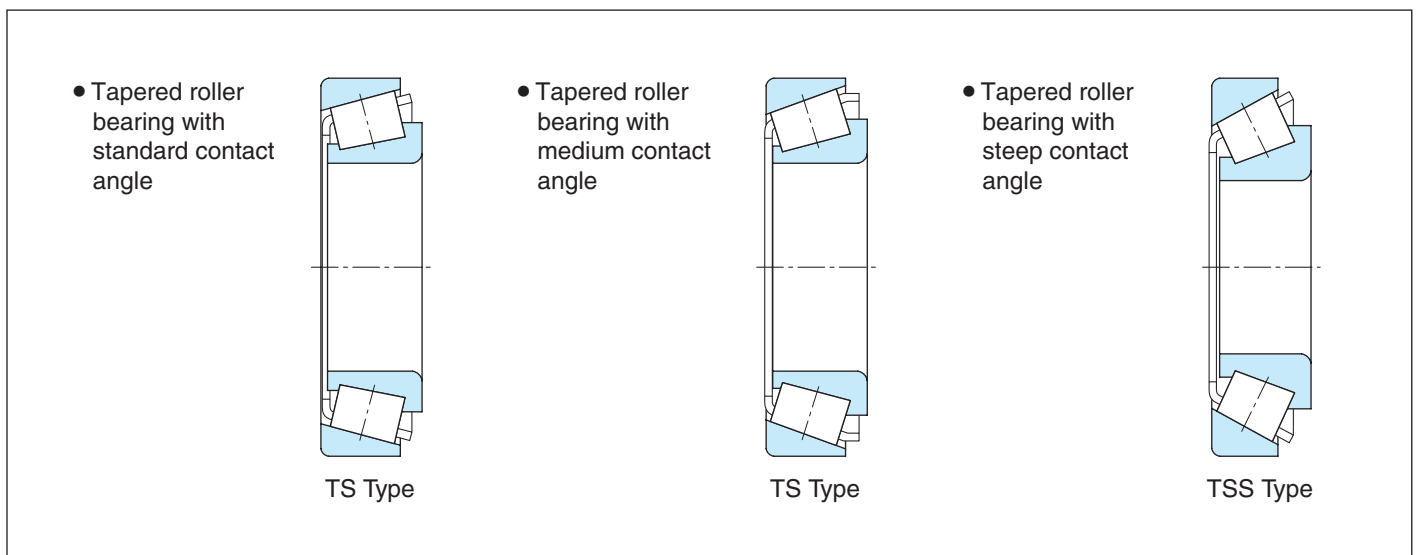
The raceway surfaces of inner ring and outer ring and the rolling contact surface of rollers are designed so that the respective apexes converge at a point on the bearing center line.

Bearings are classified into standard, intermediate and steep types, in accordance with their contact angle (α).

The larger the contact angle is, the greater the bearing resistance to axial load.



- ① Outer ring raceway
- ② Inner ring raceway
- ③ Inner ring backface rib
- ④ Inner ring front face rib
- ⑤ Roller large end face
- ⑥ Roller small end face
- ⑦ Included outer ring angle
- ⑧ Included roller center angle
- ⑨ Included inner ring angle



2 Outstanding features of tapered roller bearings

1) Higher load ratings

Tapered roller bearings with higher load ratings can accept radial loads or axial loads in one direction and combined radial and axial loads.

This type of bearing is suitable for use under heavy load or impact load.

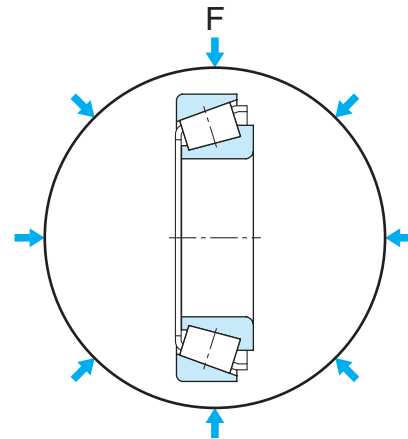
2) The outer ring can be mounted separately from the inner ring assembly

Since the outer ring is separable from the inner ring assembly, the inner ring assembly can be installed on the shaft and the outer ring in the housing, individually.

This feature facilitates mounting of the bearing while making the design of the shaft and housing simpler. In addition, more options regarding the fitting practice employed are available than with any other type of bearing.

3) Mounted clearance is adjustable

In general, bearings of unitized design are supplied with a predetermined radial clearance which will vary according to fitting practice and application. Tapered roller bearings on the other hand can be adjusted at the time of installation by varying the axial location of either the inner ring assembly or outer ring.



3 Bearing service life

3.1 Bearing service life

When bearings rotate under load, material flakes from the surfaces of inner and outer rings or rolling elements by fatigue arising from repeated contact stress.

This phenomenon is called flaking.

The total number of bearing rotations until flaking occurs is regarded as the bearing "(fatigue) service life".

"(Fatigue) service life" differs greatly depending upon bearing structures, dimensions, materials, and processing methods.

Since this phenomenon results from fatigue distribution in bearing materials themselves, differences in bearing service life should be statistically considered.

When a group of identical bearings are rotated under the same conditions, the total number of revolutions until 90 % of the bearings are left without flaking (i.e. a service life of 90 % reliability) is defined as the basic rating life. In operation at a constant speed, the basic rating life can be expressed in terms of time.

3.2 Basic dynamic load ratings

Basic dynamic load ratings, *C*

The basic dynamic load rating is either pure radial (for radial bearings) or central axial load (for thrust bearings) of constant magnitude in a constant direction, under which the basic rating life of 1 million revolutions can be obtained, when the inner ring rotates while the outer ring is stationary, or vice versa. The basic dynamic load rating, which represents the capacity of a bearing under rolling fatigue, is specified as the basic dynamic radial load rating (*C_r*) for radial bearings, and basic dynamic axial load rating (*C_a*) for thrust bearings. These load ratings are listed in the specification table.

These values are prescribed by ISO 281/1990, and are subject to change by conformance to the latest ISO standards.

3.3 Calculation of service life

Generally, the relationship between the dynamic load rating, applied load and basic rating life of the bearing is expressed as follows :

$$L_{10} = \left(\frac{C}{P}\right)^{10/3} \dots\dots\dots (3.1)$$

where :

- L₁₀* : basic rating life ×10⁶ revolutions
- C* : basic dynamic load rating N
- P* : dynamic equivalent radial (or axial) load N

In case the bearing operates at a constant speed, it is often convenient to express the life in terms of hours which can be obtained by the following equation :

$$L_{10h} = \left(\frac{C}{P}\right)^{10/3} \frac{16\,667}{n} \dots\dots\dots (3.2)$$

where :

- L_{10h}* : life in terms of hours h
- $$\left\{ \begin{array}{l} L_{10h} = L_{10} \times \frac{10^6}{60n} \\ = \left(\frac{C}{P}\right)^{10/3} \frac{10^6}{60n} \\ = \left(\frac{C}{P}\right)^{10/3} \frac{16\,667}{n} \end{array} \right\}$$
- n* : rotational speed min⁻¹

Life calculation can be further simplified by the use of service life coefficient (*f_h*) and coefficient of rotational speed (*f_n*) as tabulated in **Tables 3.3** and **3.4**.

$$L_{10h} = 500 \cdot f_h^{10/3} \dots\dots\dots (3.3)$$

$$f_h = f_h \cdot \frac{C}{P} \dots\dots\dots (3.4)$$

$$f_h = \left(\frac{33.3}{P}\right)^{3/10} \dots\dots\dots (3.5)$$

3.4 Corrected rating life

The basic rating life (L_{10}), expressed using **Equation (3.1)**, is (fatigue) life, whose estimate of reliability is 90 %.

A certain application requires a service life whose reliability is more than 90 %.

Special materials help extend bearing life, and lubrication and other operating conditions may also affect bearing service life.

The corrected rating life can be obtained from the basic rating life using **Equation (3.6)**.

$$L_{na} = a_1 a_2 a_3 L_{10} \dots \dots \dots (3.6)$$

where :

L_{na} : corrected rating life 10^6 revolutions

(estimated reliability (100- n) % : the probability of failure occurrence is expressed by n , taking bearing characteristics and operating conditions into consideration.)

L_{10} : basic rating life 10^6 revolutions
(estimated reliability 90 %)

a_1 : reliability coefficient refer to section (1)

a_2 : bearing characteristic coefficient
..... refer to section (2)

a_3 : operating condition coefficient
..... refer to section (3)

[Remark]

When bearing dimensions are to be selected given L_{na} greater than 90 % in reliability, the strength of shaft and housing must be considered.

(1) Reliability coefficient a_1

Table 3.1 describes reliability coefficient, a_1 , which is necessary to obtain the corrected rating life of reliability greater than 90 %.

Table 3.1 Reliability coefficient a_1

Reliability, %	L_{na}	a_1
90	L_{10a}	1.00
95	L_{5a}	0.62
96	L_{4a}	0.53
97	L_{3a}	0.44
98	L_{2a}	0.33
99	L_{1a}	0.21

(2) Bearing characteristic coefficient a_2

The bearing characteristic in relation to bearing life may differ according to bearing materials (steel types and their quality), and may be altered by production process, design, etc. In such cases, the bearing life calculation can be corrected using the bearing characteristic coefficient a_2 .

JTEKT has employed vacuum-degassed bearing steel as JTEKT standard bearing material. It has a significant effect on bearing life extension which was verified through studies at JTEKT laboratory.

The basic dynamic load rating of bearings made of vacuum-degassed bearing steel is specified in the bearing specification table, taking the bearing characteristic coefficient as $a_2 = 1$.

For bearings made of special materials to extend fatigue life, the bearing characteristic coefficient is treated as $a_2 > 1$.

(3) Operating condition coefficient a_3

When bearings are used under operating conditions which directly affect their service life, including improper lubrication, the service life calculation can be corrected by using a_3 .

Under normal lubrication, the calculation can be performed with $a_3 = 1$; and, under favorable lubrication, with $a_3 > 1$.

In the following cases, the operating condition coefficient is treated as $a_3 < 1$:

- Operation using lubricant of low kinematic viscosity

Ball bearing	13 mm ² /s or less
Roller bearing	20 mm ² /s or less
- Operation at very slow rotational speed

Product of rolling element pitch diameter and	rotational speed is 10 000 or less.
rotational speed is 10 000 or less.	
- Contamination of lubricant is expected
- Greater misalignment of inner and outer rings is present

[Note] When bearing hardness is diminished by heat, the basic dynamic load rating calculation must be corrected (ref. **Table 3.2**).

Table 3.2 Temperature coefficient values

Bearing temperature, °C	125	150	175	200	250
Temperature coefficient	1	1	0.95	0.90	0.75

[Remark]

When $a_2 > 1$ in employing a special material, if lubrication is not proper, $a_2 \times a_3$ is not always > 1 . In such cases, if $a_3 < 1$, bearing characteristic coefficient is normally treated as $a_2 \leq 1$.

As the above explanation shows, since a_2 and a_3 are inter-dependent, some calculations treat them as one coefficient, a_{23} .

Table 3.3 Speed factor

Rotational speed n (min ⁻¹)	Coefficient of rotational speed f_n	Rotational speed n (min ⁻¹)	Coefficient of rotational speed f_n	Rotational speed n (min ⁻¹)	Coefficient of rotational speed f_n	Rotational speed n (min ⁻¹)	Coefficient of rotational speed f_n
10	1.435	65	0.819	650	0.410	4 000	0.238
11	1.395	70	0.800	700	0.401	4 200	0.234
12	1.359	75	0.784	750	0.393	4 400	0.231
13	1.326	80	0.769	800	0.385	4 600	0.228
14	1.297	85	0.756	850	0.379	4 800	0.225
15	1.271	90	0.742	900	0.372	5 000	0.222
16	1.246	95	0.731	950	0.366	5 200	0.220
17	1.224	100	0.719	1 000	0.361	5 400	0.217
18	1.203	110	0.699	1 050	0.355	5 600	0.215
19	1.184	120	0.681	1 100	0.350	5 800	0.213
20	1.166	130	0.665	1 150	0.346	6 000	0.211
21	1.149	140	0.650	1 200	0.341	6 200	0.209
22	1.133	150	0.637	1 250	0.337	6 400	0.207
23	1.118	160	0.625	1 300	0.333	6 600	0.205
24	1.104	170	0.613	1 400	0.326	6 800	0.203
25	1.090	180	0.603	1 500	0.319	7 000	0.201
26	1.077	190	0.593	1 600	0.313	7 200	0.199
27	1.065	200	0.584	1 700	0.307	7 400	0.198
28	1.054	220	0.568	1 800	0.302	7 600	0.196
29	1.043	240	0.553	1 900	0.297	8 000	0.193
30	1.032	260	0.540	2 000	0.293	8 500	0.190
31	1.022	280	0.528	2 100	0.289	9 000	0.187
32	1.012	300	0.517	2 200	0.285	9 500	0.184
33.3	1.000	320	0.507	2 300	0.281	10 000	0.181
34	0.994	340	0.498	2 400	0.277	11 000	0.176
36	0.977	360	0.490	2 500	0.274	12 000	0.171
38	0.962	380	0.482	2 600	0.271	13 000	0.167
40	0.947	400	0.475	2 700	0.268	14 000	0.163
42	0.933	420	0.467	2 800	0.265	15 000	0.160
44	0.920	440	0.461	2 900	0.262	16 000	0.157
46	0.908	460	0.455	3 000	0.259	17 000	0.154
48	0.896	480	0.449	3 200	0.254	18 000	0.152
50	0.886	500	0.444	3 400	0.250	19 000	0.149
55	0.866	550	0.432	3 600	0.246	20 000	0.147
60	0.838	600	0.420	3 800	0.242		

3.5 Basic static load rating

Excessive static load or impact load even at very low rotation causes partial permanent deformation of the rolling element and raceway contacting surfaces. This permanent deformation increases with the load; if it exceeds a certain limit, smooth rotation will be hindered.

The basic static load rating is the static load which responds to the calculated contact stress shown below, at the contact center between the raceway and rolling elements which receive the maximum load.

- Roller bearings 4 000 MPa

The total extent of contact stress-caused permanent deformation on surfaces of rolling elements and raceway will

be approximately 0.000 1 times greater than the rolling element diameter.

The basic static load rating for radial bearings is specified as the basic static radial load rating. This load ratings are listed in the bearing specification table, using C_{0r} .

This value is prescribed by ISO 78/1987 and is subject to change by conformance to the latest ISO standards.

3.6 Safety coefficient

The allowable static equivalent load for a bearing is determined by the basic static load rating of the bearing; however, bearing service life, which is affected by permanent deforma-

Table 3.4 Life factor

Service life coefficient f_h	L_{10} (10^6 rev.)	L_{10h} (h)	Service life coefficient f_h	L_{10} (10^6 rev.)	L_{10h} (h)	Service life coefficient f_h	L_{10} (10^6 rev.)	L_{10h} (h)
0.70	0.30	150	2.45	19.8	9 920	4.20	120	59 800
0.75	0.38	190	2.50	21.2	10 600	4.25	124	62 200
0.80	0.48	240	2.55	22.6	11 300	4.30	129	64 600
0.85	0.58	290	2.60	24.2	12 100	4.35	134	67 200
0.90	0.70	350	2.65	25.8	12 900	4.40	140	69 800
0.95	0.84	420	2.70	27.4	13 700	4.45	145	72 500
1.00	1.00	500	2.75	29.1	14 600	4.50	150	75 200
1.05	1.18	590	2.80	30.9	15 500	4.55	156	78 000
1.10	1.37	685	2.85	32.8	16 400	4.60	162	80 900
1.15	1.59	795	2.90	34.8	17 400	4.65	168	83 900
1.20	1.84	920	2.95	36.8	18 400	4.70	174	87 000
1.25	2.10	1 050	3.00	38.9	19 500	4.75	180	90 800
1.30	2.40	1 200	3.05	41.1	20 600	4.80	187	93 300
1.35	2.72	1 360	3.10	43.4	21 700	4.85	193	96 600
1.40	3.07	1 530	3.15	45.8	22 900	4.90	200	99 900
1.45	3.45	1 730	3.20	48.3	24 100	4.95	207	103 000
1.50	3.86	1 930	3.25	50.8	25 400	5.00	214	107 000
1.55	4.31	2 160	3.30	53.5	26 800	5.10	228	114 000
1.60	4.79	2 400	3.35	56.3	28 100	5.20	244	122 000
1.65	5.31	2 650	3.40	59.1	29 600	5.30	260	130 000
1.70	5.86	2 930	3.45	62.0	31 000	5.40	276	138 000
1.75	6.46	3 230	3.50	65.1	32 500	5.50	294	147 000
1.80	7.09	3 550	3.55	68.2	34 100	5.60	312	156 000
1.85	7.77	3 890	3.60	71.5	35 800	5.70	331	165 000
1.90	8.50	4 250	3.65	74.9	37 400	5.80	351	175 000
1.95	9.26	4 630	3.70	78.3	39 200	5.90	371	186 000
2.00	10.1	5 040	3.75	81.9	41 000	6.00	392	196 000
2.05	10.9	5 470	3.80	85.6	42 800	6.50	513	256 000
2.10	11.9	5 930	3.85	89.4	44 700	7.00	656	328 000
2.15	12.8	6 420	3.90	93.4	46 700	7.50	826	413 000
2.20	13.8	6 920	3.95	97.4	48 700	8.00	1 020	512 000
2.25	14.9	7 460	4.00	102	50 800	8.50	1 250	627 000
2.30	16.1	8 030	4.05	106	52 900	9.00	1 520	758 000
2.35	17.2	8 620	4.10	110	55 200	9.50	1 820	908 000
2.40	18.5	9 250	4.15	115	57 400	10.00	2 150	1 080 000

tion, differs in accordance with the performance required of the bearing and operating conditions.

Therefore, a safety coefficient is designated, based on empirical data, so as to ensure safety in relation to basic static load rating.

$$f_s = \frac{C_0}{P_0} \dots\dots\dots (3.7)$$

where :

f_s : safety coefficient (ref. **Table 3.5**)

C_0 : basic static load rating N

P_0 : static equivalent load N

Table 3.5 Values of safety coefficient f_s

Operating condition		f_s (min.)	
		Ball bearing	Roller bearing
With bearing rotation	When high accuracy is required	2	3
	Normal operation	1	1.5
	When impact load is applied	1.5	3
Without bearing rotation (occasional oscillation)	Normal operation	0.5	1
	When impact load or uneven distribution load is applied	1	2

[Remark] For spherical thrust roller bearings, $f_s \geq 4$.

4 Equivalent load

4 Equivalent load

4.1 Dynamic equivalent load

Bearings are used under various operating conditions; however, in most cases, bearings receive radial and axial load combined, while the load magnitude fluctuates during operation.

Therefore, it is impossible to directly compare the actual load and basic dynamic load rating.

The two are compared by replacing the loads applied to the shaft center with one of a constant magnitude and in a specific direction, that yields the same bearing service life as under actual load and rotational speed.

This theoretical load is referred to as the dynamic equivalent load (P).

4.1.1 Calculation of dynamic equivalent load

Dynamic equivalent loads for radial bearings and thrust bearings ($\alpha \neq 90^\circ$) which receive a combined load of a constant magnitude in a specific direction can be calculated using the following equation,

$$P = XF_r + YF_a \quad (4.1)$$

where :

P : dynamic equivalent load N

(for radial bearings,
 P_r : dynamic equivalent radial load
 for thrust bearings,
 P_a : dynamic equivalent axial load)

F_r : radial load N

F_a : axial load N

X : radial load factor

Y : axial load factor

(values of X and Y are listed in the bearing specification table.)

■ When $F_a/F_r \leq e$ for single-row radial bearings, it is taken that $X = 1$, and $Y = 0$.

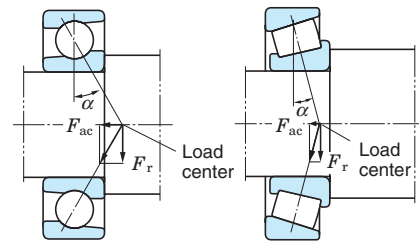
Hence, the dynamic equivalent load rating is $P_r = F_r$.

(Values of e , which designates the limit of F_a/F_r , are listed in the bearing specification table.)

■ For single-row tapered roller bearings, axial component forces (F_{ac}) are generated as shown in **Fig. 4.1**, therefore a pair of bearings is arranged face-to-face or back-to-back.

The axial component force can be calculated using the following equation.

$$F_{ac} = \frac{F_r}{2Y} \quad (4.2)$$



(Load center position is listed in the bearing specification table.)

Fig. 4.1 Axial component force

For instance, when radial loads F_{rA} and F_{rB} are on tapered roller bearings A and B as shown in **Table 4.1** and, in addition, a axial load K_a from the outside is on bearing A, the dynamic equivalent loads P_A and P_B on bearings A and B are as follows :

Table 4.1 Dynamic equivalent load calculation : when a pair of tapered roller bearings is arranged face-to-face or back-to-back.

Paired mounting		Loading condition	Bearing	Axial load	Dynamic equivalent load
Back-to-back arrangement	Face-to-face arrangement				
		$\frac{F_{rB}}{2Y_B} + K_a \geq \frac{F_{rA}}{2Y_A}$	Bearing A	$\frac{F_{rB}}{2Y_B} + K_a$	$P_A = XF_{rA} + Y_A \left(\frac{F_{rB}}{2Y_B} + K_a \right)$ $P_A = F_{rA}$, where $P_A < F_{rA}$
			Bearing B	–	$P_B = F_{rB}$
		$\frac{F_{rB}}{2Y_B} + K_a < \frac{F_{rA}}{2Y_A}$	Bearing A	–	$P_A = F_{rA}$
			Bearing B	$\frac{F_{rA}}{2Y_A} - K_a$	$P_B = XF_{rB} + Y_B \left(\frac{F_{rA}}{2Y_A} - K_a \right)$ $P_B = F_{rB}$, where $P_B < F_{rB}$

5 Bearing tolerances

5 Bearing tolerances

5.1 Boundary tolerances for tapered roller bearings

Koyo Inch Series tapered roller bearings are manufactured to the five tolerance levels recognized by the ANSI/ABMA, Classes 4, 2, 3, 0 and 00, in order to ascending precision.

Metric J series For "J" prefix Bearing No. tapered roller bearings are produced in Classes PK, PN, PC and PB, in accordance with industry standards. These classes provide

quality levels suitable for all applications. The higher grades have reduced runout tolerances, producing smoother rotation of the bearings with less noise and vibration.

Improved mounting fits are also obtained because of closer tolerances on bore and outside diameter. Tolerances class 4 to class 00 and class PK to class PB are shown in **Table 5.1**, **5.2**. Koyo tapered roller bearings may be supplied in any precision desired.

Table 5.1 Tolerances and permissible values for Inch series tapered roller bearings

(1) Inner ring

Unit : μm

Nominal bore diameter d				Deviation of a single bore diameter Δ_{ds}									
over		up to		Class 4		Class 2		Class 3		Class 0		Class 00	
mm	inch	mm	inch	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
–	–	76.2	3.0	+ 13	0	+13	0	+13	0	+13	0	+8	0
76.2	3.0	304.8	12.0	+ 25	0	+25	0	+13	0	+13	0	+8	0
304.8	12.0	609.6	24.0	+ 51	0	+51	0	+25	0	–	–	–	–
609.6	24.0	914.4	36.0	+ 76	0	–	–	+38	0	–	–	–	–
914.4	36.0	1 219.2	48.0	+102	0	–	–	+51	0	–	–	–	–
1 219.2	48.0	–	–	+127	0	–	–	+76	0	–	–	–	–

(2) Outer ring

Unit : μm

Nominal outside diameter D				Deviation of a single outside diameter Δ_{Ds}									
over		up to		Class 4		Class 2		Class 3		Class 0		Class 00	
mm	inch	mm	inch	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
–	–	304.8	12.0	+ 25	0	+25	0	+13	0	+13	0	+8	0
304.8	12.0	609.6	24.0	+ 51	0	+51	0	+25	0	–	–	–	–
609.6	24.0	914.4	36.0	+ 76	0	+76	0	+38	0	–	–	–	–
914.4	36.0	1 219.2	48.0	+102	0	–	–	+51	0	–	–	–	–
1 219.2	48.0	–	–	+127	0	–	–	+76	0	–	–	–	–

(3) Assembled bearing width

Unit : μm

Nominal bore diameter d				Deviation of the actual bearing width Δ_{Ts}									
over		up to		Class 4		Class 2		Class 3		Class 0		Class 00	
mm	inch	mm	inch	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
–	–	101.6	4.0	+203	0	+203	0	+203	–203	+203	–203	+203	–203
101.6	4.0	266.7	10.5	+356	–254	+203	0	+203	–203	+203	–203	+203	–203
266.7	10.5	304.8	12.0	+356	–254	+203	0	+203	–203	+203	–203	–	–
304.8	12.0	609.6	24.0 ¹⁾	–	–	+381	–381	+203	–203	–	–	–	–
304.8	12.0	609.6	24.0 ²⁾	–	–	+381	–381	+381	–381	–	–	–	–
609.6	24.0	–	–	+381	–381	–	–	+381	–381	–	–	–	–

[Note] 1) Nominal outside dia. \leq 508.0 mm (20.0 inches), 2) Nominal outside diameter > 508.0 mm (20.0 inches).

(4) Radial runout of assembled bearing inner ring / outer ring

 Unit : μm

Nominal outside diameter D				Radial runout of assembled bearing K_{ia}, K_{ea}				
over		up to		Class 4	Class 2	Class 3	Class 0	Class 00
mm	inch	mm	inch	max.	max.	max.	max.	max.
–	–	304.8	12.0	51	38	8	4	2
304.8	12.0	609.6	24.0	51	38	18	–	–
609.6	24.0	914.4	36.0	76	51	51	–	–
914.4	36.0	–	–	76	–	76	–	–

Table 5.2 Tolerances for metric "J" series tapered roller bearings
(1) Bore diameter and width of inner ring and assembled bearing width

 Unit : μm

Nominal bore diameter d (mm)		Deviation of a single bore diameter Δ_{ds}								Deviation of a single inner ring width Δ_{Bs}								Deviation of the actual bearing width Δ_{Ts}							
		Class PK		Class PN		Class PC		Class PB		Class PK		Class PN		Class PC		Class PB		Class PK		Class PN		Class PC		Class PB	
over	up to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower
10	18	0	-12	0	-12	0	-7	0	-5	0	-100	0	-50	0	-200	0	-200	+200	0	+100	0	+200	-200	+200	-200
18	30	0	-12	0	-12	0	-8	0	-6	0	-100	0	-50	0	-200	0	-200	+200	0	+100	0	+200	-200	+200	-200
30	50	0	-12	0	-12	0	-10	0	-8	0	-100	0	-50	0	-200	0	-200	+200	0	+100	0	+200	-200	+200	-200
50	80	0	-15	0	-15	0	-12	0	-9	0	-150	0	-50	0	-300	0	-300	+200	0	+100	0	+200	-200	+200	-200
80	120	0	-20	0	-20	0	-15	0	-10	0	-150	0	-50	0	-300	0	-300	+200	-200	+100	0	+200	-200	+200	-200
120	180	0	-25	0	-25	0	-18	0	-13	0	-200	0	-50	0	-300	0	-300	+350	-250	+150	0	+350	-250	+200	-250
180	250	0	-30	0	-30	0	-22	0	-15	0	-200	0	-50	0	-350	0	-350	+350	-250	+150	0	+350	-250	+200	-300
250	315	0	-35	0	-35	0	-22	0	-15	0	-200	0	-50	0	-350	0	-350	+350	-250	+200	0	+350	-300	+200	-300

(2) Outside diameter and width of outer ring and radial runout of assembled bearing inner ring / outer ring

 Unit : μm

Nominal outside diameter D (mm)		Deviation of a single outside diameter Δ_{Ds}								Deviation of a single outer ring width Δ_{Cs}								Radial runout of assembled bearing K_{ia}, K_{ea}			
		Class PK		Class PN		Class PC		Class PB		Class PK		Class PN		Class PC		Class PB		Class PK	Class PN	Class PC	Class PB
over	up to	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	upper	lower	max.	max.	max.	max.
18	30	0	-12	0	-12	0	-8	0	-6	0	-150	0	-100	0	-150	0	-150	18	18	5	3
30	50	0	-14	0	-14	0	-9	0	-7	0	-150	0	-100	0	-150	0	-150	20	20	6	3
50	80	0	-16	0	-16	0	-11	0	-9	0	-150	0	-100	0	-150	0	-150	25	25	6	4
80	120	0	-18	0	-18	0	-13	0	-10	0	-200	0	-100	0	-200	0	-200	35	35	6	4
120	150	0	-20	0	-20	0	-15	0	-11	0	-200	0	-100	0	-200	0	-200	40	40	7	4
150	180	0	-25	0	-25	0	-18	0	-13	0	-200	0	-100	0	-250	0	-250	45	45	8	4
180	250	0	-30	0	-30	0	-20	0	-15	0	-250	0	-100	0	-250	0	-250	50	50	10	5
250	315	0	-35	0	-35	0	-25	0	-18	0	-250	0	-100	0	-300	0	-300	60	60	11	5
315	400	0	-40	0	-40	0	-28	–	–	0	-250	0	-100	0	-300	–	–	70	70	13	–

6 Numbering system

6 Numbering system

The numbering system of the inch series tapered roller bearings is specified by the ABMA Standard as follows.

This will provide a guideline for identification of duty,

angularity and dimensions of the inch series tapered roller bearings.

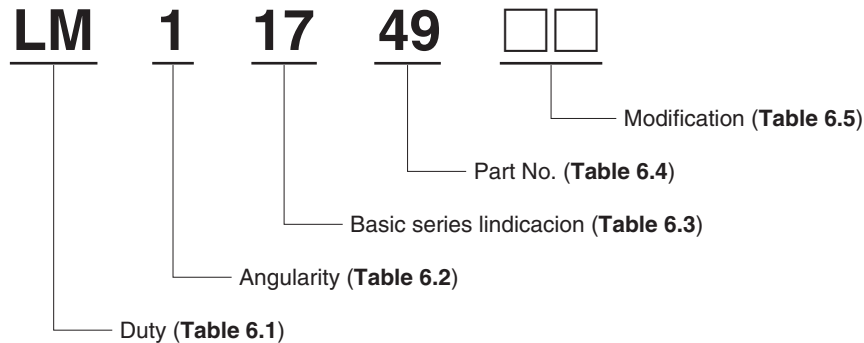


Table 6.1 Duty

Inch series tapered roller bearings will be divided into ten classes according to their duty as follows :

Code	Details
EL	Extra Light
LL	Lighter than Light
L	Light
LM	Light Medium
M	Medium
HM	Heavy Medium
H	Heavy
HH	Heavier than Heavy
EH	Extra Heavy
T	Thrust only

Table 6.2 Angularity

The first digit following the prefix letters will indicate approximately the included angle (α) of the outer race or the outer ring angle according to the following code.

Code	Details
1	0 $< \alpha < 24^\circ$
2	$24^\circ \leq \alpha < 25^\circ 30'$
3	$25^\circ 30' \leq \alpha < 27^\circ$
4	$27^\circ \leq \alpha < 28^\circ 30'$
5	$28^\circ 30' \leq \alpha < 28^\circ 30'$
6	$30^\circ 30' < \alpha < 32^\circ 30'$
7	$32^\circ 30' \leq \alpha < 36^\circ$
8	$36^\circ \leq \alpha < 45^\circ$
9	$45^\circ \leq \alpha$, but not thrust only
0	Thrust bearing only

Table 6.3 Basic series indication

The selection of the basic series indication in relation to the maximum theoretical bore of the bearing will then be in accord with the following tabulation :

Series indication	Max. bore range (inch)
00 to 19 incl.	0 – 1
20 to 99 incl.	1 – 2
000 to 029 incl.	
039 to 129 incl.	2 – 3
130 to 189 incl.	3 – 4
190 to 239 incl.	4 – 5
240 to 289 incl.	5 – 6
290 to 339 incl.	6 – 7
340 to 389 incl.	7 – 8
390 to 429 incl.	8 – 9

Table 6.4 Part No.

The 5th and 6th digits or the last two digits of the bearing number indicate the part number of the individual member of the bearing.

Bearing member	Code
Outer ring : (Cup)	Expressed by 10 to 19, and 10 is used for the outer ring of the minimum outside diameter of the series.
Inner ring : (Cone)	Expressed by 30 to 49, and 49 is used for the inner ring of the maximum bore size of the series.

Table 6.5 Modification

These codes indicate the special design features. Some examples are;

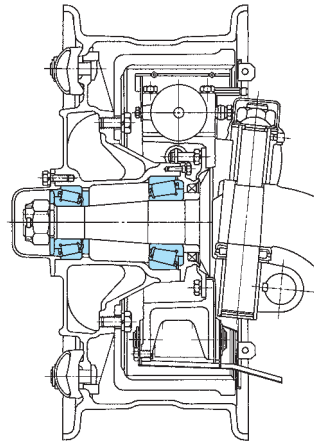
Code	Details
A	Bearing limit for overall width or size in master closer than standard.
B	Single outer ring with flange.
BR	Single or double outer ring or inner ring with snap ring.
BW	Single outer ring with flange and slotted.
CR	Rib outer ring.
CP	Chrome plated inner ring and outer ring.
D	Double inner ring or outer ring – minimum length.
DA	Spherical O.D. – double outer ring – self-aligning –

7 Typical applications

Automotive

• Front wheels

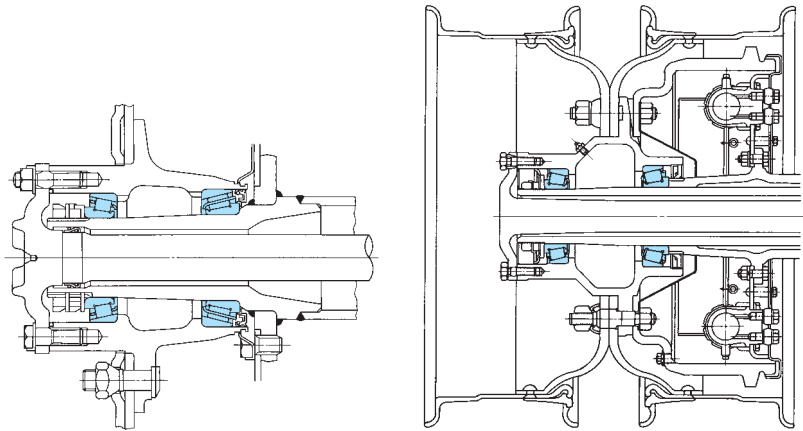
In general, automotive front wheel bearings are primarily subjected to radial loads. However, during cornering or running on bad roads, substantial moment loads can be imposed. Therefore, it is extremely important to select bearings which can absorb these moment loads without difficulty. At the present time, two tapered roller bearings are generally used in each front wheels of trucks.



• Rear wheels

Tapered roller bearings are generally used in rear wheels of trucks and buses over 2 tons in gross vehicle weight.

Since the inner ring and outer ring can misalign during cornering, which can have an adverse affect on service life, bearings which offer superior performance under these conditions should be selected.

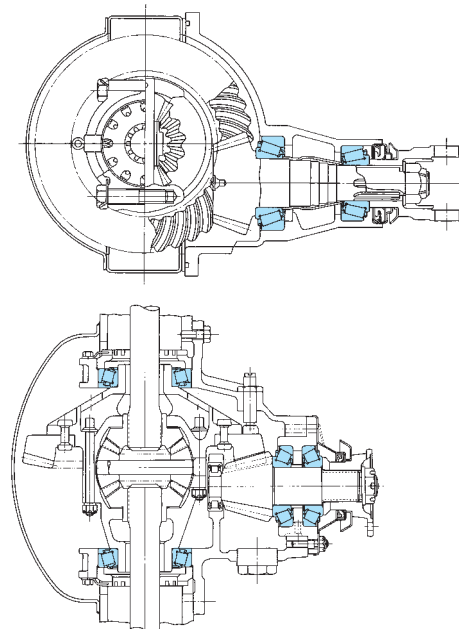


• Differentials

The bearings used in automotive differentials are preloaded to maintain accuracy between the drive pinion and ring gear. The accuracy of gear engagement affects greatly the performance of the differential as well as running noise.

From this point of view, it is necessary to select bearings which will provide optimum rigidity so that satisfactory engagement of the gears is obtained during operation. The pinion shaft is supported by either two tapered roller bearings (cantilever mount) mounted back to back, or two steep angle tapered roller bearings plus a single cylindrical roller bearing opposite the tapered roller bearings (straddle mount).

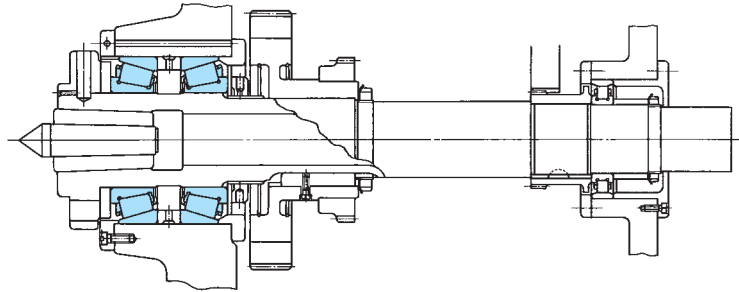
The differential ring gear is supported by tapered roller bearings mounted face to face.



General industries

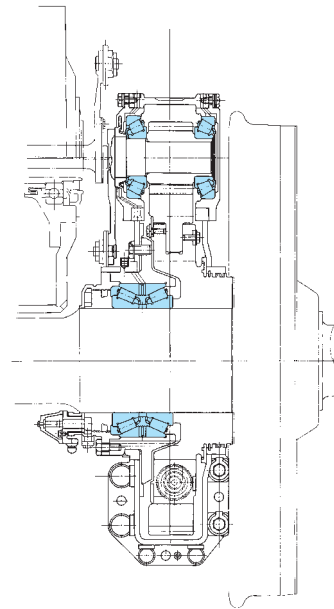
• Machine tool spindles

Tapered roller bearings are widely used to support spindles of various machine tools such as engine lathes and milling machines. Since these spindles require rigidity and accuracy of guidance in both radial and axial directions, a pair of tapered roller bearings are usually mounted in a back-to-back arrangement and adjusted to obtain the proper preload. In addition to providing rigid radial and axial support, tapered roller bearings simplify the machine structure and promote simple preload adjustment.

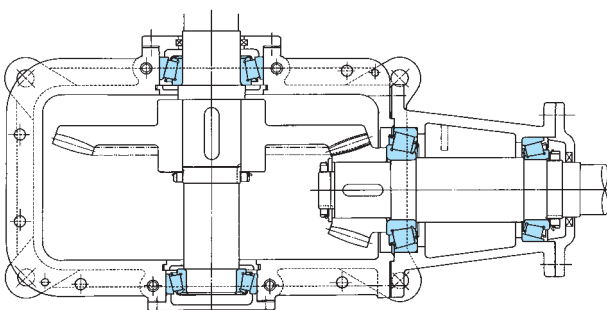


• Electric railway car gear units

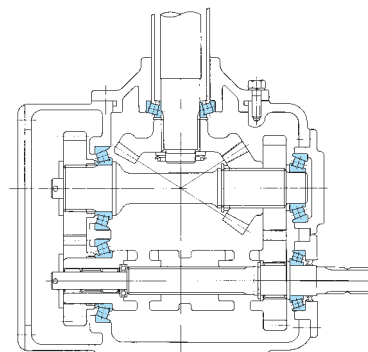
The driving axles of electric cars are equipped with gearing units to transmit the torque and rotation generated by the traction main motors. In the parallel cardan gear units (currently more widely used than square cardan gear units), both the pinion shaft and gear housing are generally fitted with tapered roller bearings.



• Bevel-gear units



• Farm equipment, transmission



Specification tables of tapered roller bearings

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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page	
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	335S	45		53,55,57	
	336	55		39,43,47,49,	
	337	51		51,55	
	338	39			
	339	49			
	339X	49			
	340	47			
	341	37			
	342	55			
	342A	55			
	342S	57			
	343	47			
	344	53			
	344A	53			
	346	45			
347	51				
348	41				
355	350	55	352	55,61	
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	355A	59	354A	53,57,59,61	
	355X	59	354X	53	
	357	53			
	358	61			
	358A	61			
	359A	61			
	359S	61			
365	365	63	362	61	
	365A	55	362A	55,61,63,65,	
	365S	63		67	
	366	63	363	61	
	367	61			
	368	65			
	368A	65			
	368S	67			
	369A	61			
	369S	61			
	370A	65			
	375	375		65	372
375S		65		372A	65
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377A		67			
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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
375	378A	63		
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	385A	65	382A	61,65,69,71
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	385AX	65	383A	67
	385X	69	383X	69
	386	69		
	386A	61		
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	387A	69		
	387AS	69		
	387S	69		
	388A	71		
	389	69		
	389AS	67		
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395	390	71	393A	71
	390A	73	393AS	71
	392	73	394	65,71,73
	395	73	394A	63,71,73,75,
	395A	75		77
	395S	75	394AS	65
	396	63		
	397	71		
	398	65		
	399	75		
399A	77			
399AS	77			
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	416	41		55
	417	47	414A	41,49,53
	418	53	414X	53
	419	55		
	420	55		
	421	49		
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	423X	55		
	424X	49		
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	436	61		59
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	439	57		61
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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	449	47		
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	456	67	453A	57,59,63,69
	458	59	453X	57,61,63,67,
	458S	61		69
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	462	69		
	463	63		
	464	57		
	464A	57		
	465	63		
	465A	63		
	466	69		
	466S	69		
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475	475	69	472	73,75,77
	475X	69	472A	69,73,75,77,
	476	73		79
	476A	73	472X	75,79
	477	75		
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	478S	77		
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	480	77		
	482	77,79		
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	483	75		
484	79			
486X	79			
495	495	83	492	83
	495A	81	492A	79,81,83,85
	495AS	83	493	81,83,85,87
	495AX	81		
	495S	79		
	495X	87		
	496	83		
	496AS	83		
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	497	85		
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	498	85		
499A	85			

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	526	57		
	526A	57		
	527	59		
	527S	61		
	528	63		
	528A	63		
	529	65		
529X	65			
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	536	63	532A	59
	537	65	532X	53,55,57,63,
	539	67		65,67
	539A	67	533A	67
	540	67		
	541	57		
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	555S	71	553	73
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	557A	73		77
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	559	75		
	560	77		
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	566	79		
	566S	79		
	567	79		
	567A	79		
	567S	79		
	568	81		
	569	75		
	570	77		
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	576R	79		
	577R	81		

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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	581R	83		
	582R	85		
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	593A	87	592XS	83
	593S	87	593X	85
	594	89		
	594A	89		
	595	85		
	595A	83		
	596	87		
	596S	87		
	596X	85		
	597	89		
	597X	89		
	598	89		
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	620	53	612S	67
	621	67	613X	67
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	622X	69		
	623	71		
	623A	71		
624	67			
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	639	75		
	641	77		
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	656	75	652A	79,85
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	659	81	653X	81
	661	83		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page	
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	664	85			
	665	87			
	665A	87			
675	677	87	672	87,89,91	
	679	87	673SA	87	
	681	89			
	681A	89			
	683	89			
	685	89			
	687	91			
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	744R	81			
	745AR	79			
	745SR	75			
	747SR	75			
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	748SR	81			
	749AR	85			
	749R	85			
	749SR	85			
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	758	87	753	83	
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778		89			
779		89			
780		91			
782		91			
783		91			
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	841R	87		
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	857R	89		
	857XR	87	854X	87
	860R	91		
	861R	91		
	862R	89		
	863R	91		
	863XR	91		
	864R	89		
	864XR	83		
	865XR	85		
	866R	89		
	867AR	89		
	867XR	85		
869R	87			
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	936	91		
	938	93		
	938S	93		
	939	93		
	941	91		
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1300	1380	37	1328	37
			1329	37
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	1680	45		
1700	1755	37	1729	35,37
	1774	35	1729X	35,37
	1775	35	1730	35,37
	1779	37		
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	1985R	39	1931	37
	1986R	37	1932	37
	1987R	39		
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	1997XR	39		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	A2043	35		
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	2578	39	2523S	41
	2580	43	2525	41
	2581	45		
	2582	43		
	2585	45		
	2586	41		
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	2684	37		
	2685	37		
	2687	39		
	2688	39		
	2689	39		
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	2691	41		
	2693X	35		
2694X	37			
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	3190	41		
	3190S	41		
	3191	43		
	3192	41		
	3193	43		
	3194	45		
	3196	45		
	3197	45		
	3198	41		
3199	43			
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	3379	47	3325	47
	3381	51	3328	53,55
	3382	53	3329	49,53
	3383	55	3331	51
	3384	55	3339	51
	3386	53		
	3387	51		
3400	3474	43	3420	43,45,47,49,
	3476	45		51
	3476X	45	3422	45
	3477	45		
	3478	47		
	3479	49		
	3480	49		
	3482	47		
	3483	45		
	3490	51		
	3492X	49		
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	3578AR	59	3526	53
	3578R	57		
	3579R	57		
	3580R	51		
	3581R	47		
	3582R	55		
	3583R	53		
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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	3775	65	3726	61
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	HM803149	59		
M804000	M804049	61	M804010	61
HM804800	HM804840	57	HM804810	57,59,61,63
	HM804842	59		
	HM804843	59		
	HM804846	61		
	HM804848	63		
	HM804849	63		
LM806600	LM806649	67	LM806610	67
HM807000	HM807035	57	HM807010	57,59,63,65,67
	HM807040	59		
	HM807044	63		
	HM807046	65		
	HM807049	67		
HM813800	HM813836	67	HM813810	69,73,75,77,79
	HM813840	69		
	HM813841	73		
	HM813841A	73		
	HM813842	75		
	HM813843	73		
	HM813844	77		
	HM813846	79		
	HM813849	79		
LM814800	LM814845	79	LM814810	79,83
	LM814849	83		
L879900	L879947	97	L879910	97

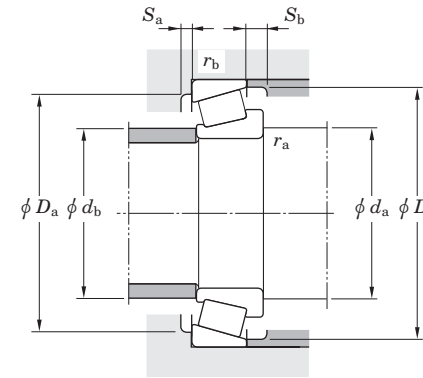
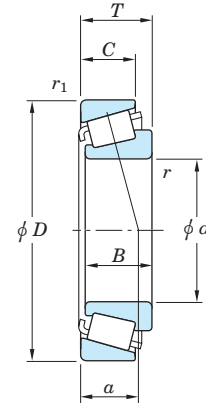
8 Series No. INDEX

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
HM903200	HM903241	99	HM903210	99,101
	HM903245	99		
	HM903248	101		
	HM903249	99		
M903300	M903345	99	M903310	99
HM907600	HM907635	99	HM907614	99,101
	HM907639	101		
	HM907643	101		
HM911200R	HM911242R	101	HM911210	101
	HM911245R	101		
	HM911249R	101		
H913800R	H913842R	101	H913810	101,103
	H913849R	103		
HH914400	HH914449	101	HH914412	101
HH923600		103	HH923610	103
			HH923611	103
H924000	H924045	103	H924010	103
HH926700	HH926744	93	HH926710	93
	HH926749	93	HH926716	93
HM926700	HM926740	103	HM926710	103
	HM926747	103		
	HM926749	103		
HH932100	HH932132	103	HH932110	103
	HH932145	103		
H936300	H936340	103	H936310	103
	H936349	103	H936316	103
HH953700	HH953749	103	HH953710	103
H961600	H961649	103	H961610	103
LM961500	LM961548	103	LM961510	103

Metric "J" series

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
JL69300	JL69349	105	JL69310	105
JLM104900	JLM104948	105	JLM104910	105
JM205100	JM205149	105	JM205110	105
JM207000	JM207049	105	JM207010	105
JH211700	JH211749	105	JH211710	105
	JH211749A	105		
JH217200	JH217249	105	JH217210	105
JH307700	JH307749	105	JH307710	105
JHM318400	JHM318448	105	JHM318410	105
JH415600	JH415647	105	JH415610	105
JLM506800	JLM506849	105	JLM506810	105
JLM508700	JLM508748	105	JLM508710	105
JM511900	JM511946	105	JM511910	105
JM515600	JM515649	105	JM515610	105
JHM516800	JHM516849	105	JHM516810	105
JHM522600	JHM522649	105	JHM522610	105
JHM534100	JHM534149	105	JHM534110	105
JM612900	JM612949	105	JM612910	105
JLM710900	JLM710949	105	JLM710910	105
JLM714100	JLM714149	105	JLM714110	105
JM714200	JM714249	105	JM714210	105
JM716600	JM716649	105	JM716610	105
JM718100	JM718149	105	JM718110	105
JM719100	JM719149	105	JM719113	105
JHM720200	JHM720249	105	JHM720210	105
JM720200	JM720249	105	JM720210	105
JM734400	JM734449	105	JM734410	105
JM736100	JM736149	105	JM736110	105
JM738200	JM738249	105	JM738210	105
JHM807000	JHM807045	105	JHM807012	105
JLM813000	JLM813049	105	JLM813010	105
JM822000	JM822049	105	JM822010	105
JHM840400	JHM840449	105	JHM840410	105

TS type
d 7.938 ~ 20.638 mm
0.3125 ~ 0.8125 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

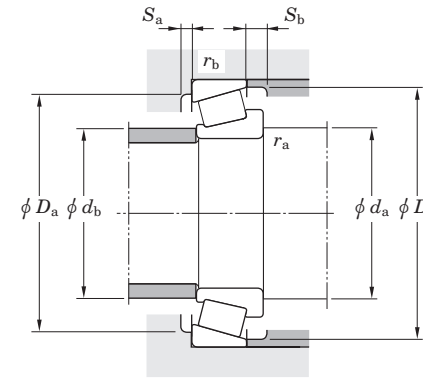
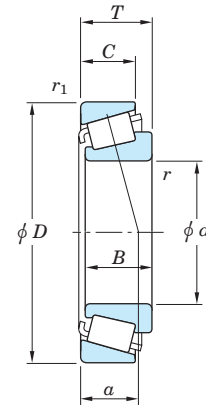
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant	Axial load factors		Reference rating (kN)		Factor				
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b	e	Y ₁	Y ₀	Radial	Axial	K		
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
7.938	0.3125	31.991	1.2595	10.008	0.3940	10.785	0.4246	7.938	0.3125	0.5	0.02	1.2	0.05	10.7	9.30	A2031	A2126	7.1	0.28	12.5	0.49	12.5	0.49	26.0	1.02	29.0	1.14	0.40	1.48	0.82	3.10	2.15	1.45
9.525	0.3750	31.991	1.2595	10.008	0.3940	10.785	0.4246	7.938	0.3125	1.2	0.05	1.2	0.05	10.7	9.30	A2037	A2126	7.1	0.28	15.0	0.59	13.5	0.53	26.0	1.02	29.0	1.14	0.40	1.48	0.82	3.10	2.15	1.45
11.112	0.4375	31.991	1.2595	10.008	0.3940	14.351	0.5650	7.938	0.3125	0.8	0.03	1.2	0.05	10.7	9.30	A2043	A2126	7.1	0.28	15.5	0.61	14.5	0.57	26.0	1.02	29.0	1.14	0.40	1.48	0.82	3.10	2.15	1.45
	0.4375	34.988	1.3775	10.998	0.4330	10.988	0.4326	8.730	0.3437	1.2	0.05	1.2	0.05	12.6	11.9	A4044	A4138	8.3	0.33	17.5	0.69	15.5	0.61	29.0	1.14	32.0	1.26	0.45	1.33	0.73	3.65	2.80	1.29
11.986	0.4719	31.991	1.2595	10.008	0.3940	10.785	0.4246	7.938	0.3125	0.8	0.03	1.2	0.05	10.7	9.30	A2047	A2126	7.1	0.28	16.5	0.65	15.5	0.61	26.0	1.02	29.0	1.14	0.40	1.48	0.82	3.10	2.15	1.45
12.700	0.5000	34.988	1.3775	10.998	0.4330	10.988	0.4326	8.730	0.3437	1.2	0.05	1.2	0.05	12.6	11.9	A4050	A4138	8.3	0.33	18.5	0.73	17.0	0.67	29.0	1.14	32.0	1.26	0.45	1.33	0.73	3.65	2.80	1.29
14.989	0.5901	34.988	1.3775	10.998	0.4330	10.988	0.4326	8.730	0.3437	0.8	0.03	1.2	0.05	12.6	11.9	A4059	A4138	8.3	0.33	19.5	0.77	19.0	0.75	29.0	1.14	32.0	1.26	0.45	1.33	0.73	3.65	2.80	1.29
15.875	0.6250	34.988	1.3775	10.998	0.4330	10.988	0.4330	8.712	0.3430	1.2	0.05	1.2	0.05	14.5	14.3	L21549	L21511	7.6	0.30	21.5	0.85	19.5	0.77	29.0	1.14	32.5	1.28	0.32	1.88	1.04	4.15	2.25	1.83
	0.6250	39.992	1.5745	12.014	0.4730	11.153	0.4391	9.525	0.3750	1.2	0.05	1.2	0.05	14.5	15.1	A6062	A6157	10.3	0.41	22.0	0.87	20.5	0.81	34.0	1.34	37.0	1.46	0.53	1.14	0.63	4.20	3.75	1.11
	0.6250	41.275	1.6250	14.288	0.5625	14.681	0.5780	11.112	0.4375	1.2	0.05	2.0	0.08	21.8	20.5	03062	03162	9.3	0.37	21.5	0.85	20.0	0.79	34.0	1.34	37.5	1.48	0.31	1.93	1.06	6.30	3.35	1.88
	0.6250	42.862	1.6875	16.670	0.6563	16.670	0.6563	13.495	0.5313	1.6	0.06	1.6	0.06	30.6	29.5	17580R	17520	10.9	0.43	23.0	0.91	21.0	0.83	36.5	1.44	39.0	1.54	0.33	1.81	1.00	8.80	4.95	1.77
	0.6250	49.225	1.9380	19.845	0.7813	21.539	0.8480	14.288	0.5625	0.8	0.03	1.2	0.05	37.7	37.7	09062	09195	10.6	0.42	22.0	0.87	21.5	0.85	42.0	1.65	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
	0.6250	53.975	2.1250	22.225	0.8750	21.839	0.8598	15.875	0.6250	0.8	0.03	2.4	0.09	42.0	41.2	21063	21212	16.6	0.65	29.0	1.14	26.5	1.04	43.0	1.69	50.0	1.97	0.59	1.02	0.56	12.2	12.3	0.99
16.000	0.6299	47.000	1.8504	21.000	0.8268	21.000	0.8268	16.000	0.6299	1.0	0.04	2.0	0.08	36.3	37.7	HM81649	HM81610	15.0	0.59	27.5	1.08	23.0	0.91	37.5	1.48	43.0	1.69	0.55	1.10	0.60	10.5	9.85	1.07
16.993	0.6690	41.275	1.6250	11.905	0.4687	11.153	0.4391	8.730	0.3437	0.8	0.03	1.2	0.05	14.5	15.1	A6067	A6162	10.2	0.40	22.0	0.87	21.0	0.83	34.5	1.36	37.0	1.46	0.53	1.14	0.63	4.20	3.75	1.11
17.000	0.6693	49.225	1.9380	23.020	0.9063	21.539	0.8480	17.462	0.6875	2.0	0.08	1.6	0.06	37.7	37.7	09099X	09196	13.8	0.54	27.0	1.06	24.0	0.94	41.5	1.63	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
17.462	0.6875	39.878	1.5700	13.843	0.5450	14.605	0.5750	10.668	0.4200	1.2	0.05	1.2	0.05	25.4	26.0	LM11749R	LM11710	8.6	0.34	23.0	0.91	21.5	0.85	34.0	1.34	37.0	1.46	0.29	2.10	1.15	7.30	3.55	2.04
17.653	0.6950	49.225	1.9380	23.020	0.9063	21.539	0.8480	17.462	0.6875	2.4	0.09	1.6	0.06	37.7	37.7	09070	09196	13.8	0.54	26.0	1.02	24.0	0.94	41.5	1.63	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
18.000	0.7087	49.225	1.9380	23.020	0.9063	21.539	0.8480	17.462	0.6875	1.0	0.04	1.6	0.06	37.7	37.7	09073X	09196	13.8	0.54	23.0	0.91	24.0	0.94	41.5	1.63	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
19.004	0.7482	56.896	2.2400	19.368	0.7625	19.837	0.7810	15.875	0.6250	1.6	0.06	1.2	0.05	40.0	43.1	1774	1729	12.5	0.49	27.0	1.06	25.0	0.98	49.0	1.93	51.0	2.01	0.31	1.95	1.07	11.6	6.10	1.90
	0.7482	56.896	2.2400	19.368	0.7625	19.837	0.7810	15.875	0.6250	1.6	0.06	1.6	0.06	40.0	43.1	1774	1729X	12.5	0.49	27.0	1.06	25.0	0.98	49.0	1.93	52.0	2.05	0.31	1.95	1.07	11.6	6.10	1.90
19.050	0.7500	39.992	1.5745	12.014	0.4730	11.153	0.4391	9.525	0.3750	1.0	0.04	1.2	0.05	14.5	15.1	A6075	A6157	10.3	0.41	24.0	0.94	23.0	0.91	34.0	1.34	37.0	1.46	0.53	1.14	0.63	4.20	3.75	1.11
	0.7500	45.237	1.7810	15.494	0.6100	16.637	0.6550	12.065	0.4750	1.2	0.05	1.2	0.05	29.4	30.1	LM11949	LM11910	10.0	0.39	25.0	0.98	23.5	0.93	39.5	1.56	41.5	1.63	0.30	2.00	1.10	8.45	4.35	1.95
	0.7500	49.225	1.9380	19.845	0.7813	21.539	0.8480	14.288	0.5625	1.2	0.05	1.2	0.05	37.7	37.7	09078	09195	10.6	0.42	25.5	1.00	24.0	0.94	42.0	1.65	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
	0.7500	49.225	1.9380	21.209	0.8350	19.050	0.7500	17.462	0.6875	1.2	0.05	1.6	0.06	37.7	37.7	09067	09196	13.8	0.54	25.5	1.00	24.0	0.94	41.5	1.63	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
	0.7500	49.225	1.9380	23.020	0.9063	21.539	0.8480	17.462	0.6875	SP ¹⁾	SP ¹⁾	3.6	0.14	37.7	37.7	09074	09194	13.8	0.54	26.0	1.02	24.0	0.94	39.0	1.54	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
	0.7500	49.225	1.9380	23.020	0.9063	21.539	0.8480	17.462	0.6875	1.6	0.06	1.6	0.06	37.7	37.7	09078X	09196	13.8	0.54	25.5	1.00	24.0	0.94	41.5	1.63	44.5	1.75	0.27	2.26	1.24	10.9	4.95	2.20
	0.7500	53.975	2.1250	19.368	0.7625	19.837	0.7810	15.875	0.6250	1.6	0.06	0.8	0.03	40.0	43.1	1775	1730	12.5	0.49	27.0	1.06	25.0	0.98	48.5	1.91	50.0	1.97	0.31	1.95	1.07	11.6	6.10	1.90
	0.7500	53.975	2.1250	22.225	0.8750	21.839	0.8598	15.875	0.6250	1.6	0.06	0.4	0.02	42.0	41.2	21075	21213	16.6	0.65	31.5	1.24	26.5	1.04	43.0	1.69	50.0	1.97	0.59	1.02	0.56	12.2	12.3	0.99
0.7500	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	3.6	0.14	1.2	0.05	67.0	75.2	2693X	2631	13.9	0.55	30.0	1.18	25.0	0.98	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30	
20.000	0.7874	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	1.6	0.06	1.0	0.04	26.7	28.8	07079	07196	10.8	0.43	27.5	1.08	26.0	1.02	44.5	1.75	47.0	1.85	0.40	1.49				

Tapered roller bearings

TS type
 d 21.430 ~ (25.400) mm
 0.8437 ~ (1.0000) inch



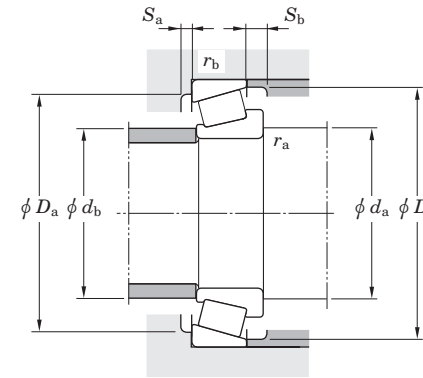
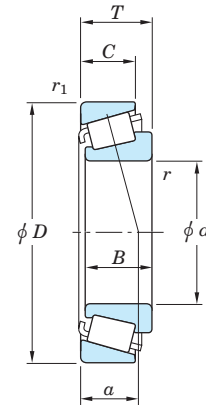
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
21.430	0.8437	50.005	1.9687	17.526	0.6900	18.288	0.7200	13.970	0.5500	1.2	0.05	1.2	0.05	39.1	40.7	M12649	M12610	11.1	0.44	27.5	1.08	25.5	1.00	44.0	1.73	46.0	1.81	0.28	2.16	1.19	11.2	5.35	2.10
21.987	0.8656	45.974	1.8100	15.494	0.6100	16.637	0.6550	12.065	0.4750	1.2	0.05	1.2	0.05	30.1	34.6	LM12749	LM12711	10.0	0.39	27.5	1.08	26.0	1.02	40.0	1.57	42.5	1.67	0.31	1.96	1.08	8.65	4.50	1.91
22.225	0.8750	50.005	1.9687	17.526	0.6900	18.288	0.7200	13.970	0.5500	1.2	0.05	1.2	0.05	39.1	40.7	M12648	M12610	11.1	0.44	28.5	1.12	26.5	1.04	44.0	1.73	46.0	1.81	0.28	2.16	1.19	11.2	5.35	2.10
	0.8750	50.005	1.9687	17.526	0.6900	18.288	0.7200	13.970	0.5500	1.2	0.05	1.2	0.05	39.1	40.7	M12648A	M12610	11.1	0.44	28.5	1.12	26.5	1.04	44.0	1.73	46.0	1.81	0.28	2.16	1.19	11.2	5.35	2.10
	0.8750	50.800	2.0000	15.011	0.5910	14.260	0.5614	12.700	0.5000	1.2	0.05	1.6	0.06	26.7	28.8	07087	07210X	12.3	0.48	28.5	1.12	27.0	1.06	44.5	1.75	47.5	1.87	0.40	1.49	0.82	7.65	5.25	1.46
	0.8750	52.388	2.0625	19.368	0.7625	20.168	0.7940	14.288	0.5625	1.6	0.06	1.6	0.06	36.7	37.9	1380	1328	11.6	0.46	29.5	1.16	29.5	1.16	45.0	1.77	48.5	1.91	0.29	2.05	1.13	10.7	5.35	2.00
	0.8750	53.975	2.1250	19.368	0.7625	20.168	0.7940	14.288	0.5625	1.6	0.06	1.6	0.06	36.7	37.9	1380	1329	11.6	0.46	29.5	1.16	29.5	1.16	46.0	1.81	49.0	1.93	0.29	2.05	1.13	10.7	5.35	2.00
	0.8750	56.896	2.2400	19.368	0.7625	19.837	0.7810	15.875	0.6250	1.2	0.05	1.2	0.05	40.0	43.1	1755	1729	12.5	0.49	29.0	1.14	27.5	1.08	49.0	1.93	51.0	2.01	0.31	1.95	1.07	11.6	6.10	1.90
	0.8750	57.150	2.2500	17.462	0.6875	17.462	0.6875	13.495	0.5313	1.6	0.06	1.6	0.06	37.8	42.7	15572	15520	12.7	0.50	32.5	1.28	30.5	1.20	51.0	2.01	53.0	2.09	0.35	1.73	0.95	10.8	6.40	1.69
	0.8750	57.150	2.2500	19.845	0.7813	19.355	0.7620	15.875	0.6250	0.8	0.03	1.6	0.06	48.8	57.1	1975R	1922	13.9	0.55	29.0	1.14	28.0	1.10	51.0	2.01	53.5	2.11	0.33	1.82	1.00	14.0	7.90	1.77
	0.8750	57.150	2.2500	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	1.6	0.06	52.6	55.7	1280	1220	15.3	0.60	29.5	1.16	29.0	1.14	49.0	1.93	52.0	2.05	0.35	1.73	0.95	15.2	9.00	1.69
	0.8750	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	1.6	0.06	1.2	0.05	67.0	75.2	2684	2631	13.9	0.55	31.5	1.24	29.0	1.14	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
0.8750	80.000	3.1496	20.996	0.8266	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	341	332	15.1	0.59	33.5	1.32	32.0	1.26	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
22.606	0.8900	47.000	1.8504	15.500	0.6102	15.500	0.6102	12.000	0.4724	1.6	0.06	1.0	0.04	28.0	32.8	LM72849	LM72810	12.3	0.48	30.0	1.18	28.0	1.10	40.5	1.59	44.0	1.73	0.47	1.27	0.70	8.05	6.50	1.24
23.812	0.9375	50.292	1.9800	14.224	0.5600	14.732	0.5800	10.668	0.4200	1.6	0.06	1.2	0.05	31.2	37.0	L44640R	L44610	10.8	0.43	30.5	1.20	28.5	1.12	44.5	1.75	47.0	1.85	0.37	1.60	0.88	8.95	5.70	1.56
	0.9375	52.000	2.0472	15.011	0.5910	14.260	0.5614	12.700	0.5000	1.6	0.06	2.0	0.08	26.7	28.8	07093	07205	12.3	0.48	30.5	1.20	28.5	1.12	44.5	1.75	48.0	1.89	0.40	1.49	0.82	7.65	5.25	1.46
	0.9375	56.896	2.2400	19.368	0.7625	19.837	0.7810	15.875	0.6250	0.8	0.03	1.2	0.05	40.0	43.1	1779	1729	12.5	0.49	29.5	1.16	28.5	1.12	49.0	1.93	51.0	2.01	0.31	1.95	1.07	11.6	6.10	1.90
	0.9375	56.896	2.2400	19.368	0.7625	19.837	0.7810	15.875	0.6250	0.8	0.03	1.6	0.06	40.0	43.1	1779	1729X	12.5	0.49	29.5	1.16	28.5	1.12	49.0	1.93	52.0	2.05	0.31	1.95	1.07	11.6	6.10	1.90
	0.9375	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	0.8	0.03	1.2	0.05	67.0	75.2	2685	2631	13.9	0.55	30.5	1.20	30.0	1.18	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
	0.9375	71.996	2.8345	19.000	0.7480	18.923	0.7450	15.875	0.6250	2.4	0.09	1.6	0.06	47.5	49.6	26093	26283	15.3	0.60	35.0	1.38	32.0	1.26	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
24.981	0.9835	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	1.6	0.06	1.0	0.04	26.7	28.8	07098	07196	10.8	0.43	31.0	1.22	29.0	1.14	44.5	1.75	47.0	1.85	0.40	1.49	0.82	7.65	5.25	1.46
	0.9835	62.000	2.4409	16.002	0.6300	16.566	0.6522	14.288	0.5625	1.6	0.06	1.6	0.06	38.0	40.6	17098	17244	12.7	0.50	33.0	1.30	30.5	1.20	54.0	2.13	57.0	2.24	0.38	1.57	0.86	10.9	7.15	1.53
25.000	0.9842	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	1.6	0.06	1.0	0.04	26.7	28.8	07097	07196	10.8	0.43	31.0	1.22	29.0	1.14	44.5	1.75	47.0	1.85	0.40	1.49	0.82	7.65	5.25	1.46
	0.9842	62.000	2.4409	16.002	0.6300	16.566	0.6522	14.288	0.5625	1.6	0.06	1.6	0.06	38.0	40.6	17098X	17244	12.7	0.50	33.0	1.30	30.5	1.20	54.0	2.13	57.0	2.24	0.38	1.57	0.86	10.9	7.15	1.53
	0.9842	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	2.0	0.08	1.2	0.05	67.0	75.2	2694X	2631	13.9	0.55	33.0	1.30	31.0	1.22	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
	0.9842	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	3.2	0.13	78.8	89.3	3188X	3120	20.3	0.80	40.0	1.57	35.0	1.38	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
25.400	1.0000	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	1.0	0.04	1.0	0.04	26.7	28.8	07100	07196	10.8	0.43	30.5	1.20	29.5	1.16	44.5	1.75	47.0	1.85	0.40	1.49	0.82	7.65	5.25	1.46
	1.0000	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	1.6	0.06	1.0	0.04	26.7	28.8	07100S	07196	10.8	0.43	31.5	1.24	29.5	1.16	44.5	1.75	47.0	1.85	0.40	1.49	0.82	7.65	5.25	1.46
	1.0000	50.005	1.9687	13.495	0.5313	14.260	0.5614	9.525	0.3750	3.2	0.13	1.0	0.04	26.7	28.8	07100SA	07196	10.8	0.43	35.0	1.38	29.5	1.16	44.5	1.75	47.0	1.85	0.40	1.49	0.82	7.65	5.25	1.46
	1.0000	50.292	1.9800	14.224	0.5600	14.732	0.5800	10.668	0.4200	1.2	0.05	1.2	0.05	31.2	37.0	L44643R	L44610	10.8	0.43	31.5	1.24	29.5	1.16	44.5	1.75	47.0	1.85	0.37	1.60	0.88	8.95	5.70	1.56
	1.0000	51.994	2.0470	15.011	0.5910	14.260	0.5614	12.700	0.5000	1.0	0.04	1.2	0.05	26.7	28.8	07100	07204	12.3	0.48	30.5	1.20	29.5	1.16	45.0	1.77	48.0	1.89	0.40	1.49	0.82	7.65	5.25	1.46
	1.0000	53.975																															

Tapered roller bearings

TS type
 d (25.400) ~ (28.575) mm
 (1.0000) ~ (1.1250) inch



$$P = XF_r + YF_a$$

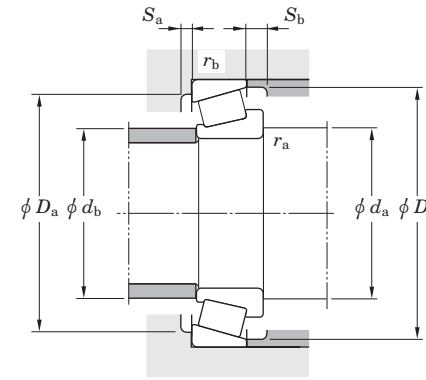
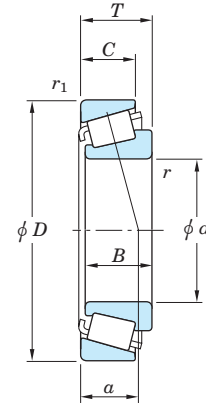
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r_1 (min.)		C_r	C_{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d_a		d_b		D_a		D_b		e	Y_1	Y_0	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
25.400	1.0000	63.500	2.5000	19.050	0.7500	20.638	0.8125	14.288	0.5625	0.8	0.03	1.2	0.05	44.6	50.7	15101	15250R	13.2	0.52	32.5	1.28	31.5	1.24	55.0	2.17	59.0	2.32	0.35	1.71	0.94	12.9	7.75	1.67
	1.0000	63.500	2.5000	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.2	0.05	44.6	50.7	15100	15250	15.0	0.59	38.0	1.50	31.5	1.24	55.0	2.17	59.0	2.32	0.35	1.71	0.94	12.9	7.75	1.67
	1.0000	63.500	2.5000	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.6	0.06	44.6	50.7	15100	15250X	15.0	0.59	38.0	1.50	31.5	1.24	55.0	2.17	59.0	2.32	0.35	1.71	0.94	12.9	7.75	1.67
	1.0000	63.500	2.5000	20.638	0.8125	20.638	0.8125	15.875	0.6250	1.6	0.06	1.6	0.06	44.6	50.7	15102	15250X	15.0	0.59	34.0	1.34	31.5	1.24	55.0	2.17	59.0	2.32	0.35	1.71	0.94	12.9	7.75	1.67
	1.0000	64.292	2.5312	21.432	0.8438	21.432	0.8438	16.670	0.6563	1.6	0.06	1.6	0.06	55.2	70.7	M86643R	M86610	18.0	0.71	38.0	1.50	36.5	1.44	54.0	2.13	61.0	2.40	0.55	1.10	0.60	16.0	14.9	1.07
	1.0000	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	1.2	0.05	1.2	0.05	67.0	75.2	2687	2631	13.9	0.55	33.5	1.32	31.5	1.24	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
	1.0000	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	1.6	0.06	51.0	61.1	02473	02420	17.1	0.67	34.5	1.36	33.5	1.32	59.0	2.32	63.0	2.48	0.42	1.44	0.79	14.8	10.5	1.41
	1.0000	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	0.8	0.03	51.0	61.1	02473	02421	17.1	0.67	34.5	1.36	33.5	1.32	59.0	2.32	63.0	2.48	0.42	1.44	0.79	14.8	10.5	1.41
	1.0000	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26100	26283	15.3	0.60	34.5	1.36	32.5	1.28	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.0000	72.233	2.8438	25.400	1.0000	25.400	1.0000	19.842	0.7812	0.8	0.03	2.4	0.09	66.9	87.4	HM88630	HM88610	20.7	0.81	39.5	1.56	39.5	1.56	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
	1.0000	72.626	2.8593	24.608	0.9688	24.257	0.9550	17.462	0.6875	2.4	0.09	1.6	0.06	61.8	60.5	41100	41286	20.7	0.81	41.0	1.61	36.5	1.44	61.0	2.40	68.0	2.68	0.60	1.00	0.55	17.9	18.4	0.97
	1.0000	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	0.8	0.03	78.8	89.3	3189	3130	20.3	0.80	35.5	1.40	35.0	1.38	63.0	2.48	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.0000	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	2.0	0.08	3.2	0.13	78.8	89.3	3189X	3120	20.3	0.80	37.5	1.48	35.0	1.38	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.0000	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	338	332	15.1	0.59	36.5	1.44	35.0	1.38	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
1.0000	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	0.8	0.03	2.4	0.09	68.0	74.8	338	332A	18.3	0.72	36.5	1.44	35.0	1.38	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
25.987	1.0231	50.292	1.9800	14.224	0.5600	14.732	0.5800	10.668	0.4200	3.6	0.14	1.2	0.05	31.2	37.0	L44645R	L44610	10.8	0.43	36.5	1.44	31.0	1.22	44.5	1.75	47.0	1.85	0.37	1.60	0.88	8.95	5.70	1.56
	1.0231	57.150	2.2500	17.462	0.6875	17.462	0.6875	13.495	0.5313	3.6	0.14	1.6	0.06	37.8	42.7	15579X	15520	12.7	0.50	38.5	1.52	32.0	1.26	51.0	2.01	53.0	2.09	0.35	1.73	0.95	10.8	6.40	1.69
26.157	1.0298	63.500	2.5000	20.638	0.8125	20.638	0.8125	15.875	0.6250	0.8	0.03	1.2	0.05	44.6	50.7	15103	15250	15.0	0.59	33.5	1.32	33.0	1.30	55.0	2.17	59.0	2.32	0.35	1.71	0.94	12.9	7.75	1.67
26.162	1.0300	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	1.6	0.06	1.2	0.05	67.0	75.2	2682	2631	13.9	0.55	34.5	1.36	32.0	1.26	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
26.975	1.0620	57.150	2.2500	19.845	0.7813	19.355	0.7620	15.875	0.6250	0.8	0.03	1.6	0.06	48.8	57.1	1987R	1922	13.9	0.55	32.5	1.28	31.5	1.24	51.0	2.01	53.5	2.11	0.33	1.82	1.00	14.0	7.90	1.77
26.987	1.0625	72.626	2.8593	24.608	0.9688	24.257	0.9550	17.462	0.6875	2.4	0.09	1.6	0.06	61.8	60.5	41106	41286	20.7	0.81	42.0	1.65	36.5	1.44	61.0	2.40	68.0	2.68	0.60	1.00	0.55	17.9	18.4	0.97
26.988	1.0625	50.292	1.9800	14.224	0.5600	14.732	0.5800	10.668	0.4200	3.6	0.14	1.2	0.05	31.2	37.0	L44649R	L44610	10.8	0.43	37.5	1.48	31.0	1.22	44.5	1.75	47.0	1.85	0.37	1.60	0.88	8.95	5.70	1.56
	1.0625	57.150	2.2500	19.845	0.7813	19.355	0.7620	15.875	0.6250	3.2	0.13	1.6	0.06	48.8	57.1	1997XR	1922	13.9	0.55	37.5	1.48	31.5	1.24	51.0	2.01	53.5	2.11	0.33	1.82	1.00	14.0	7.90	1.77
	1.0625	60.325	2.3750	19.842	0.7812	17.462	0.6875	15.875	0.6250	3.6	0.14	1.6	0.06	37.8	42.7	15580	15523	15.1	0.59	38.5	1.52	32.0	1.26	51.0	2.01	54.0	2.13	0.35	1.73	0.95	10.8	6.40	1.69
	1.0625	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	0.8	0.03	1.2	0.05	44.6	50.7	15106	15245	13.2	0.52	33.5	1.32	33.0	1.30	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.0625	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	1.6	0.06	1.2	0.05	67.0	75.2	2688	2631	13.9	0.55	35.0	1.38	33.0	1.30	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
28.575	1.1250	57.150	2.2500	17.462	0.6875	17.462	0.6875	13.495	0.5313	3.6	0.14	1.6	0.06	37.8	42.7	15590	15520	12.7	0.50	39.0	1.54	33.5	1.32	51.0	2.01	53.0	2.09	0.35	1.73	0.95	10.8	6.40	1.69
	1.1250	57.150	2.2500	19.845	0.7813	19.355	0.7620	15.875	0.6250	0.8	0.03	1.6	0.06	48.8	57.1	1985R	1922	13.9	0.55	34.0	1.34	33.5	1.32	51.0	2.01	53.5	2.11	0.33	1.82	1.00	14.0	7.90	1.77
	1.1250	57.150	2.2500	19.845	0.7813	19.355	0.7620	15.875	0.6250	3.6	0.14	1.6	0.06	48.8	57.1	1988R	1922	13.9	0.55	39.5	1.56	33.5	1.32	51.0	2.01	53.5	2.11	0.33	1.82	1.00	14.0	7.90	1.77
	1.1250	59.131	2.3280	15.875	0.6250	16.764	0.6600	11.811	0.4650	SP ¹⁾	SP ¹⁾	1.2	0.05	35.8	43.1	LM67043	LM67010	13.0	0.51	40.5	1.59	34.0	1.34	52.0	2.05	56.0	2.20	0.41	1.46	0.80	10.3	7.25	1.42
	1.1250	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	3.6	0.14	1.2	0.05	44.6	50.7	15112	15245	13.2	0.52	40.0	1.57	34.0	1.34	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	

TS type
d (28.575) ~ (30.162) mm
(1.1250) ~ (1.1875) inch



$$P = XF_r + YF_a$$

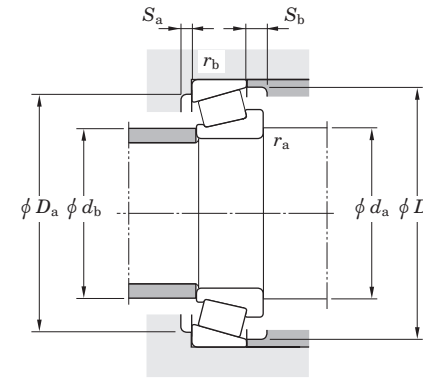
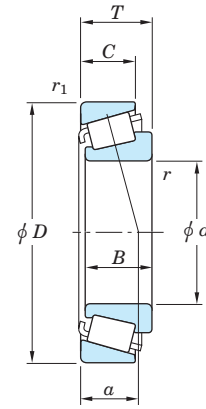
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
28.575	1.1250	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	2.4	0.09	2.4	0.09	56.1	71.1	M88040	M88011	19.2	0.76	42.0	1.65	39.0	1.54	58.0	2.28	65.0	2.56	0.55	1.10	0.60	16.3	15.2	1.07
	1.1250	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26112	26283	15.3	0.60	37.0	1.46	35.0	1.38	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.1250	72.626	2.8593	24.608	0.9688	24.257	0.9550	17.462	0.6875	4.8	0.19	1.6	0.06	61.8	60.5	41125	41286	20.7	0.81	48.0	1.89	36.5	1.44	61.0	2.40	68.0	2.68	0.60	1.00	0.55	17.9	18.4	0.97
	1.1250	72.626	2.8593	24.608	0.9688	24.257	0.9550	17.462	0.6875	1.6	0.06	1.6	0.06	61.8	60.5	41126	41286	20.7	0.81	41.5	1.63	36.5	1.44	61.0	2.40	68.0	2.68	0.60	1.00	0.55	17.9	18.4	0.97
	1.1250	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	3.2	0.13	78.8	89.3	3192	3120	20.3	0.80	42.5	1.67	37.0	1.46	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.1250	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	1.2	0.05	3.2	0.13	78.8	89.3	3198	3120	20.3	0.80	39.0	1.54	37.0	1.46	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.1250	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	3.2	0.13	55.0	65.7	02872	02820	18.4	0.72	37.5	1.48	37.0	1.46	62.0	2.44	68.0	2.68	0.45	1.32	0.73	16.0	12.4	1.29
	1.1250	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	0.8	0.03	55.0	65.7	02872	02830	18.4	0.72	37.5	1.48	37.0	1.46	64.0	2.52	69.0	2.72	0.45	1.32	0.73	16.0	12.4	1.29
1.1250	80.962	3.1875	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	0.8	0.03	55.0	65.7	02872	02831	18.4	0.72	37.5	1.48	37.0	1.46	67.0	2.64	69.0	2.72	0.45	1.32	0.73	16.0	12.4	1.29	
29.000	1.1417	50.292	1.9800	14.224	0.5600	14.732	0.5800	10.668	0.4200	3.6	0.14	1.2	0.05	28.9	37.2	L45449	L45410	10.9	0.43	39.5	1.56	33.0	1.30	44.5	1.75	48.0	1.89	0.37	1.62	0.89	8.35	5.25	1.58
	1.1417	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	1.0	0.04	1.2	0.05	67.0	75.2	2695X	2631	13.9	0.55	35.0	1.38	34.0	1.34	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
29.367	1.1562	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	3.6	0.14	1.2	0.05	67.0	75.2	2690	2631	13.9	0.55	41.0	1.61	35.0	1.38	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
	1.1562	66.421	2.6150	23.812	0.9375	25.433	1.0013	19.050	0.7500	0.8	0.03	1.2	0.05	67.0	75.2	2691	2631	13.9	0.55	35.5	1.40	35.0	1.38	58.0	2.28	60.0	2.36	0.25	2.36	1.30	19.5	8.45	2.30
29.985	1.1805	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	3.2	0.13	78.8	89.3	3190S	3120	20.3	0.80	39.0	1.54	38.0	1.50	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
29.987	1.1806	62.000	2.4409	16.002	0.6300	16.566	0.6522	14.288	0.5625	1.6	0.06	1.6	0.06	38.0	40.6	17118	17244	12.7	0.50	37.0	1.46	34.5	1.36	54.0	2.13	57.0	2.24	0.38	1.57	0.86	10.9	7.15	1.53
	1.1806	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	1.2	0.05	1.2	0.05	44.6	50.7	15117	15245	13.2	0.52	36.5	1.44	35.0	1.38	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.1806	71.996	2.8345	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	2.0	0.08	47.5	49.6	26118	26283S	15.3	0.60	38.0	1.50	36.0	1.42	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.1806	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26118	26283	15.3	0.60	38.0	1.50	36.0	1.42	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
30.000	1.1811	62.000	2.4409	16.002	0.6300	16.566	0.6522	14.288	0.5625	1.6	0.06	1.6	0.06	38.0	40.6	17118S	17244	12.7	0.50	37.0	1.46	34.5	1.36	54.0	2.13	57.0	2.24	0.38	1.57	0.86	10.9	7.15	1.53
	1.1811	68.956	2.7148	19.845	0.7813	19.202	0.7560	15.875	0.6250	0.8	0.03	3.2	0.13	46.1	55.0	14118	14274A	15.5	0.61	37.0	1.46	36.5	1.44	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.1811	69.012	2.7170	19.845	0.7813	19.583	0.7710	15.875	0.6250	3.6	0.14	1.2	0.05	46.1	55.0	14117A	14276	15.5	0.61	42.5	1.67	39.5	1.56	60.0	2.36	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.1811	69.012	2.7170	19.845	0.7813	19.583	0.7710	15.875	0.6250	3.6	0.14	3.2	0.13	46.1	55.0	14118A	14274	15.5	0.61	42.5	1.67	39.5	1.56	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.1811	69.850	2.7500	23.812	0.9375	25.357	0.9983	19.050	0.7500	3.6	0.14	1.2	0.05	71.4	85.1	2586	2523	14.4	0.57	42.0	1.65	35.5	1.40	61.0	2.40	64.0	2.52	0.27	2.19	1.21	20.7	9.65	2.14
	1.1811	71.996	2.8345	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26118S	26283	15.3	0.60	38.0	1.50	36.0	1.42	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.1811	72.085	2.8380	29.522	1.1623	26.721	1.0520	18.415	0.7250	3.6	0.14	2.4	0.09	46.1	55.0	14120A	14283	22.6	0.89	42.5	1.67	39.5	1.56	60.0	2.36	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.1811	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	3.2	0.13	78.8	89.3	3190	3120	20.3	0.80	43.0	1.69	38.0	1.50	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.1811	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	348	332	15.1	0.59	39.5	1.56	39.5	1.56	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.1811	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	1.6	0.06	98.2	112	416	414	16.9	0.67	39.5	1.56	39.5	1.56	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
1.1811	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	3.2	0.13	98.2	112	416	414A	16.9	0.67	39.5	1.56	39.5	1.56	76.0	2.99	79.0	3.11	0.26	2.28	1.25	28.6	12.9	2.22	
30.112	1.1855	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	0.8	0.03	1.2	0.05	44.6	50.7	15116	15245	13.2	0.52	36.0	1.42	35.5	1.40	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
30.162	1.1875	58.738	2.3125	14.684	0.5781	15.080	0.5937	10.716	0.4219	3.6	0.14	1.0	0.04	29.5	33.3	08118	08231	13.5	0.53	41.5	1.63	35.0	1.38	52.0	2.05	55.0	2.17	0.48	1.26	0			

TS type
d (30.162) ~ (31.750) mm
(1.1875) ~ (1.2500) inch



$$P = XF_r + YF_a$$

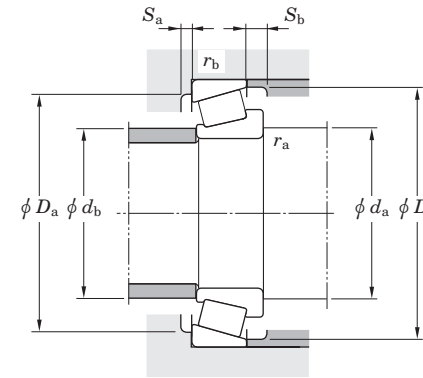
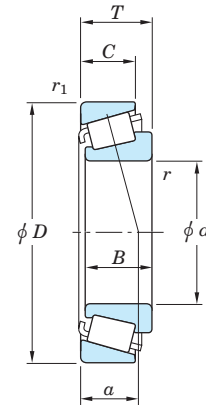
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
30.162	1.1875	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	0.8	0.03	78.8	89.3	3187	3130	20.3	0.80	39.0	1.54	38.5	1.52	63.0	2.48	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.1875	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	3.2	0.13	78.8	89.3	3191	3120	20.3	0.80	44.0	1.73	38.5	1.52	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.1875	76.200	3.0000	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	0.8	0.03	78.8	89.3	3191	3129	20.3	0.80	44.0	1.73	38.5	1.52	65.0	2.56	69.0	2.72	0.33	1.80	0.99	23.0	13.1	1.76
	1.1875	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	0.8	0.03	3.2	0.13	87.4	105	3474	3420	20.8	0.82	41.0	1.61	40.0	1.57	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.1875	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	334	332	15.1	0.59	39.5	1.56	39.5	1.56	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.1875	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	0.8	0.03	2.4	0.09	68.0	74.8	334	332A	18.3	0.72	39.5	1.56	39.5	1.56	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.1875	80.035	3.1510	21.432	0.8438	20.940	0.8244	15.875	0.6250	1.6	0.06	1.6	0.06	57.3	65.9	28118	28317	16.9	0.67	40.0	1.57	37.5	1.48	69.0	2.72	73.0	2.87	0.40	1.49	0.82	16.5	11.3	1.46
30.213	1.1895	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	3.6	0.14	1.2	0.05	44.6	50.7	15118	15245	13.2	0.52	41.5	1.63	35.5	1.40	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.1895	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	1.6	0.06	1.2	0.05	44.6	50.7	15119	15245	13.2	0.52	37.5	1.48	35.5	1.40	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.1895	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	0.8	0.03	1.2	0.05	44.6	50.7	15120	15245	13.2	0.52	36.0	1.42	35.5	1.40	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
30.226	1.1900	69.012	2.7170	19.845	0.7813	19.583	0.7710	15.875	0.6250	0.8	0.03	3.2	0.13	46.1	55.0	14116	14274	15.5	0.61	37.0	1.46	36.5	1.44	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
30.955	1.2187	64.292	2.5312	21.432	0.8438	21.432	0.8438	16.670	0.6563	2.4	0.09	1.6	0.06	55.2	70.7	M86648R	M86610	18.0	0.71	41.0	1.61	38.0	1.50	54.0	2.13	61.0	2.40	0.55	1.10	0.60	16.0	14.9	1.07
31.623	1.2450	66.675	2.6250	20.638	0.8125	20.638	0.8125	15.875	0.6250	1.6	0.06	1.6	0.06	46.4	54.5	1674	1620	15.7	0.62	45.0	1.77	38.5	1.52	58.0	2.28	61.0	2.40	0.37	1.62	0.89	13.5	8.55	1.57
31.750	1.2500	58.738	2.3125	14.684	0.5781	15.080	0.5937	10.716	0.4219	1.0	0.04	1.0	0.04	29.5	33.3	08125	08231	13.5	0.53	37.5	1.48	36.0	1.42	52.0	2.05	55.0	2.17	0.48	1.26	0.69	8.45	6.85	1.23
	1.2500	59.131	2.3280	15.875	0.6250	16.764	0.6600	11.811	0.4650	SP ¹⁾	SP ¹⁾	1.2	0.05	35.8	43.1	LM67048	LM67010	13.0	0.51	42.5	1.67	36.0	1.42	52.0	2.05	56.0	2.20	0.41	1.46	0.80	10.3	7.25	1.42
	1.2500	62.000	2.4409	18.161	0.7150	19.050	0.7500	14.288	0.5625	SP ¹⁾	SP ¹⁾	1.2	0.05	44.6	50.7	15123	15245	13.2	0.52	42.5	1.67	36.5	1.44	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.2500	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	3.6	0.14	1.2	0.05	44.6	50.7	15125	15245	13.2	0.52	42.5	1.67	36.5	1.44	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.2500	62.000	2.4409	19.050	0.7500	20.638	0.8125	14.288	0.5625	0.8	0.03	1.2	0.05	44.6	50.7	15126	15245	13.2	0.52	37.0	1.46	36.5	1.44	55.0	2.17	58.0	2.28	0.35	1.71	0.94	12.9	7.75	1.67
	1.2500	66.421	2.6150	25.400	1.0000	25.357	0.9983	20.638	0.8125	0.8	0.03	3.2	0.13	71.4	85.1	2580	2520	16.0	0.63	38.5	1.52	37.5	1.48	57.0	2.24	62.5	2.46	0.27	2.19	1.21	20.7	9.65	2.14
	1.2500	66.421	2.6150	25.400	1.0000	25.357	0.9983	20.638	0.8125	3.6	0.14	3.2	0.13	71.4	85.1	2582	2520	16.0	0.63	44.0	1.73	37.5	1.48	57.0	2.24	62.5	2.46	0.27	2.19	1.21	20.7	9.65	2.14
	1.2500	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	3.6	0.14	1.6	0.06	51.0	61.1	02475	02420	17.1	0.67	44.5	1.75	38.5	1.52	59.0	2.32	63.0	2.48	0.42	1.44	0.79	14.8	10.5	1.41
	1.2500	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	1.6	0.06	1.6	0.06	51.0	61.1	02475A	02420	17.1	0.67	42.0	1.65	38.0	1.50	59.0	2.32	63.0	2.48	0.42	1.44	0.79	14.8	10.5	1.41
	1.2500	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	1.6	0.06	51.0	61.1	02476	02420	17.1	0.67	39.0	1.54	38.5	1.52	59.0	2.32	63.0	2.48	0.42	1.44	0.79	14.8	10.5	1.41
	1.2500	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	1.6	0.06	1.6	0.06	56.1	71.1	M88046	M88010	19.2	0.76	43.0	1.69	40.5	1.59	58.0	2.28	65.0	2.56	0.55	1.10	0.60	16.3	15.2	1.07
	1.2500	68.956	2.7148	19.845	0.7813	19.583	0.7710	15.875	0.6250	3.6	0.14	3.2	0.13	46.1	55.0	14125	14274A	15.5	0.61	44.0	1.73	37.5	1.48	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.2500	69.012	2.7170	26.982	1.0623	26.721	1.0520	15.875	0.6250	4.3	0.17	3.2	0.13	46.1	55.0	14123A	14274	22.6	0.89	44.0	1.73	40.0	1.57	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.2500	71.973	2.8336	27.000	1.0630	25.400	1.0000	21.443	0.8442	1.6	0.06	1.6	0.06	66.9	87.4	HM88644	HM88611	22.3	0.88	45.0	1.77	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
	1.2500	72.034	2.8360	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	2.8	0.11	78.8	89.3	3188	3126	20.3	0.80	40.0	1.57	39.5	1.56	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.2500	72.233	2.8438	25.400	1.0000	25.400	1.0000	19.842	0.7812	1.6	0.06	2.4	0.09	66.9	87.4	HM88644	HM88610	20.7	0.81	45.0	1.77	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
	1.2500	72.626	2.8593	28.575	1.1250	29.997	1.1810	22.225	0.8750	0.8	0.03	3.2	0.13	78.8	89.3	3188	3125	18.7	0.74	40.0	1.57	39.5	1.56	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.2500	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	0.8	0.03	78.8	89.3	3188	3130	20.3	0.80	40.0	1.57	39.5	1.56	63.0	2.48	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.2500	72																															

TS type
d (31.750) ~ 33.338 mm
(1.2500) ~ 1.3125 inch



$$P = XF_r + YF_a$$

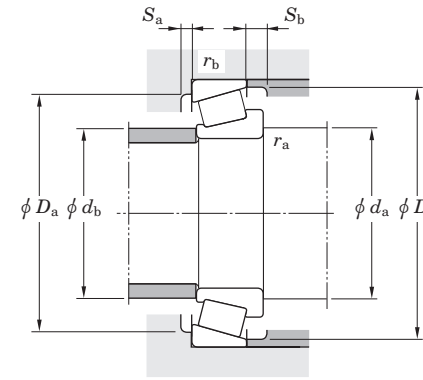
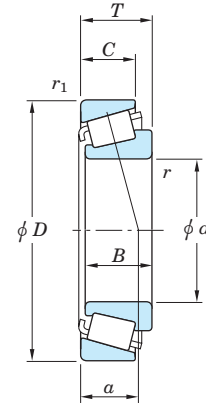
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
31.750	1.2500	73.025	2.8750	22.225	0.8750	23.812	0.9375	17.462	0.6875	0.8	0.03	0.8	0.03	64.2	78.1	2879	2821	16.3	0.64	39.0	1.54	39.0	1.54	65.0	2.56	68.0	2.68	0.37	1.63	0.89	18.6	11.7	1.59
	1.2500	73.025	2.8750	26.543	1.0450	25.400	1.0000	21.000	0.8268	1.6	0.06	2.4	0.09	66.9	87.4	HM88644	HM88612	21.8	0.86	45.0	1.77	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
	1.2500	73.025	2.8750	26.988	1.0625	26.975	1.0620	22.225	0.8750	3.6	0.14	1.6	0.06	77.8	94.1	23685	23620	18.8	0.74	45.0	1.77	40.0	1.57	64.0	2.52	68.0	2.68	0.37	1.62	0.89	22.6	14.2	1.58
	1.2500	73.025	2.8750	29.370	1.1563	27.783	1.0938	23.020	0.9063	1.2	0.05	3.2	0.13	74.3	101	HM88542	HM88510	23.4	0.92	45.5	1.79	42.5	1.67	59.0	2.32	70.0	2.76	0.55	1.10	0.60	21.7	20.3	1.07
	1.2500	73.812	2.9060	29.370	1.1563	27.783	1.0938	23.020	0.9063	1.2	0.05	3.2	0.13	74.3	101	HM88542	HM88512	23.4	0.92	45.5	1.79	42.5	1.67	59.0	2.32	70.0	2.76	0.55	1.10	0.60	21.7	20.3	1.07
	1.2500	76.200	3.0000	29.370	1.1563	28.575	1.1250	23.020	0.9063	0.8	0.03	0.8	0.03	79.5	107	HM89440	HM89411	23.9	0.94	45.5	1.79	44.5	1.75	65.0	2.56	73.0	2.87	0.55	1.10	0.60	23.2	21.7	1.07
	1.2500	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	1.6	0.06	3.2	0.13	87.4	105	3476X	3420	20.8	0.82	43.0	1.69	41.0	1.61	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.2500	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	346	332	15.1	0.59	40.0	1.57	39.5	1.56	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.2500	80.167	3.1562	29.370	1.1563	29.771	1.1721	23.812	0.9375	1.2	0.05	3.2	0.13	87.4	105	3476	3422	20.8	0.82	43.0	1.69	41.0	1.61	68.0	2.68	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.2500	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	0.8	0.03	0.8	0.03	103	122	443	432A	18.4	0.72	42.0	1.65	41.0	1.61	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
31.986	1.2593	72.233	2.8438	25.400	1.0000	25.400	1.0000	19.842	0.7812	3.2	0.13	2.4	0.09	66.9	87.4	HM88638	HM88610	20.7	0.81	48.5	1.91	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
32.004	1.2600	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26126	26283	15.3	0.60	39.5	1.56	37.5	1.48	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
32.542	1.2812	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	3.2	0.13	78.8	89.3	3194	3120	20.3	0.80	41.0	1.61	40.0	1.57	61.0	2.40	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
33.338	1.3125	66.421	2.6150	25.400	1.0000	25.357	0.9983	20.638	0.8125	0.8	0.03	3.2	0.13	71.4	85.1	2581	2520	16.0	0.63	39.5	1.56	39.0	1.54	57.0	2.24	62.5	2.46	0.27	2.19	1.21	20.7	9.65	2.14
	1.3125	66.421	2.6150	25.400	1.0000	25.357	0.9983	20.638	0.8125	3.6	0.14	3.2	0.13	71.4	85.1	2585	2520	16.0	0.63	45.0	1.77	39.0	1.54	57.0	2.24	62.5	2.46	0.27	2.19	1.21	20.7	9.65	2.14
	1.3125	66.675	2.6250	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.6	0.06	46.4	54.5	1680	1620	15.7	0.62	45.0	1.77	38.5	1.52	58.0	2.28	61.0	2.40	0.37	1.62	0.89	13.5	8.55	1.58
	1.3125	68.262	2.6875	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	1.6	0.06	56.1	71.1	M88048	M88010	19.2	0.76	42.5	1.67	41.0	1.61	58.0	2.28	65.0	2.56	0.55	1.10	0.60	16.3	15.2	1.07
	1.3125	68.956	2.7148	19.845	0.7813	19.583	0.7710	15.875	0.6250	3.6	0.14	3.2	0.13	46.1	55.0	14130	14274A	15.5	0.61	45.0	1.77	38.5	1.52	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3125	68.956	2.7148	19.845	0.7813	19.583	0.7710	15.875	0.6250	0.8	0.03	3.2	0.13	46.1	55.0	14131	14274A	15.5	0.61	39.5	1.56	38.5	1.52	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3125	69.012	2.7170	22.385	0.8813	19.583	0.7710	18.415	0.7250	3.6	0.14	2.4	0.09	46.1	55.0	14130	14277	18.0	0.71	45.0	1.77	38.5	1.52	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3125	69.723	2.7450	19.050	0.7500	18.923	0.7450	19.050	0.7500	3.6	0.14	1.6	0.06	47.5	49.6	26131	26274	17.7	0.70	44.5	1.75	38.5	1.52	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.3125	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	3.6	0.14	1.6	0.06	47.5	49.6	26131	26283	15.3	0.60	44.5	1.75	38.5	1.52	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.3125	72.000	2.8346	19.000	0.7480	18.923	0.7450	15.875	0.6250	1.6	0.06	1.6	0.06	47.5	49.6	26132	26283	15.3	0.60	40.5	1.59	38.0	1.50	62.0	2.44	65.0	2.56	0.36	1.67	0.92	13.7	8.40	1.63
	1.3125	72.238	2.8440	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.2	0.05	49.7	61.3	16131	16284	16.6	0.65	46.0	1.81	39.5	1.56	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.3125	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	3.6	0.14	1.8	0.07	78.8	89.3	3196	3130	20.3	0.80	47.0	1.85	40.5	1.59	63.0	2.48	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.3125	72.626	2.8593	30.162	1.1875	29.997	1.1810	23.812	0.9375	0.8	0.03	0.8	0.03	78.8	89.3	3197	3130	20.3	0.80	41.5	1.63	40.5	1.59	63.0	2.48	67.0	2.64	0.33	1.80	0.99	23.0	13.1	1.76
	1.3125	73.025	2.8750	22.225	0.8750	23.812	0.9375	17.462	0.6875	3.6	0.14	0.8	0.03	64.2	78.1	2876	2821	16.3	0.64	46.0	1.81	40.0	1.57	65.0	2.56	68.0	2.68	0.37	1.63	0.89	18.6	11.7	1.59
	1.3125	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	1.6	0.06	0.8	0.03	74.1	92.2	2790R	2735X	15.9	0.63	42.0	1.65	40.0	1.57	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.3125	73.025	2.8750	29.370	1.1563	27.783	1.0938	23.020	0.9063	0.8	0.03	3.2	0.13	74.3	101	HM88547	HM88510	23.4	0.92	45.5	1.79	42.6	1.68	59.0	2.32	70.0	2.76	0.55	1.10	0.60	21.7	20.3	1.07
	1.3125	74.612	2.9375	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	0.8	0.03	74.1	92.2	2785R	2736	15.9	0.63	46.0	1.81	40.0	1.57	66.0	2.60	70.0	2.76	0.30	1.98	1.09	21.5	11.1	1.93
	1.3125	76.200	3.0000	19.000	0.7480	18.923	0.7450	15.875	0.6250	3.6	0.14	1.6	0.06	47.5	49.6	26131	26300	15.3	0.60	44.5	1.75	38.5	1.52	64.0	2.52	67.0	2.64	0.36	1.67	0.92	13.7	8.40	1.63
	1.3125	76.200	3.0000	23.812	0.93																												

TS type
d 34.925 ~ (34.980) mm
1.3750 ~ (1.3772) inch



$$P = XF_r + YF_a$$

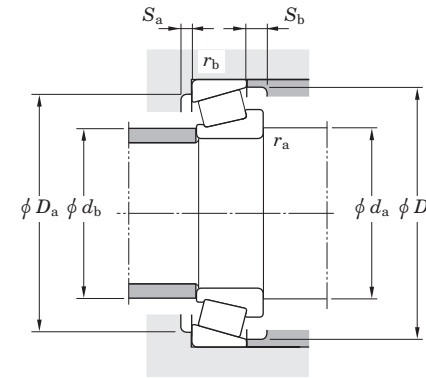
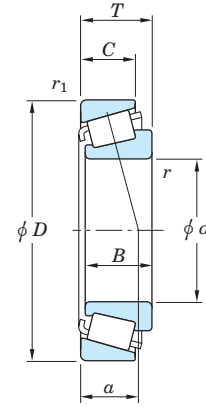
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	(500 rpm for 3 000 Hrs.)		K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch				mm	inch	
34.925	1.3750	65.088	2.5625	18.034	0.7100	18.288	0.7200	13.970	0.5500	SP ¹⁾	SP ¹⁾	1.2	0.05	48.0	58.5	LM48548	LM48510	14.3	0.56	46.0	1.81	40.0	1.57	58.0	2.28	61.0	2.40	0.38	1.59	0.88	13.8	8.90	1.55
	1.3750	68.956	2.7148	19.845	0.7813	19.583	0.7710	15.875	0.6250	1.6	0.06	3.2	0.13	46.1	55.0	14137A	14274A	15.5	0.61	42.0	1.65	40.0	1.57	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3750	68.956	2.7148	19.845	0.7813	19.583	0.7710	15.875	0.6250	3.6	0.14	3.2	0.13	46.1	55.0	14138A	14274A	15.5	0.61	46.0	1.81	40.0	1.57	59.0	2.32	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3750	69.012	2.7170	26.982	1.0623	26.721	1.0520	15.875	0.6250	0.8	0.03	1.2	0.05	46.1	55.0	14136A	14276	22.6	0.89	40.0	1.57	38.0	1.50	60.0	2.36	63.0	2.48	0.38	1.57	0.86	13.4	8.70	1.53
	1.3750	72.233	2.8438	25.400	1.0000	25.400	1.0000	19.842	0.7812	2.4	0.09	2.4	0.09	66.9	87.4	HM88649	HM88610	20.7	0.81	48.5	1.91	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
	1.3750	72.238	2.8440	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.2	0.05	49.7	61.3	16284		16.6	0.65	46.5	1.83	40.5	1.59	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.3750	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	3.6	0.14	3.2	0.13	55.0	65.7	02877	02820	18.4	0.72	48.5	1.91	42.0	1.65	62.0	2.44	68.0	2.68	0.45	1.32	0.73	16.0	12.4	1.29
	1.3750	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	3.6	0.14	0.8	0.03	55.0	65.7	02877	02830	18.4	0.72	48.5	1.91	42.0	1.65	64.0	2.52	69.0	2.72	0.45	1.32	0.73	16.0	12.4	1.29
	1.3750	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	3.2	0.13	55.0	65.7	02878	02820	18.4	0.72	42.5	1.67	42.0	1.65	62.0	2.44	68.0	2.68	0.45	1.32	0.73	16.0	12.4	1.29
	1.3750	73.025	2.8750	22.225	0.8750	23.812	0.9375	17.462	0.6875	3.6	0.14	3.2	0.13	64.2	78.1	2877	2820	16.3	0.64	47.5	1.87	41.0	1.61	62.0	2.44	68.0	2.68	0.37	1.63	0.89	18.6	11.7	1.59
	1.3750	73.025	2.8750	22.225	0.8750	23.812	0.9375	17.462	0.6875	0.8	0.03	0.8	0.03	64.2	78.1	2878	2821	16.3	0.64	42.5	1.67	41.0	1.61	65.0	2.56	68.0	2.68	0.37	1.63	0.89	18.6	11.7	1.59
	1.3750	73.025	2.8750	23.812	0.9375	24.608	0.9688	19.050	0.7500	1.6	0.06	0.8	0.03	72.2	87.3	25877R	25821	15.8	0.62	43.0	1.69	40.5	1.59	65.0	2.56	68.0	2.68	0.29	2.07	1.14	20.9	10.4	2.02
	1.3750	73.025	2.8750	23.812	0.9375	24.608	0.9688	19.050	0.7500	3.6	0.14	2.4	0.09	72.2	87.3	25878R	25820	15.8	0.62	47.0	1.85	40.5	1.59	64.0	2.52	68.0	2.68	0.29	2.07	1.14	20.9	10.4	2.02
	1.3750	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	5.2	0.20	0.8	0.03	74.1	92.2	2786R	2735X	15.9	0.63	51.0	2.01	41.0	1.61	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.3750	73.025	2.8750	26.988	1.0625	26.975	1.0620	22.225	0.8750	3.6	0.14	1.6	0.06	77.8	94.1	23690	23620	18.8	0.74	49.0	1.93	42.0	1.65	64.0	2.52	68.0	2.68	0.37	1.62	0.89	22.6	14.2	1.58
	1.3750	76.200	3.0000	20.638	0.8125	20.940	0.8244	15.507	0.6105	1.6	0.06	1.2	0.05	57.3	65.9	28137	28300	16.5	0.65	43.5	1.71	41.0	1.61	68.0	2.68	71.0	2.80	0.40	1.49	0.82	16.5	11.3	1.46
	1.3750	76.200	3.0000	23.812	0.9375	25.654	1.0100	19.050	0.7500	0.8	0.03	1.6	0.06	74.1	92.2	2793R	2729X	15.9	0.63	42.0	1.65	41.0	1.61	67.0	2.64	70.0	2.76	0.30	1.98	1.09	21.5	11.1	1.93
	1.3750	76.200	3.0000	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	3.2	0.13	74.1	92.2	2796R	2720	15.9	0.63	47.5	1.87	41.0	1.61	66.0	2.60	70.0	2.76	0.30	1.98	1.09	21.5	11.1	1.93
	1.3750	76.200	3.0000	29.370	1.1563	28.575	1.1250	23.020	0.9063	3.6	0.14	0.8	0.03	79.5	107	HM89446	HM89411	23.9	0.94	53.0	2.09	44.5	1.75	65.0	2.56	73.0	2.87	0.55	1.10	0.60	23.2	21.7	1.07
	1.3750	76.200	3.0000	29.370	1.1563	28.575	1.1250	23.812	0.9375	3.6	0.14	1.2	0.05	80.9	97.4	31593	31521	21.6	0.85	50.0	1.97	43.5	1.71	66.0	2.60	72.0	2.83	0.40	1.49	0.82	23.6	16.2	1.46
1.3750	76.200	3.0000	29.370	1.1563	28.575	1.1250	23.812	0.9375	1.6	0.06	3.2	0.13	80.9	97.4	31594	31520	21.6	0.85	46.0	1.81	43.5	1.71	64.0	2.52	72.0	2.83	0.40	1.49	0.82	23.6	16.2	1.46	
1.3750	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	3.6	0.14	3.2	0.13	87.4	105	3478	3420	20.8	0.82	50.0	1.97	43.5	1.71	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60	
1.3750	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	0.8	0.03	3.2	0.13	87.4	105	3482	3420	20.8	0.82	44.0	1.73	43.5	1.71	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60	
1.3750	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	335	332	15.1	0.59	42.5	1.67	41.5	1.63	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
1.3750	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	1.2	0.05	1.2	0.05	68.0	74.8	340	332	15.1	0.59	43.5	1.71	41.5	1.63	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
1.3750	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	3.6	0.14	1.2	0.05	68.0	74.8	343	332	15.1	0.59	47.5	1.87	41.5	1.63	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
1.3750	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	0.8	0.03	2.4	0.09	68.0	74.8	335	332A	18.3	0.72	42.5	1.67	41.5	1.63	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
1.3750	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	3.6	0.14	2.4	0.09	68.0	74.8	343	332A	18.3	0.72	47.5	1.87	41.5	1.63	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14	
1.3750	80.000	3.1496	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3379	3325	18.7	0.74	48.0	1.89	41.5	1.63	70.0	2.76	75.0	2.95	0.27	2.20	1.21	26.6	12.4	2.14	
1.3750	80.035	3.1510	24.608	0.9688	23.698	0.9330	18.512	0.7288	0.8	0.03	1.6	0.06	73.2	91.6	27875	27820	22.2	0.87	45.5	1.79	44.5	1.75	68.0	2.68	75.0	2.95	0.56	1.07	0.59	21.2	20.3	1.04	
1.3750	85.725	3.3750	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	1.2	0.05	108	136	3872	3821	22.9	0.90	53.0	2.09	46.0	1.81	75.0	2.95	81.0	3.19	0.40	1.49	0.82	31.5	21.7	1.46	
1.3750	85.725	3.3750	30.162	1.1																													

TS type
d (34.980) ~ (36.512) mm
(1.3772) ~ (1.4375) inch



$$P = XF_r + YF_a$$

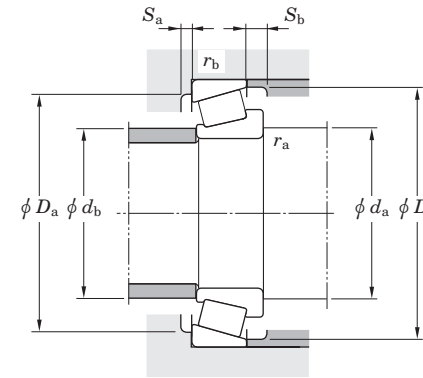
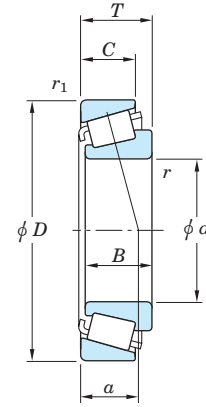
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
34.980	1.3772	59.975	2.3612	15.875	0.6250	16.764	0.6600	11.938	0.4700	SP ¹⁾	SP ¹⁾	1.2	0.05	35.7	48.5	L68149	L68111	13.2	0.52	45.5	1.79	39.0	1.54	53.0	2.09	56.0	2.20	0.42	1.44	0.79	10.3	7.35	1.41
34.988	1.3775	61.973	2.4399	16.700	0.6575	17.000	0.6693	13.599	0.5354	SP ¹⁾	SP ¹⁾	1.0	0.04	40.8	52.8	LM78349	LM78310	14.5	0.57	46.0	1.81	40.0	1.57	54.0	2.13	59.0	2.32	0.44	1.35	0.74	11.8	8.95	1.32
	1.3775	65.987	2.5979	20.638	0.8125	20.638	0.8125	16.670	0.6563	3.6	0.14	2.4	0.09	54.1	67.0	M38547	M38511	15.1	0.59	46.0	1.81	39.5	1.56	59.0	2.32	62.0	2.44	0.35	1.70	0.93	15.7	9.50	1.66
35.000	1.3780	73.025	2.8750	26.988	1.0625	26.975	1.0620	22.225	0.8750	3.6	0.14	0.8	0.03	77.8	94.1	23691	23621	18.8	0.74	49.0	1.93	42.0	1.65	63.0	2.48	68.0	2.68	0.37	1.62	0.89	22.6	14.2	1.58
	1.3780	77.788	3.0625	26.988	1.0625	26.975	1.0620	22.225	0.8750	3.6	0.14	0.8	0.03	77.8	94.1	23691	23623	18.8	0.74	49.0	1.93	42.0	1.65	65.0	2.56	71.0	2.80	0.37	1.62	0.89	22.6	14.2	1.58
	1.3780	79.375	3.1250	23.812	0.9375	25.400	1.0000	19.050	0.7500	0.8	0.03	0.8	0.03	81.1	105	26883R	26822	16.4	0.65	42.5	1.67	42.0	1.65	71.0	2.80	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.3780	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	1.6	0.06	3.2	0.13	87.4	105	3480	3420	20.8	0.82	44.5	1.75	42.5	1.67	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.3780	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	3.6	0.14	3.2	0.13	87.4	105	3492X	3420	20.8	0.82	49.0	1.93	44.0	1.73	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.3780	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	339	332	15.1	0.59	42.5	1.67	41.5	1.63	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.3780	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	2.0	0.08	1.2	0.05	68.0	74.8	339X	332	15.1	0.59	45.5	1.79	41.5	1.63	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.3780	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	0.8	0.03	1.2	0.05	68.0	74.8	339	332A	18.3	0.72	42.5	1.67	41.5	1.63	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.3780	80.167	3.1562	25.400	1.0000	25.400	1.0000	20.638	0.8125	0.8	0.03	3.2	0.13	81.1	105	26883R	26820	18.0	0.71	42.5	1.67	42.0	1.65	69.0	2.72	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.3780	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	1.6	0.06	98.2	112	421	414	16.9	0.67	42.5	1.67	42.0	1.65	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
	1.3780	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	3.2	0.13	98.2	112	421	414A	16.9	0.67	42.5	1.67	42.0	1.65	76.0	2.99	79.0	3.11	0.26	2.28	1.25	28.6	12.9	2.22
	1.3780	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	2.4	0.09	103	122	441	432	18.4	0.72	49.0	1.93	43.5	1.71	83.0	3.27	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
35.306	1.3900	73.025	2.8750	22.225	0.8750	23.812	0.9375	17.462	0.6875	3.6	0.14	3.2	0.13	64.2	78.1	2880	2820	16.3	0.64	48.0	1.89	42.0	1.65	62.0	2.44	68.0	2.68	0.37	1.63	0.89	18.6	11.7	1.59
35.717	1.4062	72.233	2.8438	25.400	1.0000	25.400	1.0000	19.842	0.7812	3.6	0.14	2.4	0.09	66.9	87.4	HM88648	HM88610	20.7	0.81	52.0	2.05	42.5	1.67	60.0	2.36	69.0	2.72	0.55	1.10	0.60	19.6	18.3	1.07
36.449	1.4350	73.025	2.8750	22.225	0.8750	22.225	0.8750	17.462	0.6875	0.8	0.03	3.2	0.13	55.0	65.7	02884	02820	18.4	0.72	44.5	1.75	42.0	1.65	62.0	2.44	69.0	2.72	0.45	1.32	0.73	16.0	12.4	1.29
36.487	1.4365	73.025	2.8750	23.812	0.9375	24.608	0.9688	19.050	0.7500	1.6	0.06	0.8	0.03	72.2	87.3	25880R	25821	15.8	0.62	44.0	1.73	42.0	1.65	65.0	2.56	68.0	2.68	0.29	2.07	1.14	20.9	10.4	2.02
	1.4365	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	1.6	0.06	0.8	0.03	74.1	92.2	2780R	2735X	15.9	0.63	44.5	1.75	42.5	1.67	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.4365	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	0.8	0.03	74.1	92.2	2794R	2735X	15.9	0.63	49.0	1.93	42.5	1.67	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.4365	79.375	3.1250	25.400	1.0000	25.654	1.0100	20.638	0.8125	1.6	0.06	3.2	0.13	74.1	92.2	2780R	2734	17.5	0.69	44.5	1.75	42.5	1.67	68.0	2.68	70.0	2.76	0.30	1.98	1.09	21.5	11.1	1.93
	1.4365	80.167	3.1562	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3378	3320	18.7	0.74	49.0	1.93	44.5	1.75	70.0	2.76	75.0	2.95	0.27	2.20	1.21	26.6	12.4	2.14
	1.4365	81.755	3.2187	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3378	3329	18.7	0.74	49.0	1.93	44.5	1.75	71.0	2.80	75.0	2.95	0.27	2.20	1.21	26.6	12.4	2.14
36.512	1.4375	68.262	2.6875	15.875	0.6250	16.520	0.6504	11.908	0.4688	1.6	0.06	1.6	0.06	46.1	53.8	19143R	19268	14.5	0.57	44.0	1.73	42.0	1.65	61.0	2.40	65.0	2.56	0.44	1.35	0.74	13.2	10.0	1.32
	1.4375	69.012	2.7170	19.050	0.7500	19.050	0.7500	15.083	0.5938	3.6	0.14	0.8	0.03	49.2	62.0	13682	13620	16.1	0.63	48.0	1.89	41.5	1.63	62.0	2.44	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.4375	71.438	2.8125	15.875	0.6250	16.520	0.6504	11.908	0.4688	1.6	0.06	1.0	0.04	46.1	53.8	19143R	19281	14.5	0.57	44.0	1.73	42.0	1.65	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.4375	71.996	2.8345	17.018	0.6700	16.520	0.6504	14.288	0.5625	1.6	0.06	1.6	0.06	46.1	53.8	19143R	19283	15.7	0.62	44.0	1.73	42.0	1.65	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.4375	71.996	2.8345	19.000	0.7480	20.638	0.8125	14.237	0.5605	3.6	0.14	1.6	0.06	49.7	61.3	16143	16282	15.0	0.59	48.5	1.91	42.0	1.65	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.4375	72.238	2.8440	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.2	0.05	49.7	61.3	16143	16284	16.6	0.65	48.5	1.91	42.0	1.65	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.4375	76.200	3.0000	29.370	1.1563	28.575	1.1250	23.020	0.9063	0.8	0.03	0.8	0.03	79.5	107	HM89448	HM89411	23.9	0.94	48.5	1.91	44.5	1.75	65.0	2.56								

TS type
d (36.512) ~ (38.100) mm
(1.4375) ~ (1.5000) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

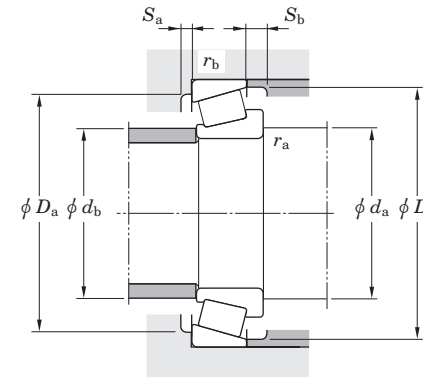
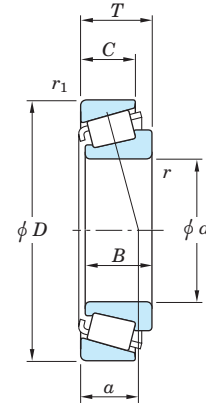
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
36.512	1.4375	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	1.6	0.06	3.2	0.13	105	134	46143	46368	24.0	0.94	49.0	1.93	47.5	1.87	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.4375	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	1.6	0.06	1.2	0.05	105	134	46143	46369	24.0	0.94	49.0	1.93	47.5	1.87	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
38.100	1.5000	63.500	2.5000	12.700	0.5000	11.908	0.4688	9.525	0.3750	1.6	0.06	0.8	0.03	25.5	33.1	13889	13830	11.9	0.47	45.0	1.77	42.5	1.67	59.0	2.32	60.0	2.36	0.35	1.73	0.95	7.30	4.30	1.69
	1.5000	65.088	2.5625	12.700	0.5000	11.908	0.4688	9.525	0.3750	1.6	0.06	0.8	0.03	25.5	33.1	13889	13836	11.9	0.47	45.0	1.77	42.5	1.67	59.0	2.32	61.0	2.40	0.35	1.73	0.95	7.30	4.30	1.69
	1.5000	65.088	2.5625	18.034	0.7100	18.288	0.7200	13.970	0.5500	SP ¹⁾	SP ¹⁾	1.2	0.05	42.9	56.5	LM29748	LM29710	13.8	0.54	49.0	1.93	42.5	1.67	59.0	2.32	62.0	2.44	0.33	1.80	0.99	12.4	7.05	1.76
	1.5000	65.088	2.5625	19.812	0.7800	18.288	0.7200	15.748	0.6200	2.4	0.09	1.2	0.05	42.9	56.5	LM29749	LM29711	15.6	0.61	46.0	1.81	42.5	1.67	58.0	2.28	62.0	2.44	0.33	1.80	0.99	12.4	7.05	1.76
	1.5000	68.262	2.6875	19.997	0.7873	16.520	0.6504	16.030	0.6311	1.6	0.06	1.6	0.06	46.1	53.8	19150R	19269	18.6	0.73	45.0	1.77	43.0	1.69	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.5000	68.275	2.6880	20.000	0.7874	16.520	0.6504	16.032	0.6312	1.6	0.06	1.6	0.06	46.1	53.8	19150R	19268X	18.7	0.74	45.0	1.77	43.0	1.69	61.0	2.40	65.0	2.56	0.44	1.35	0.74	13.2	10.0	1.32
	1.5000	69.012	2.7170	19.050	0.7500	19.050	0.7500	15.083	0.5938	3.6	0.14	0.8	0.03	49.2	62.0	13685	13620	16.1	0.63	49.5	1.95	43.0	1.69	62.0	2.44	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.5000	69.012	2.7170	19.050	0.7500	19.050	0.7500	15.083	0.5938	2.0	0.08	2.4	0.09	49.2	62.0	13687	13621	16.1	0.63	46.5	1.83	43.0	1.69	61.0	2.40	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.5000	69.012	2.7170	26.195	1.0313	26.187	1.0310	15.083	0.5938	1.6	0.06	2.4	0.09	49.2	62.0	13686	13621	16.1	0.63	46.5	1.83	43.0	1.69	61.0	2.40	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.5000	69.012	2.7170	26.195	1.0313	26.195	1.0313	15.083	0.5938	1.6	0.06	0.8	0.03	49.2	62.0	13686	13620	16.1	0.63	46.5	1.83	43.0	1.69	62.0	2.44	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.5000	69.969	2.7547	21.996	0.8660	19.050	0.7500	18.029	0.7098	3.6	0.14	1.6	0.06	49.2	62.0	13685	13624	16.1	0.63	49.5	1.95	43.0	1.69	61.0	2.40	65.0	2.56	0.40	1.49	0.82	14.2	9.75	1.46
	1.5000	71.438	2.8125	15.875	0.6250	16.520	0.6504	11.908	0.4688	1.6	0.06	1.0	0.04	46.1	53.8	19150R	19281	14.5	0.57	45.0	1.77	43.0	1.69	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.5000	71.438	2.8125	17.462	0.6875	16.520	0.6504	15.875	0.6250	1.6	0.06	1.6	0.06	46.1	53.8	19150R	19282	16.1	0.63	45.0	1.77	43.0	1.69	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.5000	71.996	2.8346	17.018	0.6700	16.520	0.6504	14.288	0.5625	1.6	0.06	1.6	0.06	46.1	53.8	19150R	19283	15.7	0.62	45.0	1.77	43.0	1.69	63.0	2.48	66.0	2.60	0.44	1.35	0.74	13.2	10.0	1.32
	1.5000	71.996	2.8346	19.000	0.7480	20.638	0.8125	14.237	0.5605	3.6	0.14	1.6	0.06	49.7	61.3	16150	16282	15.0	0.59	49.5	1.95	43.0	1.69	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.5000	72.238	2.8440	20.638	0.8125	20.638	0.8125	15.875	0.6250	3.6	0.14	1.2	0.05	49.7	61.3	16150	16284	16.6	0.65	49.5	1.95	43.0	1.69	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.5000	72.238	2.8440	20.638	0.8125	20.638	0.8125	15.875	0.6250	2.4	0.09	1.2	0.05	49.7	61.3	16151	16284	16.6	0.65	49.5	1.95	43.0	1.69	63.0	2.48	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.5000	72.238	2.8440	23.812	0.9375	20.638	0.8125	19.050	0.7500	3.6	0.14	2.4	0.09	49.7	61.3	16150	16283	19.8	0.78	49.5	1.95	43.0	1.69	61.0	2.40	67.0	2.64	0.40	1.49	0.82	14.4	9.90	1.46
	1.5000	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	4.3	0.17	0.8	0.03	74.1	92.2	2776R	2735X	15.9	0.63	52.0	2.05	43.5	1.71	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.5000	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	1.6	0.06	0.8	0.03	74.1	92.2	2788AR	2735X	15.9	0.63	46.0	1.81	43.5	1.71	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.5000	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	0.8	0.03	74.1	92.2	2788R	2735X	15.9	0.63	50.0	1.97	43.5	1.71	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.5000	76.200	3.0000	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	0.8	0.03	74.1	92.2	2788R	2729	15.9	0.63	50.0	1.97	43.5	1.71	68.0	2.68	70.0	2.76	0.30	1.98	1.09	21.5	11.1	1.93
	1.5000	79.375	3.1250	23.812	0.9375	25.400	1.0000	19.050	0.7500	0.8	0.03	2.4	0.09	81.1	105	26878R	26822A	16.4	0.65	45.0	1.77	44.5	1.75	69.0	2.72	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.5000	79.375	3.1250	29.370	1.1563	29.771	1.1721	23.812	0.9375	3.6	0.14	3.2	0.13	87.4	105	3490	3420	20.8	0.82	52.0	2.05	45.9	1.81	67.0	2.64	74.0	2.91	0.37	1.64	0.90	25.5	15.9	1.60
	1.5000	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	3.6	0.14	1.2	0.05	68.0	74.8	347	332	15.1	0.59	50.0	1.97	44.0	1.73	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.5000	80.000	3.1496	24.176	0.9518	22.403	0.8820	21.000	0.8268	0.8	0.03	2.4	0.09	68.0	74.8	337	332A	18.3	0.72	44.5	1.75	44.0	1.73	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.5000	80.035	3.1510	21.432	0.8438	20.940	0.8244	15.875	0.6250	1.6	0.06	1.6	0.06	57.3	65.9	28150	28317	16.9	0.67	45.5	1.79	43.5	1.71	69.0	2.72	73.0	2.87	0.40	1.49	0.82	16.5	11.3	1.46
	1.5000	80.035	3.1510	21.432	0.8438	20.940	0.8244	15.875	0.6250	3.6	0.14	1.6	0.06	57.3	65.9	28151	28317	16.9	0.67	45.5	1.79	43.5	1.71	69.0	2.72	73.0	2.87	0.40	1.49	0.82	16.5	11.3	1.46
1.5000	80.035	3.1510	24.608	0.9688	23.698	0.9330	18.512	0.7288	0.8	0.03	1.6	0.06	73.2	91.6	27880	27820	22.2	0.87	48.0	1.89	47.0	1.85	68.0	2.68	75.0	2.95	0.56	1.07	0.59	21.2	20.3	1.04	
1.5000	80.035	3.1510	24.608	0.9688	23.698																												

Tapered roller bearings

TS type
d (38.100) ~ (40.000) mm
 (1.5000) ~ (1.5748) inch



$$P = XF_r + YF_a$$

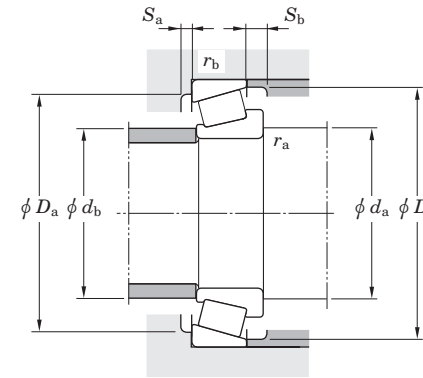
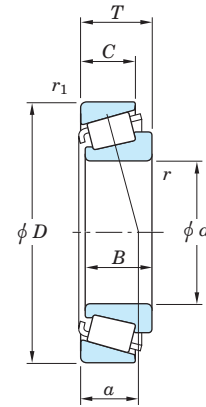
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
<i>d</i>		<i>D</i>		<i>T</i>		<i>B</i>		<i>C</i>		<i>r</i> (min.)		<i>r</i> ₁ (min.)		<i>C</i> _r	<i>C</i> _{0r}	Inner ring (Cone)	Outer ring (Cup)	<i>a</i>	<i>d</i> _a		<i>d</i> _b		<i>D</i> _a		<i>D</i> _b		<i>e</i>	<i>Y</i> ₁	<i>Y</i> ₀	Radial	Axial	<i>K</i>	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
38.100	1.5000	87.312	3.4375	30.162	1.1875	30.886	1.2160	23.812	0.9375	3.6	0.14	0.8	0.03	95.8	120	3583R	3526	20.5	0.81	52.0	2.05	45.5	1.79	76.0	2.99	80.0	3.15	0.31	1.96	1.08	27.9	14.6	1.91
	1.5000	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	1.6	0.06	98.2	112	415	414	16.9	0.67	45.0	1.77	44.5	1.75	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
	1.5000	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	3.6	0.14	1.6	0.06	98.2	112	418	414	16.9	0.67	51.0	2.01	44.5	1.75	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
	1.5000	88.900	3.5000	26.988	1.0625	29.083	1.1450	22.225	0.8750	0.8	0.03	0.8	0.03	98.2	112	415	414X	16.9	0.67	45.0	1.77	44.5	1.75	78.0	3.07	79.0	3.11	0.26	2.28	1.25	28.6	12.9	2.22
	1.5000	90.488	3.5625	39.688	1.5625	40.386	1.5900	33.338	1.3125	1.6	0.06	3.2	0.13	132	169	4375	4335	25.6	1.01	51.0	2.01	48.5	1.91	77.0	3.03	85.0	3.35	0.28	2.11	1.16	38.8	18.9	2.06
	1.5000	93.662	3.6875	31.750	1.2500	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	105	123	49150	49368	24.0	0.94	52.0	2.05	46.0	1.81	82.0	3.23	87.0	3.43	0.36	1.67	0.92	30.6	18.8	1.62
	1.5000	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	0.8	0.03	3.2	0.13	105	134	46150	46368	24.0	0.94	49.0	1.93	47.5	1.87	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.5000	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	3.6	0.14	3.2	0.13	105	134	46151	46368	24.0	0.94	54.0	2.13	47.5	1.87	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.5000	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	108	141	33880	33822	20.4	0.80	54.0	2.13	48.0	1.89	86.0	3.39	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	1.5000	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	0.8	0.03	0.8	0.03	103	122	440	432A	18.4	0.72	46.5	1.83	45.5	1.79	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.5000	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	0.8	0.03	103	122	444	432A	18.4	0.72	52.0	2.05	45.5	1.79	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.5000	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	525	522	22.2	0.87	54.0	2.13	48.0	1.89	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.5000	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	0.8	0.03	3.2	0.13	131	159	525X	522	22.2	0.87	49.0	1.93	48.0	1.89	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.5000	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	542	532X	23.9	0.94	55.0	2.17	49.0	1.93	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
38.913	1.5320	122.238	4.8125	51.595	2.0313	51.702	2.0355	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5561R	5535	39.0	1.54	57.0	2.24	52.0	2.05	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
39.624	1.5600	63.500	2.5000	12.700	0.5000	11.908	0.4688	9.525	0.3750	1.6	0.06	0.8	0.03	25.5	33.1	13892	13830	11.9	0.47	45.0	1.77	42.5	1.67	59.0	2.32	60.0	2.36	0.35	1.73	0.95	7.30	4.30	1.69
39.688	1.5625	73.025	2.8750	16.667	0.6562	17.462	0.6875	12.700	0.5000	0.8	0.03	1.6	0.06	45.9	55.8	18587	18520	14.5	0.57	46.0	1.81	46.0	1.81	66.0	2.60	69.0	2.72	0.35	1.71	0.94	13.2	7.90	1.67
	1.5625	73.025	2.8750	23.812	0.9375	25.654	1.0100	19.050	0.7500	3.6	0.14	0.8	0.03	74.1	92.2	2789R	2735X	15.9	0.63	52.0	2.05	45.0	1.77	66.0	2.60	69.0	2.72	0.30	1.98	1.09	21.5	11.1	1.93
	1.5625	80.000	3.1496	23.812	0.9375	25.400	1.0000	19.050	0.7500	1.6	0.06	1.2	0.05	81.1	105	26880R	26824	16.4	0.65	48.0	1.89	45.5	1.79	70.0	2.76	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.5625	80.167	3.1562	25.400	1.0000	25.400	1.0000	20.638	0.8125	3.6	0.14	0.8	0.03	81.1	105	26881R	26830	18.0	0.71	52.0	2.05	45.5	1.79	71.0	2.80	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.5625	80.167	3.1562	29.370	1.1563	30.391	1.1965	23.812	0.9375	0.8	0.03	3.2	0.13	91.0	106	3386	3320	18.7	0.74	46.5	1.83	45.5	1.79	70.0	2.76	75.0	2.95	0.27	2.20	1.21	26.6	12.4	2.14
	1.5625	81.755	3.2187	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3382	3329	18.7	0.74	52.0	2.05	45.5	1.79	71.0	2.80	75.0	2.95	0.27	2.20	1.21	26.6	12.4	2.14
	1.5625	84.138	3.3125	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3382	3328	18.7	0.74	52.0	2.05	45.5	1.79	72.0	2.83	76.0	2.99	0.27	2.20	1.21	26.6	12.4	2.14
	1.5625	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	3.6	0.14	1.6	0.06	98.2	112	422	414	16.9	0.67	52.0	2.05	46.5	1.83	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
	1.5625	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	3.6	0.14	3.2	0.13	98.2	112	422	414A	16.9	0.67	52.0	2.05	46.5	1.83	76.0	2.99	79.0	3.11	0.26	2.28	1.25	28.6	12.9	2.22
	1.5625	90.488	3.5625	39.688	1.5625	40.386	1.5900	33.338	1.3125	3.6	0.14	3.2	0.13	132	169	4367	4335	25.6	1.01	55.0	2.17	49.0	1.93	77.0	3.03	85.0	3.35	0.28	2.11	1.16	38.8	18.9	2.06
	1.5625	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3774	3720	22.2	0.87	55.0	2.17	51.0	2.01	82.0	3.23	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.5625	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	525A	522	22.2	0.87	56.0	2.20	49.0	1.93	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.5625	120.040	4.7260	41.275	1.6250	41.275	1.6250	31.750	1.2500	0.8	0.03	3.2	0.13	174	217	620	612A	27.3	1.07	52.0	2.05	52.0	2.05	103.0	4.06	109.0	4.29	0.31	1.91	1.05	50.9	27.4	1.86
	1.5625	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	0.8	0.03	3.2	0.13	174	217	620	612	27.3	1.07	52.0	2.05	52.0	2.05	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
39.980	1.5740	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	1.6	0.06	1.6	0.06	51.6	63.3	11157R	11300	17.5	0.69	48.5	1.91	46.0	1.81	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
	1.5740	80.000	3.1496	18.009	0.7090	17.																											

TS type
d (40.000) ~ (41.275) mm
(1.5748) ~ (1.6250) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

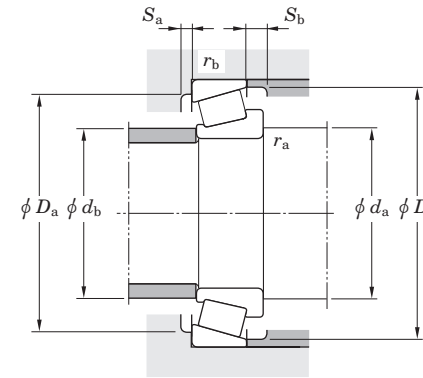
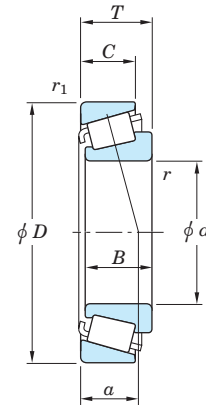
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
40.000	1.5748	85.725	3.3750	30.162	1.1875	30.162	1.1875	23.812	0.9375	0.8	0.03	1.2	0.05	108	136	3879	3821	22.9	0.90	51.0	2.01	50.0	1.97	75.0	2.95	81.0	3.19	0.40	1.49	0.82	31.5	21.7	1.46
	1.5748	87.312	3.4375	30.162	1.1875	30.886	1.2160	23.812	0.9375	3.6	0.14	3.2	0.13	95.8	120	3582R	3525	20.5	0.81	53.0	2.09	48.5	1.91	75.0	2.95	81.0	3.19	0.31	1.96	1.08	27.9	14.6	1.91
	1.5748	88.501	3.4843	26.988	1.0625	29.083	1.1450	22.225	0.8750	3.6	0.14	1.6	0.06	98.2	112	420	414	16.9	0.67	52.0	2.05	46.0	1.81	77.0	3.03	80.0	3.15	0.26	2.28	1.25	28.6	12.9	2.22
	1.5748	90.119	3.5480	23.000	0.9055	21.692	0.8540	21.808	0.8586	4.0	0.16	2.4	0.09	71.8	81.7	350	352	17.8	0.70	54.0	2.13	46.5	1.83	78.0	3.07	82.0	3.23	0.31	1.96	1.08	20.7	10.8	1.91
	1.5748	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	2.4	0.09	103	122	442S	432	23.6	0.93	54.0	2.13	49.0	1.93	83.0	3.27	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.5748	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	543	532X	23.9	0.94	57.0	2.24	50.0	1.97	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
40.483	1.5938	82.550	3.2500	29.370	1.1563	28.575	1.1250	23.020	0.9063	3.6	0.14	3.2	0.13	87.3	117	HM801349	HM801310	24.4	0.96	58.0	2.28	49.0	1.93	68.0	2.68	78.0	3.07	0.55	1.10	0.60	25.5	23.8	1.07
41.275	1.6250	73.025	2.8750	16.667	0.6562	17.462	0.6875	12.700	0.5000	3.6	0.14	1.6	0.06	45.9	55.8	18590	18520	14.5	0.57	53.0	2.09	46.0	1.81	66.0	2.60	69.0	2.72	0.35	1.71	0.94	13.2	7.90	1.67
	1.6250	73.025	2.8750	16.667	0.6562	17.462	0.6875	12.700	0.5000	1.2	0.05	1.6	0.06	45.9	55.8	18591	18520	14.5	0.57	47.5	1.87	46.0	1.81	66.0	2.60	69.0	2.72	0.35	1.71	0.94	13.2	7.90	1.67
	1.6250	73.431	2.8910	19.558	0.7700	19.812	0.7800	14.732	0.5800	3.6	0.14	0.8	0.03	57.8	73.0	LM501349	LM501310	16.1	0.63	53.0	2.09	46.5	1.83	67.0	2.64	70.0	2.76	0.40	1.50	0.83	16.7	11.4	1.46
	1.6250	73.431	2.8910	21.430	0.8437	19.812	0.7800	16.604	0.6537	3.6	0.14	0.8	0.03	57.8	73.0	LM501349	LM501314	18.0	0.71	53.0	2.09	46.5	1.83	66.0	2.60	70.0	2.76	0.40	1.50	0.83	16.7	11.4	1.46
	1.6250	73.431	2.8910	23.012	0.9060	19.812	0.7800	18.186	0.7160	3.6	0.14	2.4	0.09	57.8	73.0	LM501349	LM501311	16.1	0.63	53.0	2.09	46.5	1.83	64.0	2.52	70.0	2.76	0.40	1.50	0.83	16.7	11.4	1.46
	1.6250	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	1.6	0.06	1.6	0.06	51.6	63.3	11162R	11300	17.5	0.69	49.0	1.93	46.5	1.83	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
	1.6250	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	1.6	0.06	1.6	0.06	51.6	63.3	11162UR	11300	17.5	0.69	49.0	1.93	46.0	1.81	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
	1.6250	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	0.8	0.03	1.6	0.06	51.6	63.3	11163R	11300	17.5	0.69	47.0	1.85	46.5	1.83	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
	1.6250	76.200	3.0000	22.225	0.8750	23.020	0.9063	17.462	0.6875	3.6	0.14	0.8	0.03	66.3	83.3	24780R	24720	17.4	0.69	54.0	2.13	47.0	1.85	68.0	2.68	72.0	2.83	0.39	1.53	0.84	19.2	12.9	1.49
	1.6250	76.200	3.0000	22.225	0.8750	23.020	0.9063	17.462	0.6875	3.6	0.14	3.2	0.13	66.3	83.3	24780R	24722	17.4	0.69	54.0	2.13	47.0	1.85	66.0	2.60	72.0	2.83	0.39	1.53	0.84	19.2	12.9	1.49
	1.6250	76.200	3.0000	22.225	0.8750	23.020	0.9063	17.462	0.6875	0.8	0.03	0.8	0.03	66.3	83.3	24781R	24720	17.4	0.69	47.0	1.85	47.0	1.85	68.0	2.68	72.0	2.83	0.39	1.53	0.84	19.2	12.9	1.49
	1.6250	76.200	3.0000	25.400	1.0000	23.020	0.9063	20.638	0.8125	3.6	0.14	2.4	0.09	66.3	83.3	24780R	24721	20.6	0.81	54.0	2.13	47.0	1.85	66.0	2.60	72.0	2.83	0.39	1.53	0.84	19.2	12.9	1.49
	1.6250	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	0.8	0.03	1.2	0.05	68.0	74.8	336	332	15.1	0.59	47.0	1.85	46.0	1.81	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.6250	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	3.6	0.14	1.2	0.05	68.0	74.8	342	332	15.1	0.59	53.0	2.09	46.0	1.81	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.6250	80.000	3.1496	28.575	1.1250	29.977	1.1802	17.826	0.7018	3.6	0.14	1.2	0.05	68.0	74.8	342A	332	22.7	0.89	53.0	2.09	46.0	1.81	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.6250	80.000	3.1496	31.750	1.2500	29.977	1.1802	21.000	0.8268	3.6	0.14	2.4	0.09	68.0	74.8	342A	332A	22.7	0.89	53.0	2.09	46.0	1.81	71.0	2.80	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.6250	80.167	3.1562	25.400	1.0000	25.400	1.0000	20.638	0.8125	0.8	0.03	3.2	0.13	81.1	105	26885R	26820	17.9	0.70	48.0	1.89	47.0	1.85	69.0	2.72	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.6250	80.167	3.1562	29.370	1.1563	25.400	1.0000	24.608	0.9688	3.6	0.14	3.2	0.13	81.1	105	26882R	26821	17.9	0.70	54.0	2.13	47.0	1.85	68.0	2.68	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.6250	82.550	3.2500	26.543	1.0450	25.654	1.0100	20.193	0.7950	3.6	0.14	3.2	0.13	83.7	105	M802048	M802011	23.3	0.92	57.0	2.24	50.6	1.99	70.0	2.76	79.0	3.11	0.55	1.10	0.60	24.2	22.6	1.07
	1.6250	84.138	3.3125	29.370	1.1563	30.391	1.1965	23.812	0.9375	3.6	0.14	3.2	0.13	91.0	106	3383	3328	18.7	0.74	52.0	2.05	46.0	1.81	72.0	2.83	76.0	2.99	0.27	2.20	1.21	26.6	12.4	2.14
	1.6250	84.138	3.3125	29.370	1.1563	30.391	1.1965	23.812	0.9375	0.8	0.03	3.2	0.13	91.0	106	3384	3328	18.7	0.74	48.0	1.89	41.5	1.63	72.0	2.83	76.0	2.99	0.27	2.20	1.21	26.6	12.4	2.14
	1.6250	84.138	3.3125	30.162	1.1875	30.886	1.2160	23.812	0.9375	3.6	0.14	3.2	0.13	95.8	120	3577R	3520	20.5	0.81	54.0	2.13	48.0	1.89	74.0	2.91	79.5	3.13	0.31	1.96	1.08	27.9	14.6	1.91
	1.6250	84.138	3.3125	30.162	1.1875	30.886	1.2160	23.812	0.9375	1.6	0.06	3.2	0.13	95.8	120	3585R	3520	20.5	0.81	50.0	1.97	48.0	1.89	74.0	2.91	79.5	3.13	0.31	1.96	1.08	27.9	14.6	1.91
	1.6250	85.725	3.3750	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	1.2	0.05	108	136	3877	3821	22.9	0.90	57.0	2.24	50.3	1.98	75.0	2.95	81.0	3.19	0.40	1.49	0.82	31.5	21.7	1.46
	1.6250	85.725	3.3750	30.162	1.1875	30.162	1.187																										

Tapered roller bearings

TS type
 d (41.275) ~ (44.450) mm
 (1.6250) ~ (1.7500) inch



$$P = XF_r + YF_a$$

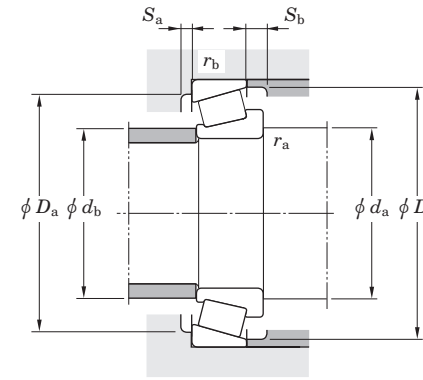
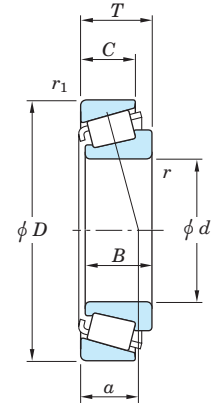
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
41.275	1.6250	93.662	3.6875	31.750	1.2500	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	105	123	49162	49368	22.9	0.90	55.0	2.17	49.0	1.93	82.0	3.23	87.0	3.43	0.36	1.67	0.92	30.6	18.8	1.62
	1.6250	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	0.8	0.03	3.2	0.13	105	134	46162	46368	24.0	0.94	52.0	2.05	51.0	2.01	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.6250	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	1.2	0.05	2.4	0.09	103	122	439	432	18.4	0.72	51.0	2.01	48.5	1.91	83.0	3.27	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.6250	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	0.8	0.03	103	122	447	432A	18.4	0.72	55.0	2.17	48.5	1.91	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.6250	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	3.6	0.14	3.2	0.13	104	140	HM804840	HM804810	26.5	1.04	61.0	2.40	54.0	2.13	81.0	3.19	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
	1.6250	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	526	522	22.2	0.87	57.0	2.24	50.0	1.97	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.6250	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	0.8	0.03	3.2	0.13	131	159	526A	522	22.2	0.87	52.0	2.05	50.0	1.97	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.6250	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	1.6	0.06	3.2	0.13	109	144	464A	453X	23.6	0.93	54.0	2.13	52.0	2.05	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	1.6250	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	1.6	0.06	3.2	0.13	148	187	59162	59412	26.9	1.06	55.0	2.17	54.0	2.13	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	1.6250	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	1.6	0.06	3.2	0.13	141	195	HM807035	HM807010	29.3	1.15	60.0	2.36	57.0	2.24	89.0	3.50	100.0	3.94	0.49	1.23	0.68	41.3	34.4	1.20
1.6250	107.950	4.2500	27.783	1.0938	29.317	1.1542	22.225	0.8750	2.4	0.09	0.8	0.03	109	144	464	453A	23.6	0.93	56.0	2.20	52.0	2.05	97.0	3.82	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74	
1.6250	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	541	532X	23.9	0.94	58.0	2.28	52.0	2.05	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97	
42.000	1.6535	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	2.0	0.08	1.6	0.06	51.6	63.3	11165XR	11300	17.5	0.69	51.0	2.01	46.0	1.81	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
	1.6535	76.200	3.0000	18.009	0.7090	17.384	0.6844	14.288	0.5625	4.3	0.17	3.6	0.14	51.6	63.3	11165XSR	11300	17.5	0.69	53.0	2.09	46.0	1.81	67.0	2.64	72.0	2.83	0.49	1.23	0.68	14.9	12.4	1.20
42.070	1.6563	90.488	3.5625	39.688	1.5625	40.386	1.5900	33.338	1.3125	3.6	0.14	3.2	0.13	132	169	4395	4335	25.6	1.01	58.0	2.28	51.0	2.01	77.0	3.03	85.0	3.35	0.28	2.11	1.16	38.8	18.9	2.06
42.850	1.6870	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	0.8	0.03	3.2	0.13	109	144	461	453X	23.6	0.93	54.5	2.15	54.0	2.13	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
42.862	1.6875	76.992	3.0312	17.463	0.6875	17.145	0.6750	11.908	0.4688	1.6	0.06	1.6	0.06	48.4	62.2	12168	12303	17.5	0.69	51.0	2.01	48.5	1.91	68.0	2.68	73.0	2.87	0.51	1.19	0.65	13.0	11.3	1.16
	1.6875	82.931	3.2650	26.988	1.0625	25.400	1.0000	22.225	0.8750	2.4	0.09	2.4	0.09	77.2	100	25578	25523	20.7	0.81	53.0	2.09	49.5	1.95	72.0	2.83	77.0	3.03	0.33	1.79	0.99	22.5	12.9	1.75
	1.6875	83.058	3.2700	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	77.2	100	25576	25521	17.5	0.69	55.0	2.17	49.0	1.93	72.0	2.83	77.0	3.03	0.33	1.79	0.99	22.5	12.9	1.75
	1.6875	84.138	3.3125	30.162	1.1875	30.886	1.2160	23.812	0.9375	3.6	0.14	3.2	0.13	95.8	120	3579R	3520	20.5	0.81	56.0	2.20	49.5	1.95	74.0	2.91	79.5	3.13	0.31	1.96	1.08	27.9	14.6	1.91
	1.6875	85.000	3.3464	25.400	1.0000	25.608	1.0082	20.638	0.8125	3.6	0.14	1.2	0.05	80.0	106	2973	2924	18.9	0.74	55.0	2.17	49.0	1.93	76.0	2.99	80.0	3.15	0.35	1.73	0.95	23.3	13.8	1.69
	1.6875	114.300	4.5000	44.450	1.7500	44.450	1.7500	34.925	1.3750	2.0	0.08	3.2	0.13	189	230	65383	65320	31.7	1.25	60.0	2.36	56.0	2.20	97.0	3.82	107.0	4.21	0.43	1.40	0.77	55.4	40.7	1.36
42.875	1.6880	76.200	3.0000	25.400	1.0000	25.400	1.0000	20.638	0.8125	1.6	0.06	1.6	0.06	81.1	105	26886R	26823	18.0	0.71	51.0	2.01	48.5	1.91	69.0	2.72	73.0	2.87	0.32	1.88	1.04	23.5	12.8	1.83
	1.6880	79.375	3.1250	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	0.8	0.03	81.1	105	26884R	26822	16.1	0.63	55.0	2.17	48.5	1.91	71.0	2.80	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.6880	80.000	3.1496	21.000	0.8268	22.403	0.8820	17.826	0.7018	3.6	0.14	1.2	0.05	68.0	74.8	342S	332	15.1	0.59	54.0	2.13	47.5	1.87	73.0	2.87	75.0	2.95	0.27	2.20	1.21	19.6	9.15	2.14
	1.6880	80.167	3.1562	25.400	1.0000	25.400	1.0000	20.638	0.8125	3.6	0.14	3.2	0.13	81.1	105	26884R	26820	18.0	0.71	55.0	2.17	48.5	1.91	69.0	2.72	74.0	2.91	0.32	1.88	1.04	23.5	12.8	1.83
	1.6880	82.931	3.2650	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	0.8	0.03	77.2	100	25577	25520	17.5	0.69	55.0	2.17	49.0	1.93	74.0	2.91	77.0	3.03	0.33	1.79	0.99	22.5	12.9	1.75
	1.6880	83.058	3.2700	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	77.2	100	25577	25521	17.5	0.69	55.0	2.17	49.0	1.93	72.0	2.83	77.0	3.03	0.33	1.79	0.99	22.5	12.9	1.75
44.450	1.7500	73.025	2.8750	18.258	0.7188	18.258	0.7188	15.083	0.5938	1.6	0.06	1.6	0.06	47.2	65.5	L102849	L102810	14.6	0.57	51.0	2.01	49.0	1.93	66.0	2.60	69.0	2.72	0.32	1.88	1.04	13.7	7.45	1.84
	1.7500	76.992	3.0312	17.463	0.6875	17.145	0.6750	11.908	0.4688	1.6	0.06	1.6	0.06	48.4	62.2	12175	12303	17.5	0.69	52.0	2.05	49.5	1.95	68.0	2.68	73.0	2.87	0.51	1.19	0.65	13.0	11.3	1.16
	1.7500	79.375	3.1250	17.462	0.6875	17.462	0.6875	13.495	0.5313	2.8	0.11	1.6	0.06	47.1	59.1	18685	18620	16.0	0.63	54.0	2.13	49.5	1.95	71.0	2.80	74.0	2.91	0.37	1.60	0.88	13.6	8.70	1.56
	1.7500	82.931	3.2650	23.812	0.9375																												

TS type
d (44.450) mm
(1.7500) inch



$$P = XF_r + YF_a$$

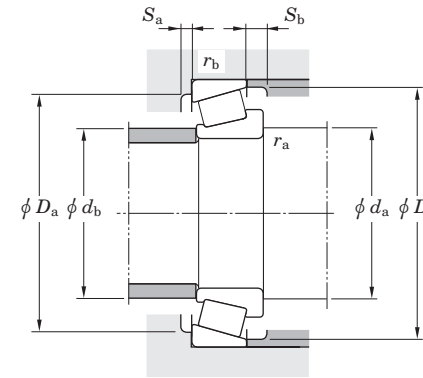
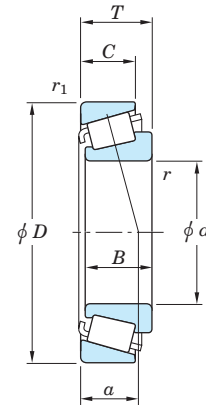
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch	mm	inch	mm	inch	mm	inch							mm
44.450	1.7500	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	0.8	0.03	1.2	0.05	71.8	81.7	355A	354A	15.5	0.61	51.0	2.01	50.0	1.97	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.7500	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	3.6	0.14	1.2	0.05	71.8	81.7	355X	354A	15.5	0.61	56.0	2.20	50.0	1.97	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.7500	85.000	3.3465	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	2.4	0.09	77.2	100	25580	25526	17.5	0.69	57.0	2.24	50.0	1.97	74.0	2.91	78.0	3.07	0.33	1.79	0.99	22.5	12.9	1.75
	1.7500	85.000	3.3465	25.400	1.0000	25.608	1.0082	20.638	0.8125	3.6	0.14	1.2	0.05	80.0	106	2975	2924	18.9	0.74	54.0	2.13	51.0	2.01	76.0	2.99	80.0	3.15	0.35	1.73	0.95	23.3	13.8	1.69
	1.7500	87.312	3.4375	30.162	1.1875	30.886	1.2160	23.812	0.9375	5.6	0.22	3.2	0.13	95.8	120	3578AR	3525	20.5	0.81	57.0	2.24	51.0	2.01	75.0	2.95	81.0	3.19	0.31	1.96	1.08	27.9	14.6	1.91
	1.7500	88.900	3.5000	30.162	1.1875	29.370	1.1563	23.020	0.9063	3.6	0.14	3.2	0.13	99.6	125	HM803149	HM803110	26.1	1.03	62.0	2.44	53.4	2.10	74.0	2.91	85.0	3.35	0.55	1.10	0.60	28.8	26.9	1.07
	1.7500	90.000	3.5433	23.000	0.9055	21.692	0.8540	23.000	0.9055	2.4	0.09	2.0	0.08	71.8	81.7	355	353	17.8	0.70	54.0	2.13	50.0	1.97	78.0	3.07	81.0	3.19	0.31	1.96	1.08	20.7	10.8	1.91
	1.7500	90.488	3.5625	39.688	1.5625	40.386	1.5900	33.338	1.3125	3.6	0.14	3.2	0.13	132	169	4370	4335	25.6	1.01	57.0	2.24	51.0	2.01	77.0	3.03	85.0	3.35	0.28	2.11	1.16	38.8	18.9	2.06
	1.7500	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	0.8	0.03	103	137	3782	3730	22.2	0.87	58.0	2.28	52.0	2.05	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.7500	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	6.4	0.25	3.2	0.13	103	137	3783	3720	22.2	0.87	64.0	2.52	54.0	2.13	82.0	3.23	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.7500	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	6.4	0.25	0.8	0.03	103	137	3783	3730	22.2	0.87	64.0	2.52	54.0	2.13	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.7500	93.662	3.6875	31.750	1.2500	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	105	123	49175	49368	22.9	0.90	59.0	2.32	53.0	2.09	82.0	3.23	87.0	3.43	0.36	1.67	0.92	30.6	18.8	1.62
	1.7500	93.662	3.6875	31.750	1.2500	31.750	1.2500	25.400	1.0000	0.8	0.03	3.2	0.13	105	123	49176	49368	22.9	0.90	54.0	2.13	53.0	2.09	82.0	3.23	87.0	3.43	0.36	1.67	0.92	30.6	18.8	1.62
	1.7500	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	0.8	0.03	3.2	0.13	105	134	46175	46368	24.0	0.94	55.0	2.17	54.0	2.13	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.7500	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	3.6	0.14	3.2	0.13	105	134	46176	46368	24.0	0.94	60.0	2.36	54.0	2.13	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.7500	93.662	3.6875	31.750	1.2500	31.750	1.2500	26.195	1.0313	3.6	0.14	1.2	0.05	105	134	46176	46369	24.0	0.94	60.0	2.36	54.0	2.13	79.0	3.11	87.0	3.43	0.40	1.49	0.82	30.8	21.1	1.46
	1.7500	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	0.8	0.03	2.4	0.09	108	141	33885	33821	20.4	0.80	53.0	2.09	53.0	2.09	85.0	3.35	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	1.7500	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	0.8	0.03	2.4	0.09	103	122	435	432	18.4	0.72	52.0	2.05	51.0	2.01	83.0	3.27	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.7500	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	0.8	0.03	103	122	438	432A	18.4	0.72	57.0	2.24	51.0	2.01	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
	1.7500	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	0.8	0.03	2.4	0.09	104	140	HM804842	HM804810	26.5	1.04	57.0	2.24	57.0	2.24	81.0	3.19	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
	1.7500	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	3.6	0.14	2.4	0.09	104	140	HM804843	HM804810	26.5	1.04	63.0	2.48	57.0	2.24	81.0	3.19	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
	1.7500	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	3.6	0.14	0.8	0.03	104	140	HM804843	HM804811	26.5	1.04	63.0	2.48	57.0	2.24	83.0	3.27	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
	1.7500	98.425	3.8750	30.162	1.1875	30.302	1.1930	23.812	0.9375	6.4	0.25	3.2	0.13	103	137	3783	3732	22.2	0.87	64.0	2.52	54.0	2.13	84.0	3.31	90.0	3.54	0.34	1.77	0.97	30.1	17.4	1.73
	1.7500	98.425	3.8750	30.162	1.1875	31.750	1.2500	25.400	1.0000	0.8	0.03	3.2	0.13	114	143	49576	49520	24.1	0.95	55.0	2.17	54.0	2.13	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	1.7500	101.600	4.0000	31.750	1.2500	31.750	1.2500	25.400	1.0000	0.8	0.03	0.8	0.03	114	143	49576	49522	24.1	0.95	55.0	2.17	54.0	2.13	90.0	3.54	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	1.7500	101.600	4.0000	31.750	1.2500	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	114	143	49577	49520	24.1	0.95	60.0	2.36	54.0	2.13	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	1.7500	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	527	522	22.2	0.87	59.0	2.32	53.0	2.09	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.7500	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	0.8	0.03	0.8	0.03	126	165	45280	45221	22.2	0.87	55.0	2.17	54.0	2.13	95.0	3.74	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	1.7500	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	1.0	0.04	148	187	59175	59413	26.9	1.06	63.0	2.48	56.0	2.20	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	1.7500	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	0.8	0.03	3.2	0.13	148	187	59176	59412	26.9	1.06	57.0	2.24	56.0	2.20	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	1.7500	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	141	195	HM807040	HM807010	29.3	1.15	66.0	2.60	59.0	2.32	89.0	3.50	100.0	3.94	0.49	1.23	0.68	41.3	34.4	1.20

TS type
d 44.869 ~ (47.625) mm
1.7665 ~ (1.8750) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

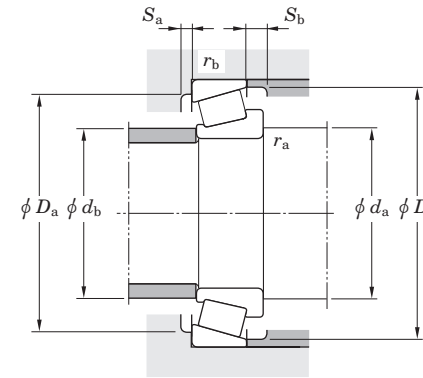
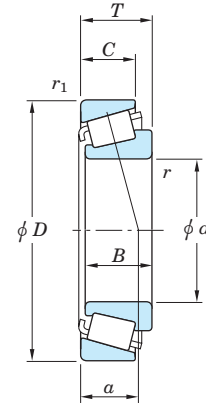
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
44.869	1.7665	92.075	3.6250	24.608	0.9688	25.400	1.0000	19.845	0.7813	3.6	0.14	0.8	0.03	84.8	119	28576R	28521	19.9	0.78	59.0	2.32	53.0	2.09	83.0	3.27	87.0	3.43	0.38	1.59	0.87	24.7	15.9	1.55
44.983	1.7710	85.000	3.3465	26.988	1.0625	25.400	1.0000	22.225	0.8750	1.6	0.06	2.4	0.09	77.2	100	25584	25527	20.7	0.81	53.0	2.09	51.0	2.01	73.0	2.87	78.0	3.07	0.33	1.79	0.99	22.5	12.9	1.75
	1.7710	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3776	3720	22.2	0.87	59.0	2.32	53.0	2.09	82.0	3.23	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.7710	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	4.3	0.17	3.2	0.13	131	159	527S	522	22.2	0.87	61.0	2.40	53.0	2.09	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
45.000	1.7717	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	1.6	0.06	1.2	0.05	71.8	81.7	358	354A	15.5	0.61	52.5	2.07	50.0	1.97	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.7717	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	3.6	0.14	1.2	0.05	71.8	81.7	358A	354A	15.5	0.61	56.5	2.22	50.0	1.97	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.7717	90.000	3.5433	20.000	0.7874	22.225	0.8750	15.875	0.6250	2.0	0.08	2.0	0.08	74.3	87.3	367	362	15.4	0.61	55.0	2.17	51.0	2.01	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	1.7717	90.119	3.5480	23.000	0.9055	21.692	0.8540	21.808	0.8586	1.6	0.06	2.4	0.09	71.8	81.7	358	352	17.8	0.70	52.5	2.07	50.0	1.97	78.0	3.07	82.0	3.23	0.31	1.96	1.08	20.7	10.8	1.91
	1.7717	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	0.8	0.03	2.0	0.08	84.4	98.5	376	372	21.5	0.85	57.0	2.24	54.0	2.13	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	1.7717	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	2.4	0.09	2.0	0.08	84.4	98.5	376A	372	21.5	0.85	57.0	2.24	54.0	2.13	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	1.7717	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	2.4	0.09	3.2	0.13	109	144	458S	453X	23.6	0.93	59.0	2.32	55.0	2.17	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
1.7717	104.775	4.1250	39.688	1.5625	40.157	1.5810	33.338	1.3125	3.6	0.14	3.2	0.13	151	211	4559	4535	27.3	1.07	62.0	2.44	59.0	2.32	90.0	3.54	99.0	3.90	0.34	1.79	0.98	44.4	25.4	1.74	
45.230	1.7807	79.985	3.1490	19.842	0.7812	20.638	0.8125	15.080	0.5937	2.0	0.08	1.2	0.05	55.1	70.8	17887	17831	15.9	0.63	52.0	2.05	49.5	1.95	72.0	2.83	76.0	2.99	0.37	1.64	0.90	15.9	9.95	1.60
45.237	1.7810	84.138	3.3125	30.162	1.1875	30.886	1.2160	23.812	0.9375	3.6	0.14	3.2	0.13	95.8	120	3586R	3520	20.5	0.81	58.0	2.28	52.0	2.05	74.0	2.91	79.5	3.13	0.31	1.96	1.08	27.9	14.6	1.91
45.242	1.7812	73.431	2.8910	19.558	0.7700	19.812	0.7800	15.748	0.6200	3.6	0.14	0.8	0.03	55.6	78.1	LM102949	LM102910	14.7	0.58	56.0	2.20	50.0	1.97	68.0	2.68	70.0	2.76	0.31	1.97	1.08	16.1	8.40	1.92
	1.7812	77.788	3.0625	19.842	0.7812	19.842	0.7812	15.080	0.5937	3.6	0.14	0.8	0.03	57.1	73.5	LM603049	LM603011	17.5	0.69	57.0	2.24	50.0	1.97	71.0	2.80	74.0	2.91	0.43	1.41	0.77	16.5	12.1	1.37
	1.7812	77.788	3.0625	21.430	0.8437	19.842	0.7812	16.667	0.6562	3.6	0.14	0.8	0.03	57.1	73.5	LM603049	LM603012	19.1	0.75	57.0	2.24	50.0	1.97	71.0	2.80	74.0	2.91	0.43	1.41	0.77	16.5	12.1	1.37
	1.7812	79.974	3.1486	19.842	0.7812	19.842	0.7812	15.080	0.5937	3.6	0.14	0.8	0.03	57.1	73.5	LM603049	LM603014	17.5	0.69	57.0	2.24	50.0	1.97	71.0	2.80	74.0	2.91	0.43	1.41	0.77	16.5	12.1	1.37
	1.7812	79.974	3.1486	21.430	0.8437	19.842	0.7812	16.667	0.6562	3.6	0.14	0.8	0.03	57.1	73.5	LM603049	LM603015	19.1	0.75	57.0	2.24	50.0	1.97	71.0	2.80	74.0	2.91	0.43	1.41	0.77	16.5	12.1	1.37
45.618	1.7960	85.000	3.3465	23.812	0.9375	25.400	1.0000	19.050	0.7500	3.6	0.14	2.4	0.09	77.2	100	25590	25526	17.5	0.69	58.0	2.28	51.0	2.01	74.0	2.91	78.0	3.07	0.33	1.79	0.99	22.5	12.9	1.75
45.987	1.8105	74.976	2.9518	18.000	0.7087	18.000	0.7087	14.000	0.5512	2.4	0.09	1.6	0.06	52.6	74.6	LM503349R	LM503310	16.0	0.63	53.0	2.09	51.0	2.01	67.0	2.64	72.0	2.83	0.40	1.49	0.82	15.2	10.4	1.46
46.038	1.8125	79.375	3.1250	17.462	0.6875	17.462	0.6875	13.495	0.5313	2.8	0.11	1.6	0.06	47.1	59.1	18690	18620	16.0	0.63	56.0	2.20	51.0	2.01	71.0	2.80	74.0	2.91	0.37	1.60	0.88	13.6	8.70	1.56
	1.8125	85.000	3.3465	17.462	0.6875	17.462	0.6875	13.495	0.5313	2.4	0.09	1.6	0.06	49.7	65.5	18780	18720	17.4	0.69	56.0	2.20	52.0	2.05	77.0	3.03	80.0	3.15	0.41	1.48	0.81	14.4	9.95	1.44
	1.8125	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	3.6	0.14	1.2	0.05	71.8	81.7	359A	354A	15.5	0.61	57.0	2.24	51.0	2.01	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.8125	85.000	3.3465	20.638	0.8125	21.692	0.8540	17.462	0.6875	2.4	0.09	1.2	0.05	71.8	81.7	359S	354A	15.5	0.61	55.0	2.17	51.0	2.01	77.0	3.03	80.0	3.15	0.31	1.96	1.08	20.7	10.8	1.91
	1.8125	85.000	3.3465	25.400	1.0000	25.608	1.0082	20.638	0.8125	3.6	0.14	1.2	0.05	80.0	106	2984	2924	18.9	0.74	58.0	2.28	52.0	2.05	76.0	2.99	80.0	3.15	0.35	1.73	0.95	23.3	13.8	1.69
	1.8125	87.312	3.4375	26.988	1.0625	25.608	1.0082	22.225	0.8750	3.6	0.14	2.4	0.09	80.0	106	2984	2925	18.6	0.73	58.0	2.28	52.0	2.05	76.0	2.99	80.0	3.15	0.35	1.73	0.95	23.3	13.8	1.69
	1.8125	95.250	3.7500	27.783	1.0938	29.901	1.1772	22.225	0.8750	3.6	0.14	0.8	0.03	103	122	436	432A	18.4	0.72	59.0	2.32	52.0	2.05	84.0	3.31	87.0	3.43	0.28	2.11	1.16	30.0	14.6	2.06
1.8125	95.250	3.7500	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3777	3726	22.2	0.87	60.0	2.36	53.0	2.09	83.0	3.27	89.0	3.50	0.34	1.77	0.97	30.1	17.4	1.73	
47.625	1.8750	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	3.6	0.14	1.2	0.05	74.3	87.3	369A	362A	16.1	0.63	60.0	2.36	53.0	2.09	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	1.8750	88.900	3.5000	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	87.1	112	M804049	M804010	23.6	0.93	62.0	2.44	55.0	2.17	76.0	2.99	85.0	3.35	0.55	1.10	0.60	25.3	23.6	1

Tapered roller bearings

TS type
 d (47.625) ~ (50.800) mm
 (1.8750) ~ (2.0000) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

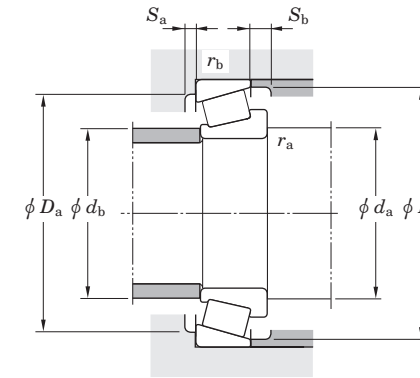
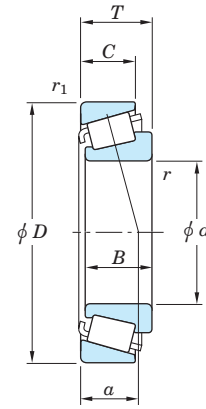
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	(500 rpm for 3 000 Hrs.)		K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch				mm	inch	
47.625	1.8750	101.600	4.0000	31.750	1.2500	29.370	1.1563	23.020	0.9063	3.6	0.14	3.2	0.13	114	143	49580	49520	24.1	0.95	62.0	2.44	59.0	2.32	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	1.8750	101.600	4.0000	31.750	1.2500	31.750	1.2500	25.400	1.0000	6.4	0.25	3.2	0.13	114	143	49581	49520	24.1	0.95	68.0	2.68	59.0	2.32	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	1.8750	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	528	522	22.2	0.87	62.0	2.44	55.0	2.17	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.8750	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	1.6	0.06	3.2	0.13	131	159	528A	522	22.2	0.87	58.0	2.28	55.0	2.17	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	1.8750	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	4.8	0.19	3.2	0.13	109	144	463	453X	23.6	0.93	65.0	2.56	56.0	2.20	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	1.8750	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	0.8	0.03	3.2	0.13	109	144	467	453X	23.6	0.93	57.0	2.24	56.0	2.20	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	1.8750	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	3.6	0.14	3.2	0.13	126	165	45282	45220	22.2	0.87	64.0	2.52	59.0	2.32	93.0	3.66	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	1.8750	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	148	187	59187	59412	26.9	1.06	65.0	2.56	59.0	2.32	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	1.8750	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	1.6	0.06	3.2	0.13	148	187	59188	59412	26.9	1.06	60.0	2.36	58.0	2.28	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	1.8750	107.950	4.2500	27.783	1.0938	29.317	1.1542	22.225	0.8750	4.8	0.19	0.8	0.03	109	144	463	453A	23.6	0.93	65.0	2.56	56.0	2.20	97.0	3.82	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74
	1.8750	107.950	4.2500	27.783	1.0938	29.317	1.1542	22.225	0.8750	0.8	0.03	0.8	0.03	109	144	467	453A	21.2	0.83	57.0	2.24	56.0	2.20	97.0	3.82	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74
	1.8750	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	536	532X	23.9	0.94	62.0	2.44	56.0	2.20	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	1.8750	117.475	4.6250	33.338	1.3125	31.750	1.2500	23.812	0.9375	3.6	0.14	0.8	0.03	129	152	66187R	66461	33.2	1.31	67.0	2.64	64.0	2.52	102.0	4.02	111.0	4.37	0.63	0.96	0.53	37.5	40.1	0.93
	1.8750	117.475	4.6250	33.338	1.3125	31.750	1.2500	23.812	0.9375	3.6	0.14	3.2	0.13	129	152	66187R	66462	33.2	1.31	67.0	2.64	64.0	2.52	100.0	3.94	111.0	4.37	0.63	0.96	0.53	37.5	40.1	0.93
	1.8750	120.040	4.7260	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	617	612A	27.3	1.07	65.0	2.56	59.0	2.32	103.0	4.06	109.0	4.29	0.31	1.91	1.05	50.9	27.4	1.86
	1.8750	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	617	612	27.3	1.07	65.0	2.56	59.0	2.32	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
48.412	1.9060	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3781A	3720	22.2	0.87	62.0	2.44	56.0	2.20	82.0	3.23	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.9060	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	2.4	0.09	3.2	0.13	104	140	HM804848	HM804810	26.5	1.04	63.0	2.48	57.5	2.26	81.0	3.19	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
	1.9060	95.250	3.7500	30.162	1.1875	29.370	1.1563	23.020	0.9063	3.6	0.14	3.2	0.13	104	140	HM804849	HM804810	26.5	1.04	66.0	2.60	57.5	2.26	81.0	3.19	91.0	3.58	0.55	1.10	0.60	30.4	28.4	1.07
49.212	1.9375	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	0.8	0.03	1.2	0.05	74.3	87.3	365S	362A	16.1	0.63	55.0	2.17	54.0	2.13	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	1.9375	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	0.8	0.03	103	137	3781	3730	22.2	0.87	62.0	2.44	56.0	2.20	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	1.9375	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	141	195	HM807044	HM807010	29.3	1.15	69.0	2.72	63.0	2.48	89.0	3.50	100.0	3.94	0.49	1.23	0.68	41.3	34.4	1.20
	1.9375	111.125	4.3750	38.100	1.5000	36.957	1.4550	33.338	1.3125	3.6	0.14	3.2	0.13	138	172	545	532	25.5	1.00	65.0	2.56	59.0	2.32	95.0	3.74	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	1.9375	114.300	4.5000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	189	230	65390	65320	31.7	1.25	70.0	2.76	60.0	2.36	97.0	3.82	107.0	4.21	0.43	1.40	0.77	55.4	40.7	1.36
	1.9375	114.300	4.5000	44.450	1.7500	44.450	1.7500	36.068	1.4200	3.6	0.14	3.2	0.13	212	263	HH506348	HH506310	30.6	1.20	71.0	2.80	61.0	2.40	97.0	3.82	107.0	4.21	0.40	1.49	0.82	62.0	42.6	1.46
49.982	1.9678	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	546	532X	23.9	0.94	65.0	2.56	59.0	2.32	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	1.9680	92.075	3.6250	24.608	0.9688	25.400	1.0000	19.845	0.7813	2.4	0.09	0.8	0.03	84.8	119	28579R	28521	19.9	0.78	60.0	2.36	56.0	2.20	83.0	3.27	87.0	3.43	0.38	1.59	0.87	24.7	15.9	1.55
49.987	1.9680	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	2.4	0.09	2.0	0.08	84.4	98.5	378A	372	21.5	0.85	60.0	2.36	56.0	2.20	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	1.9680	114.300	4.5000	44.450	1.7500	44.450	1.7500	36.068	1.4200	3.6	0.14	0.8	0.03	212	263	HH506349	HH506311	30.6	1.20	71.0	2.80	61.0	2.40	99.0	3.90	107.0	4.21	0.40	1.49	0.82	62.0	42.6	1.46
50.000	1.9685	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	2.0	0.08	1.2	0.05	74.3	87.3	365	362A	16.1	0.63	58.0	2.28	55.0	2.17	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	1.9685	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	2.4	0.09	1.2	0.05	74.3	87.3	366	362A	16.1	0.63	59.0	2.32	55.0	2.17	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	1.9685																																

Tapered roller bearings

TS type
d (50.800) mm
 (2.0000) inch

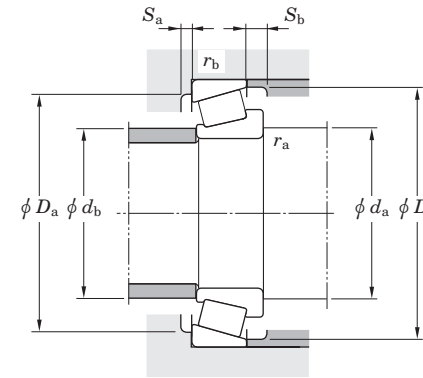
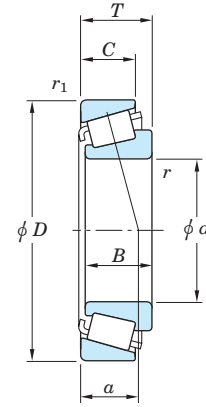


$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
<i>d</i>		<i>D</i>		<i>T</i>		<i>B</i>		<i>C</i>		<i>r</i> (min.)		<i>r</i> ₁ (min.)		<i>C</i> _r	<i>C</i> _{0r}	Inner ring (Cone)	Outer ring (Cup)	<i>a</i>	<i>d</i> _a		<i>d</i> _b		<i>D</i> _a		<i>D</i> _b		<i>e</i>	<i>Y</i> ₁	<i>Y</i> ₀	Radial	Axial	<i>K</i>	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
50.800	2.0000	83.312	3.2800	17.462	0.6875	17.462	0.6875	13.495	0.5313	3.6	0.14	0.8	0.03	49.7	65.5	18790	18721	17.4	0.69	62.0	2.44	56.0	2.20	73.0	2.87	78.0	3.07	0.41	1.48	0.81	14.4	9.95	1.44
	2.0000	85.725	3.3750	19.050	0.7500	18.263	0.7190	12.700	0.5000	1.6	0.06	1.6	0.06	50.7	66.4	18200	18337	22.7	0.89	59.0	2.32	56.0	2.20	76.0	2.99	81.0	3.19	0.57	1.06	0.58	14.6	14.2	1.03
	2.0000	88.900	3.5000	17.462	0.6875	17.462	0.6875	13.495	0.5313	3.6	0.14	1.2	0.05	49.7	65.5	18790	18724	17.4	0.69	62.0	2.44	56.0	2.20	78.0	3.07	82.0	3.23	0.41	1.48	0.81	14.4	9.95	1.44
	2.0000	88.900	3.5000	20.638	0.8125	17.462	0.6875	16.670	0.6563	3.6	0.14	1.2	0.05	49.7	65.5	18790	18723	22.7	0.89	62.0	2.44	56.0	2.20	78.0	3.07	82.0	3.23	0.41	1.48	0.81	14.4	9.95	1.44
	2.0000	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	1.6	0.06	1.2	0.05	74.3	87.3	368	362A	16.1	0.63	58.0	2.28	56.0	2.20	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	2.0000	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	3.6	0.14	1.2	0.05	74.3	87.3	368A	362A	16.1	0.63	62.0	2.44	56.0	2.20	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	2.0000	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	5.2	0.20	1.2	0.05	74.3	87.3	370A	362A	16.1	0.63	65.0	2.56	56.0	2.20	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	2.0000	89.980	3.5425	24.750	0.9744	25.400	1.0000	19.987	0.7869	3.6	0.14	2.4	0.09	84.8	119	28580R	28520	20.0	0.79	63.0	2.48	57.0	2.24	81.0	3.19	86.0	3.39	0.38	1.59	0.87	24.7	15.9	1.55
	2.0000	92.075	3.6250	24.608	0.9688	25.400	1.0000	19.845	0.7813	3.6	0.14	0.8	0.03	84.8	119	28580R	28521	19.9	0.78	63.0	2.48	57.0	2.24	83.0	3.27	87.0	3.43	0.38	1.59	0.87	24.7	15.9	1.55
	2.0000	92.075	3.6250	27.780	1.0937	25.400	1.0000	23.017	0.9062	3.6	0.14	2.4	0.09	84.8	119	28580R	28523	23.1	0.91	63.0	2.48	57.0	2.24	81.0	3.19	86.0	3.39	0.38	1.59	0.87	24.7	15.9	1.55
	2.0000	93.264	3.6718	20.638	0.8125	22.225	0.8750	15.083	0.5938	2.4	0.09	1.2	0.05	84.4	98.5	375	374	17.1	0.67	60.0	2.36	57.0	2.24	85.0	3.35	88.0	3.46	0.34	1.77	0.97	24.2	14.0	1.73
	2.0000	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	0.8	0.03	0.8	0.03	103	137	3775	3730	22.2	0.87	58.0	2.28	58.0	2.28	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	2.0000	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3780	3720	22.2	0.87	64.0	2.52	58.0	2.28	82.0	3.23	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	2.0000	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	0.8	0.03	103	137	3780	3730	22.2	0.87	64.0	2.52	58.0	2.28	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	2.0000	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	6.4	0.25	0.8	0.03	103	137	3784	3730	22.2	0.87	70.0	2.76	58.0	2.28	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	2.0000	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	108	141	33889	33822	20.4	0.80	64.0	2.52	58.0	2.28	86.0	3.39	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	2.0000	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	1.6	0.06	0.8	0.03	80.4	101	385AS	382A	17.4	0.69	60.0	2.36	58.0	2.28	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.0000	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	0.8	0.03	0.8	0.03	80.4	101	385AX	382A	17.4	0.69	59.0	2.32	58.0	2.28	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.0000	96.838	3.8125	22.225	0.8750	22.225	0.8750	19.050	0.7500	3.6	0.14	1.6	0.06	84.4	98.5	375S	372A	21.5	0.85	63.0	2.48	57.0	2.24	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	2.0000	96.838	3.8125	25.400	1.0000	21.946	0.8640	20.274	0.7982	2.4	0.09	2.4	0.09	80.4	101	385A	382S	21.8	0.86	61.0	2.40	60.0	2.36	87.0	3.43	91.0	3.58	0.35	1.69	0.93	23.2	14.1	1.65
	2.0000	97.630	3.8437	24.608	0.9688	24.608	0.9688	19.446	0.7656	3.6	0.14	0.8	0.03	89.6	131	28678	28622	21.2	0.83	65.0	2.56	58.0	2.28	88.0	3.46	92.0	3.62	0.40	1.49	0.82	26.1	17.9	1.45
	2.0000	98.425	3.8750	30.162	1.1875	30.302	1.1930	23.812	0.9375	3.6	0.14	3.2	0.13	103	137	3780	3732	22.2	0.87	64.0	2.52	58.0	2.28	84.0	3.31	90.0	3.54	0.34	1.77	0.97	30.1	17.4	1.73
	2.0000	101.600	4.0000	31.750	1.2500	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	114	143	49585	49520	24.1	0.95	66.0	2.60	59.0	2.32	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	2.0000	101.600	4.0000	34.925	1.3750	31.750	1.2500	28.575	1.1250	3.6	0.14	3.2	0.13	114	143	49585	49521	27.3	1.07	66.0	2.60	59.0	2.32	88.0	3.46	96.0	3.78	0.40	1.50	0.82	33.4	22.8	1.46
	2.0000	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	0.8	0.03	3.2	0.13	131	159	529	522	22.2	0.87	59.0	2.32	58.0	2.28	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	2.0000	101.600	4.0000	34.925	1.3750	36.068	1.4200	26.988	1.0625	3.6	0.14	3.2	0.13	131	159	529X	522	22.2	0.87	65.0	2.56	58.0	2.28	89.0	3.50	95.0	3.74	0.29	2.10	1.16	38.4	18.7	2.05
	2.0000	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	6.4	0.25	3.2	0.13	126	165	45284	45220	22.2	0.87	71.0	2.80	59.0	2.32	93.0	3.66	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	2.0000	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	6.4	0.25	0.8	0.03	126	165	45284	45221	22.2	0.87	71.0	2.80	59.0	2.32	95.0	3.74	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	2.0000	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	2.4	0.09	0.8	0.03	126	165	45285	45221	22.2	0.87	63.0	2.48	59.0	2.32	95.0	3.74	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	2.0000	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	148	187	59200	59412	26.9	1.06	68.0	2.68	61.0	2.40	92.0	3.62	99.0	3.90	0.40	1.49	0.82	43.2	29.6	1.46
	2.0000	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	141	195	HM807046	HM807010	29.3	1.15	70.0	2.76	63.0	2.48	89.0	3.50	100.0	3.94	0.49	1.23	0.68			

TS type
d (50.800) ~ (53.975) mm
(2.0000) ~ (2.1250) inch



$$P = XF_r + YF_a$$

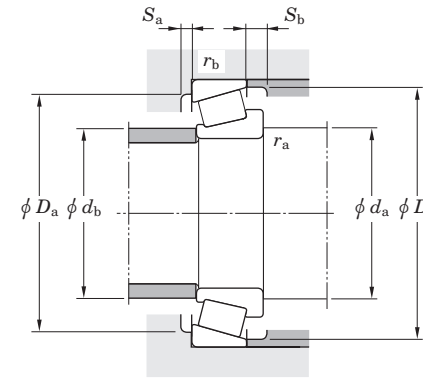
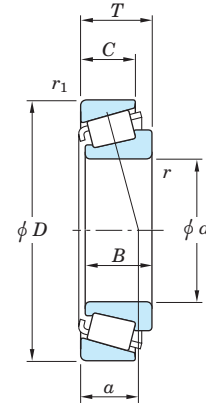
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
50.800	2.0000	120.000	4.7244	40.023	1.5757	41.275	1.6250	30.988	1.2200	3.6	0.14	3.0	0.12	174	217	619	613X	27.3	1.07	67.0	2.64	61.0	2.40	104.0	4.09	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
	2.0000	120.040	4.7260	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	1.6	0.06	174	217	619	612A	27.3	1.07	67.0	2.64	61.0	2.40	103.0	4.06	109.0	4.29	0.31	1.91	1.05	50.9	27.4	1.86
	2.0000	120.251	4.7343	44.450	1.7500	43.764	1.7230	36.512	1.4375	1.2	0.05	3.2	0.13	221	318	5565R	5520	31.9	1.26	67.0	2.64	65.0	2.56	110.0	4.33	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.0000	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	619	612	27.3	1.07	67.0	2.64	61.0	2.40	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
	2.0000	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	2.4	0.09	3.2	0.13	162	223	555	553X	28.7	1.13	66.0	2.60	62.0	2.44	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.0000	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	1.2	0.05	3.2	0.13	221	318	5565R	5535	31.1	1.22	67.0	2.64	65.0	2.56	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.0000	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813836	HM813811	32.9	1.30	72.0	2.83	66.0	2.60	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.0000	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65200	65500	35.2	1.39	75.0	2.95	69.0	2.72	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
	2.0000	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	1.2	0.05	208	269	65200	65501	35.2	1.39	75.0	2.95	69.0	2.72	110.0	4.33	120.0	4.72	0.49	1.23	0.68	60.6	50.5	1.20
2.0000	136.525	5.3750	46.038	1.8125	44.450	1.7500	36.512	1.4375	3.6	0.14	3.2	0.13	208	269	65200	65537	36.7	1.44	75.0	2.95	69.0	2.72	110.0	4.33	120.0	4.72	0.49	1.23	0.68	60.6	50.5	1.20	
51.592	2.0312	88.900	3.5000	20.638	0.8125	22.225	0.8750	16.513	0.6501	2.0	0.08	1.2	0.05	74.3	87.3	368S	362A	16.1	0.63	59.0	2.32	56.0	2.20	81.0	3.19	84.0	3.31	0.32	1.88	1.03	21.4	11.7	1.83
	2.0312	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	1.6	0.06	2.0	0.08	84.4	98.5	377S	372	21.5	0.85	60.0	2.36	58.0	2.28	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
52.388	2.0625	92.075	3.6250	24.608	0.9688	25.400	1.0000	19.845	0.7813	3.6	0.14	0.8	0.03	84.8	119	28584R	28521	19.9	0.78	65.0	2.56	58.0	2.28	83.0	3.27	87.0	3.43	0.38	1.59	0.87	24.7	15.9	1.55
	2.0625	93.264	3.6718	30.162	1.1875	30.302	1.1930	23.812	0.9375	2.4	0.09	0.8	0.03	103	137	3767	3730	22.2	0.87	63.0	2.48	59.0	2.32	84.0	3.31	88.0	3.46	0.34	1.77	0.97	30.1	17.4	1.73
	2.0625	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	1.6	0.06	0.8	0.03	108	141	33890	33822	20.4	0.80	61.0	2.40	59.0	2.32	86.0	3.39	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	2.0625	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	108	141	33891	33822	20.4	0.80	66.0	2.60	59.0	2.32	86.0	3.39	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	2.0625	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	2.4	0.09	2.0	0.08	84.4	98.5	377	372	21.5	0.85	62.0	2.44	58.0	2.28	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	2.0625	100.000	3.9370	25.000	0.9842	22.225	0.8750	21.824	0.8592	4.8	0.19	2.0	0.08	84.4	98.5	377A	372	21.5	0.85	67.0	2.64	58.0	2.28	86.0	3.39	90.0	3.54	0.34	1.77	0.97	24.1	14.0	1.73
	2.0625	103.188	4.0625	38.100	1.5000	36.957	1.4550	30.162	1.1875	3.6	0.14	3.2	0.13	138	172	540	533A	23.9	0.94	71.0	2.80	60.0	2.36	95.0	3.74	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	2.0625	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	1.6	0.06	3.2	0.13	109	144	468	453X	23.6	0.93	62.0	2.44	60.0	2.36	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	2.0625	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	1.6	0.06	138	172	540	532X	23.9	0.94	71.0	2.80	60.0	2.36	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
53.975	2.1250	88.900	3.5000	19.050	0.7500	19.050	0.7500	13.492	0.5312	2.4	0.09	2.0	0.08	62.9	86.8	LM806649	LM806610	21.5	0.85	63.0	2.48	60.0	2.36	80.0	3.15	85.0	3.35	0.55	1.10	0.60	18.1	16.9	1.07
	2.1250	95.250	3.7500	27.783	1.0938	28.575	1.1250	22.225	0.8750	1.6	0.06	0.8	0.03	108	141	33895	33822	20.4	0.80	63.0	2.48	60.0	2.36	86.0	3.39	90.0	3.54	0.33	1.82	1.00	31.4	17.7	1.77
	2.1250	100.000	3.9370	21.000	0.8268	21.946	0.8640	17.826	0.7018	1.6	0.06	2.0	0.08	80.4	101	389AS	383A	17.4	0.69	62.0	2.44	60.0	2.36	89.0	3.50	93.0	3.66	0.35	1.69	0.93	23.2	14.1	1.65
	2.1250	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	3.6	0.14	3.2	0.13	109	144	456	453X	23.6	0.93	68.0	2.68	61.0	2.40	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	2.1250	104.775	4.1250	30.162	1.1875	30.958	1.2188	23.812	0.9375	0.8	0.03	0.8	0.03	126	165	45287	45221	22.2	0.87	62.0	2.44	62.0	2.44	95.0	3.74	99.0	3.90	0.33	1.80	0.99	36.6	20.8	1.76
	2.1250	104.775	4.1250	36.512	1.4375	36.512	1.4375	28.575	1.1250	3.6	0.14	3.2	0.13	141	195	HM807049	HM807010	29.3	1.15	73.0	2.87	63.0	2.48	89.0	3.50	100.0	3.94	0.49	1.23	0.68	41.3	34.4	1.20
	2.1250	104.775	4.1250	39.688	1.5625	40.157	1.5810	33.338	1.3125	3.6	0.14	3.2	0.13	151	211	4595	4535	27.3	1.07	70.0	2.76	63.0	2.48	90.0	3.54	99.0	3.90	0.34	1.79	0.98	44.4	25.4	1.74
	2.1250	107.950	4.2500	27.795	1.0943	29.317	1.1542	27.000	1.0630	3.6	0.14	0.8	0.03	109	144	456	453	23.6	0.93	68.0	2.68	61.0	2.40	99.0	3.90	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74
	2.1250	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	3.6	0.14	3.2	0.13	138	172	539	532X	23.9	0.94	68.0	2.68	61.0	2.40	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	2.1250	107.950	4.2500	36.512	1.4375	36.957	1.4550	28.575	1.1250	5.6	0.22	3.2	0.13	138	172	539A	532X	23.9	0.94	72.0	2.83	61.0	2.40	94.0	3.70	100.0	3.94	0.30	2.03	1.11	40.4	20.5	1.97
	2.1250	117.475	4.6250	33.338	1.3125	31.750	1.2500	23.																									

TS type
d (53.975) ~ (57.150) mm
(2.1250) ~ (2.2500) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

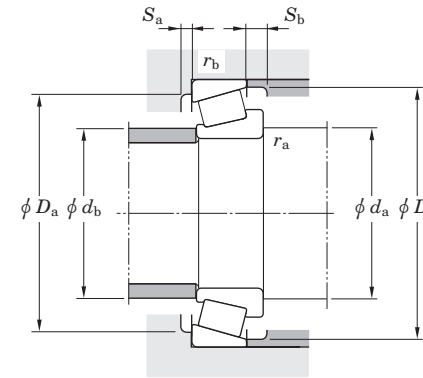
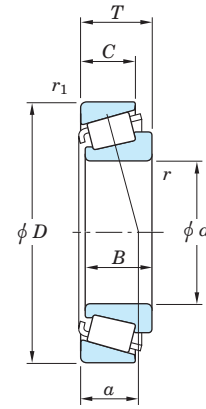
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions													Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor		
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
53.975	2.1250	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65212	65500	35.2	1.39	77.0	3.03	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
	2.1250	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	636	633	30.3	1.19	73.0	2.87	67.0	2.64	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62
54.813	2.1580	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	0.8	0.03	3.2	0.13	266	357	6380	6320	34.8	1.37	70.0	2.76	68.0	2.68	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80
54.986	2.1648	97.630	3.8437	24.608	0.9688	24.608	0.9688	19.446	0.7656	2.4	0.09	0.8	0.03	89.6	131	28680X	28622	21.2	0.83	65.0	2.56	58.0	2.28	88.0	3.46	92.0	3.62	0.40	1.49	0.82	26.1	17.9	1.45
54.988	2.1649	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	2.4	0.09	3.2	0.13	109	144	466	453X	23.6	0.93	67.0	2.64	61.0	2.40	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	2.1649	107.950	4.2500	27.783	1.0938	29.317	1.1542	22.225	0.8750	2.4	0.09	0.8	0.03	109	144	466	453A	23.6	0.93	67.0	2.64	61.0	2.40	97.0	3.82	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74
	2.1649	110.000	4.3307	27.795	1.0943	29.317	1.1542	27.000	1.0630	2.4	0.09	2.0	0.08	109	144	466	454	25.7	1.01	67.0	2.64	61.0	2.40	96.0	3.78	100.0	3.94	0.34	1.79	0.98	31.7	18.2	1.74
54.991	2.1650	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	3.6	0.14	3.2	0.13	266	357	6381	6320	34.8	1.37	76.0	2.99	70.0	2.76	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80
55.000	2.1654	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	2.4	0.09	0.8	0.03	80.4	101	385	382A	17.4	0.69	65.0	2.56	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.1654	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	3.6	0.14	0.8	0.03	80.4	101	385X	382A	17.4	0.69	67.0	2.64	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.1654	98.425	3.8750	21.000	0.8268	21.946	0.8640	17.826	0.7018	2.4	0.09	0.8	0.03	80.4	101	385	382	17.4	0.69	65.0	2.56	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.1654	100.000	3.9370	25.400	1.0000	21.946	0.8640	22.225	0.8750	2.4	0.09	1.2	0.05	80.4	101	385	383X	21.8	0.86	65.0	2.56	61.0	2.40	87.0	3.43	93.0	3.66	0.35	1.69	0.93	23.2	14.1	1.65
	2.1654	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	0.8	0.03	3.2	0.13	118	161	475	472A	24.9	0.98	67.0	2.64	66.0	2.60	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.1654	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.0	0.08	3.2	0.13	118	161	475X	472A	24.9	0.98	69.0	2.72	66.0	2.60	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.1654	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	0.8	0.03	3.2	0.13	174	217	622X	612	27.3	1.07	66.0	2.60	64.0	2.52	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
55.006	2.1656	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	0.8	0.03	3.2	0.13	174	217	622A	612	27.3	1.07	66.0	2.60	64.0	2.52	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
55.474	2.1840	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	2.4	0.09	0.8	0.03	80.4	101	386	382A	17.4	0.69	65.0	2.56	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
55.562	2.1875	97.630	3.8437	24.608	0.9688	24.608	0.9688	19.446	0.7656	3.6	0.14	0.8	0.03	89.6	131	28680	28622	21.2	0.83	68.0	2.68	62.0	2.44	88.0	3.46	92.0	3.62	0.40	1.49	0.82	26.1	17.9	1.45
	2.1875	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	2.4	0.09	3.2	0.13	109	144	466S	453X	23.6	0.93	67.0	2.64	61.0	2.40	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	2.1875	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	1.2	0.05	3.2	0.13	221	318	5566R	5535	31.1	1.22	70.0	2.76	68.0	2.68	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.1875	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	3.2	0.13	166	235	HM813840	HM813810	32.9	1.30	76.0	2.99	70.0	2.76	111.0	4.37	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
55.575	2.1880	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	2.4	0.09	0.8	0.03	80.4	101	389	382A	17.4	0.69	65.0	2.56	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.1880	96.838	3.8125	21.000	0.8268	26.256	1.0337	15.875	0.6250	2.4	0.09	0.8	0.03	80.4	101	389S	382A	17.4	0.69	65.0	2.56	61.0	2.40	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
55.753	2.1950	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	SP ¹⁾	SP ¹⁾	3.2	0.13	128	153	66583	66520	35.4	1.39	70.0	2.76	63.0	2.48	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88
57.150	2.2500	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	2.4	0.09	0.8	0.03	80.4	101	387	382A	17.4	0.69	66.0	2.60	62.0	2.44	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.2500	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	3.6	0.14	0.8	0.03	80.4	101	387A	382A	17.4	0.69	69.0	2.72	62.0	2.44	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.2500	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	5.2	0.20	0.8	0.03	80.4	101	387AS	382A	17.4	0.69	72.0	2.83	62.0	2.44	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.2500	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	0.8	0.03	0.8	0.03	80.4	101	387S	382A	17.4	0.69	63.0	2.48	62.0	2.44	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.2500	98.425	3.8750	21.000	0.8268	21.946	0.8640	17.826	0.7018	2.4	0.09	0.8	0.03	80.4	101	387	382	17.4	0.69	66.0	2.60	62.0	2.44	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
	2.2500	98.425	3.8750	24.608	0.9688	24.608	0.9688	19.446	0.7656	3.6	0.14	0.8	0.03	89.6	131	28682	28623	21.2	0.83	70.0	2.76	63.0	2.48	88.0	3.46	93.0	3.66	0.40	1.49	0.82	26.1	17.9	1.45
	2.2500	104.775	4.1250	30.162	1.1875	29.317	1.1542	24.605	0.9687	2.4	0.09	3.2	0.13	109	144	462	453X	23.6	0.93	67.0	2.64	63.0	2.48	92.0	3.62	98.0	3.86	0.34	1.79	0.98	31.7	18.2	1.74
	2.2																																

Tapered roller bearings

TS type
 d (57.150) ~ (60.000) mm
 (2.2500) ~ (2.3622) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

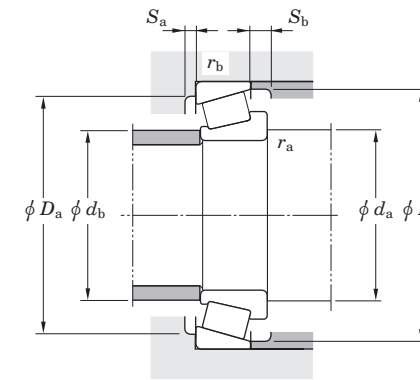
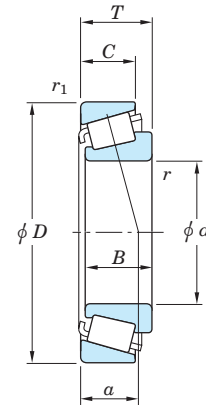
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
57.150	2.2500	110.000	4.3307	22.000	0.8661	21.996	0.8660	22.000	0.8661	2.4	0.09	0.8	0.03	86.4	116	390	394	21.3	0.84	70.0	2.76	66.0	2.60	102.0	4.02	104.5	4.11	0.40	1.49	0.82	25.0	17.2	1.46
	2.2500	111.125	4.3750	22.000	0.8661	21.996	0.8660	18.824	0.7411	2.4	0.09	1.2	0.05	86.4	116	390	393AS	21.3	0.84	70.0	2.76	66.0	2.60	101.0	3.98	105.0	4.13	0.40	1.49	0.82	25.0	17.2	1.46
	2.2500	112.712	4.4375	22.225	0.8750	21.996	0.8660	15.875	0.6250	2.4	0.09	3.2	0.13	86.4	116	390	393A	21.5	0.85	70.0	2.76	66.0	2.60	100.0	3.94	105.0	4.13	0.40	1.49	0.82	25.0	17.2	1.46
	2.2500	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	3.6	0.14	3.2	0.13	111	164	3979	3920	25.9	1.02	72.0	2.83	66.0	2.60	99.0	3.90	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
	2.2500	112.712	4.4375	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	147	207	39580	39520	23.3	0.92	72.0	2.83	66.0	2.60	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72
	2.2500	112.712	4.4375	30.162	1.1875	30.162	1.1875	23.812	0.9375	7.9	0.31	3.2	0.13	147	207	39581	39520	23.3	0.92	81.0	3.19	66.0	2.60	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72
	2.2500	112.712	4.4375	36.512	1.4375	30.162	1.1875	30.162	1.1875	3.6	0.14	3.2	0.13	147	207	39580	39522	29.7	1.17	72.0	2.83	66.0	2.60	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72
	2.2500	117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	0.8	0.03	118	179	33225	33461	27.8	1.09	74.0	2.91	68.0	2.68	106.0	4.17	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34
	2.2500	117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	118	179	33225	33462	27.8	1.09	74.0	2.91	68.0	2.68	104.0	4.09	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34
	2.2500	117.475	4.6250	33.338	1.3125	31.750	1.2500	23.812	0.9375	3.6	0.14	0.8	0.03	129	152	66225R	66461	33.2	1.31	76.0	2.99	69.0	2.72	102.0	4.02	111.0	4.37	0.63	0.96	0.53	37.5	40.1	0.93
	2.2500	120.040	4.7260	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	623	612A	27.3	1.07	72.0	2.83	66.0	2.60	103.0	4.06	109.0	4.29	0.31	1.91	1.05	50.9	27.4	1.86
	2.2500	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	623	612	27.3	1.07	72.0	2.83	66.0	2.60	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
	2.2500	120.650	4.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	174	217	623A	612	27.3	1.07	78.0	3.07	66.0	2.60	105.0	4.13	110.0	4.33	0.31	1.91	1.05	50.9	27.4	1.86
	2.2500	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	3.6	0.14	3.2	0.13	128	153	66587	66520	35.4	1.39	77.0	3.03	71.0	2.80	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88
	2.2500	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	555S	553X	28.7	1.13	73.0	2.87	67.0	2.64	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.2500	123.825	4.8750	38.100	1.5000	36.678	1.4440	30.162	1.1875	7.9	0.31	3.2	0.13	162	223	555SA	552A	28.7	1.13	82.0	3.23	67.0	2.64	109.0	4.29	116.0	4.57	0.35	1.73	0.95	47.1	27.9	1.69
	2.2500	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65225	65500	35.2	1.39	80.0	3.15	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
	2.2500	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	4.3	0.17	3.2	0.13	266	357	6375	6320	34.8	1.37	78.0	3.07	70.0	2.76	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80
	2.2500	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	0.8	0.03	3.2	0.13	266	357	6387	6320	34.8	1.37	71.0	2.80	70.0	2.76	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80
	2.2500	136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	635	632	30.3	1.19	75.0	2.95	69.0	2.72	118.0	4.65	125.0	4.92	0.36	1.66	0.91	57.4	35.5	1.62
2.2500	149.225	5.8750	53.975	2.1250	41.275	1.6250	31.750	1.2500	6.4	0.25	3.2	0.13	285	404	6465	6420	39.3	1.55	86.0	3.39	81.0	3.19	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62	
2.2500	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	3.6	0.14	3.2	0.13	285	404	6455	6420	39.3	1.55	81.0	3.19	75.0	2.95	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62	
57.531	2.2650	96.838	3.8125	21.000	0.8268	21.946	0.8640	15.875	0.6250	3.6	0.14	0.8	0.03	80.4	101	388A	382A	17.4	0.69	69.0	2.72	63.0	2.48	89.0	3.50	92.0	3.62	0.35	1.69	0.93	23.2	14.1	1.65
58.738	2.3125	112.712	4.4375	33.338	1.3125	30.048	1.1830	26.988	1.0625	3.6	0.14	3.2	0.13	111	164	3981	3926	29.1	1.15	73.0	2.87	67.0	2.64	98.0	3.86	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
	2.3125	122.238	4.8125	51.595	2.0313	51.702	2.0355	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5558R	5535	39.0	1.54	77.0	3.03	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.3125	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65231	65500	35.2	1.39	81.0	3.19	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
59.530	2.3437	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	1.6	0.06	3.2	0.13	111	164	3978	3920	25.9	1.02	70.0	2.76	68.0	2.68	99.0	3.90	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
59.880	2.3575	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65235	65500	35.2	1.39	82.0	3.23	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
59.972	2.3611	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	0.8	0.03	3.2	0.13	128	153	66589	66520	35.4	1.39	74.0	2.91	73.0	2.87	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88
59.977	2.3613	101.600	4.0000	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	3.2	0.13	91.4	137	28980	28920	22.8	0.90	73.0	2.87	67.0	2.64	89.0	3.50	96.0	3.78	0.43	1.41	0.78	26.6	19.3	1.38
	2.3613	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	1.6	0.06	3.2	0.13	128	153	66586	66520	35.4	1.39	75.0	2.95	68.0	2.68	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88

Tapered roller bearings

TS type
 d (60.000) ~ (63.500) mm
 (2.3622) ~ (2.5000) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

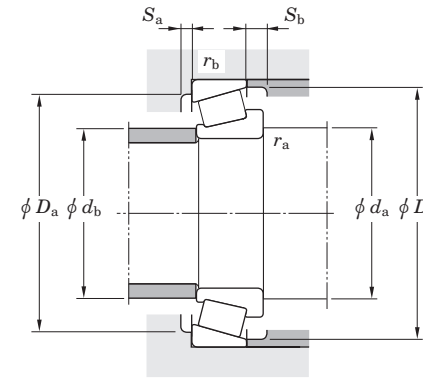
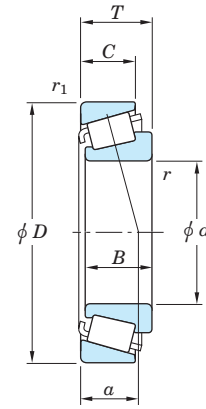
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r_1 (min.)		C_r	C_{0r}	Inner ring (Cone)	Outer ring (Cup)	a	a	d_a	d_b	D_a	D_b	e	Y_1	Y_0	Radial	Axial	K				
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch										
60.000	2.3622	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	3.6	0.14	0.8	0.03	111	164	3977	3925	25.9	1.02	74.0	2.91	68.0	2.68	101.0	3.98	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
	2.3622	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.0	0.08	3.2	0.13	118	161	476	472A	24.9	0.98	73.0	2.87	69.0	2.72	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.3622	120.000	4.7244	29.794	1.1730	29.007	1.1420	24.237	0.9542	1.6	0.06	2.0	0.08	118	161	476A	472	25.7	1.01	72.0	2.83	69.0	2.72	107.0	4.21	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.3622	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	3.6	0.14	3.2	0.13	128	153	66585	66520	35.4	1.39	79.0	3.11	73.0	2.87	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88
	2.3622	122.238	4.8125	33.338	1.3125	31.750	1.2500	23.812	0.9375	0.8	0.03	3.2	0.13	128	153	66588	66520	35.4	1.39	72.0	2.83	65.0	2.56	105.0	4.13	116.0	4.57	0.67	0.90	0.50	37.1	42.2	0.88
60.325	2.3750	100.000	3.9370	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	3.2	0.13	91.4	137	28985	28921	22.8	0.90	73.0	2.87	67.0	2.64	89.0	3.50	96.0	3.78	0.43	1.41	0.78	26.6	19.3	1.38
	2.3750	100.000	3.9370	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	0.8	0.03	91.4	137	28985	28921A	22.8	0.90	73.0	2.87	67.0	2.64	92.0	3.62	96.0	3.78	0.43	1.41	0.78	26.6	19.3	1.38
	2.3750	101.600	4.0000	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	3.2	0.13	91.4	137	28985	28920	22.8	0.90	73.0	2.87	67.0	2.64	89.0	3.50	96.0	3.78	0.43	1.41	0.78	26.6	19.3	1.38
	2.3750	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	3.6	0.14	0.8	0.03	111	164	3980	3925	25.9	1.02	75.0	2.95	68.0	2.68	101.0	3.98	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
	2.3750	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	7.9	0.31	3.2	0.13	162	223	557A	553X	28.7	1.13	84.0	3.31	69.0	2.72	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.3750	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	2.4	0.09	3.2	0.13	162	223	558	553X	28.7	1.13	73.0	2.87	69.0	2.72	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.3750	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	558A	553X	28.7	1.13	76.0	2.99	69.0	2.72	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.3750	122.238	4.8125	38.100	1.5000	38.354	1.5100	29.718	1.1700	7.9	0.31	1.6	0.06	191	249	HM212044	HM212010	27.3	1.07	85.0	3.35	70.0	2.76	110.0	4.33	116.0	4.57	0.34	1.78	0.98	55.5	32.0	1.73
	2.3750	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	0.8	0.03	3.2	0.13	221	318	5582R	5535	31.1	1.22	73.0	2.87	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.3750	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5583R	5535	31.1	1.22	78.0	3.07	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.3750	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813841	HM813811	32.9	1.30	80.0	3.15	73.0	2.87	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.3750	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	1.6	0.06	3.2	0.13	166	235	HM813841A	HM813810	32.9	1.30	74.0	2.91	71.0	2.80	110.0	4.33	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.3750	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	3.6	0.14	3.2	0.13	208	269	65237	65500	35.2	1.39	82.0	3.23	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
	2.3750	127.000	5.0000	44.450	1.7500	44.450	1.7500	34.925	1.3750	1.6	0.06	3.2	0.13	208	269	65237A	65500	35.2	1.39	78.0	3.07	71.0	2.80	107.0	4.21	119.0	4.69	0.49	1.23	0.68	60.6	50.5	1.20
	2.3750	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	637	633	30.3	1.19	78.0	3.07	72.0	2.83	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62
2.3750	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	3.6	0.14	3.2	0.13	266	357	6376	6320	34.8	1.37	81.0	3.19	74.0	2.91	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80	
2.3750	136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715332	H715311	37.0	1.46	84.0	3.31	78.0	3.07	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24	
61.912	2.4375	110.000	4.3307	22.000	0.8661	21.996	0.8660	18.824	0.7411	0.8	0.03	1.2	0.05	86.4	116	392	394A	21.3	0.84	70.0	2.76	69.0	2.72	101.0	3.98	104.5	4.11	0.40	1.49	0.82	25.0	17.2	1.46
	2.4375	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	554	553X	28.7	1.13	77.0	3.03	71.0	2.80	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.4375	123.825	4.8750	38.100	1.5000	36.678	1.4440	33.338	1.3125	3.6	0.14	3.2	0.13	162	223	554	552	28.7	1.13	77.0	3.03	71.0	2.80	109.0	4.29	116.0	4.57	0.35	1.73	0.95	47.1	27.9	1.69
	2.4375	125.000	4.9213	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	554	553	28.7	1.13	77.0	3.03	71.0	2.80	109.0	4.29	116.0	4.57	0.35	1.73	0.95	47.1	27.9	1.69
	2.4375	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813843	HM813811	32.9	1.30	81.0	3.19	75.0	2.95	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.4375	139.700	5.5000	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715334	H715310	37.0	1.46	86.0	3.39	79.0	3.11	120.0	4.72	133.0	5.24	0.47	1.27	0.70	67.8	54.8	1.24
	2.4375	152.400	6.0000	47.625	1.8750	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	244	278	9180	9121	44.5	1.75	90.0	3.54	81.0	3.19	130.0	5.12	145.0	5.71	0.66	0.91	0.50	71.3	79.9	0.89
2.4375	158.750	6.2500	50.800	2.0000	46.038	1.8125	34.925	1.3750	3.6	0.14	3.2	0.13	244	278	9180	9120	47.6	1.87	90.0	3.54	81.0	3.19	134.0	5.28	145.0	5.71	0.66	0.91	0.50	71.3	79.9	0.89	
2.4375	158.750	6.2500	50.800	2.0000	46.038	1.8125	34.925	1.3750	0.8	0.03	3.2	0.13	244	278	9181	9120	47.6	1.87	85.0	3.35	78.0	3.07	134.0	5.28	145.0	5.71	0.66	0.91	0.50	71.3	79.9	0.89	
62.738	2.4700	100.000	3.9370</																														

Tapered roller bearings

TS type
 d (63.500) ~ (66.675) mm
 (2.5000) ~ (2.6250) inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

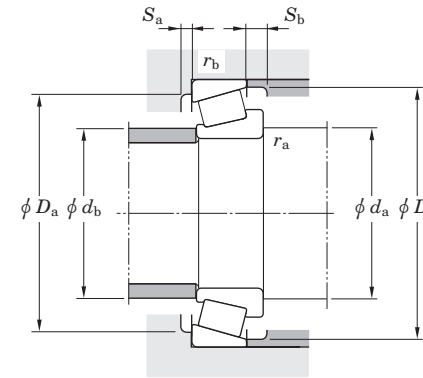
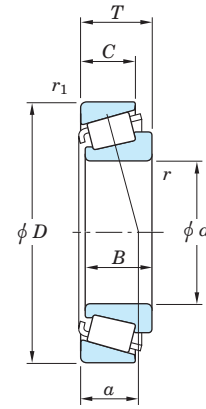
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
63.500	2.5000	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	3.6	0.14	0.8	0.03	111	164	3982	3925	25.9	1.02	77.0	3.03	71.0	2.80	101.0	3.98	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46
	2.5000	112.712	4.4375	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	147	207	39585	39520	23.3	0.92	77.0	3.03	71.0	2.80	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72
	2.5000	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	0.8	0.03	3.2	0.13	118	161	477	472A	24.9	0.98	73.0	2.87	72.0	2.83	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.5000	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	3.6	0.14	3.2	0.13	118	161	483	472A	24.9	0.98	78.0	3.07	72.0	2.83	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.5000	120.000	4.7244	29.794	1.1730	29.007	1.1420	24.237	0.9542	0.8	0.03	2.0	0.08	118	161	477	472	25.7	1.01	73.0	2.87	72.0	2.83	108.0	4.25	113.0	4.45	0.38	1.56	0.86	34.5	22.7	1.52
	2.5000	120.000	4.7244	29.794	1.1730	30.162	1.1875	23.444	0.9230	0.8	0.03	0.8	0.03	118	179	33251	33472	27.4	1.08	73.0	2.87	72.0	2.83	107.0	4.21	113.0	4.45	0.44	1.38	0.76	34.4	25.6	1.34
	2.5000	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	559	553X	28.7	1.13	78.0	3.07	72.0	2.83	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69
	2.5000	122.238	4.8125	38.354	1.5100	38.100	1.5000	29.718	1.1700	3.6	0.14	3.2	0.13	191	249	HM212046	HM212011	27.6	1.09	80.0	3.15	73.0	2.87	108.0	4.25	116.0	4.57	0.34	1.78	0.98	55.5	32.0	1.73
	2.5000	122.238	4.8125	38.354	1.5100	38.100	1.5000	29.718	1.1700	7.1	0.28	1.6	0.06	191	249	HM212047	HM212010	27.6	1.09	87.0	3.43	73.0	2.87	110.0	4.33	116.0	4.57	0.34	1.78	0.98	55.5	32.0	1.73
	2.5000	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	5.2	0.20	3.2	0.13	221	318	5564R	5535	31.1	1.22	79.0	3.11	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.5000	122.238	4.8125	43.658	1.7188	43.764	1.7230	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5584R	5535	31.1	1.22	81.0	3.19	75.0	2.95	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.5000	122.238	4.8125	51.595	2.0313	51.702	2.0355	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5552R	5535	39.0	1.54	81.0	3.19	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.5000	123.825	4.8750	30.162	1.1875	29.007	1.1420	24.605	0.9687	0.8	0.03	3.2	0.13	118	161	477	472X	26.0	1.02	73.0	2.87	72.0	2.83	109.0	4.29	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.5000	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	3.6	0.14	3.2	0.13	156	226	565	563	28.6	1.13	80.0	3.15	73.0	2.87	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.5000	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	6.4	0.25	3.2	0.13	156	226	565S	563	28.6	1.13	86.0	3.39	73.0	2.87	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.5000	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813842	HM813811	32.9	1.30	82.0	3.23	76.0	2.99	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.5000	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	639	633	30.3	1.19	81.0	3.19	74.0	2.91	116.0	4.57	124.0	4.88	0.32	1.66	0.91	57.4	35.5	1.62
	2.5000	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	4.3	0.17	3.2	0.13	266	357	6382	6320	34.8	1.37	84.0	3.31	77.0	3.03	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80
	2.5000	136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	241	308	H414235	H414210	30.3	1.19	82.0	3.23	78.0	3.07	121.0	4.76	129.0	5.08	0.36	1.67	0.92	70.0	43.1	1.62
	2.5000	136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715336	H715311	37.0	1.46	87.0	3.43	80.0	3.15	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24
2.5000	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	3.6	0.14	3.2	0.13	285	404	6475	6420	39.3	1.55	86.0	3.39	81.0	3.19	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62	
2.5000	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	745SR	742	32.4	1.28	84.0	3.31	77.0	3.03	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80	
64.960	2.5575	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	656	653	33.4	1.31	86.0	3.39	79.0	3.11	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	2.5575	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	3.6	0.14	3.2	0.13	285	404	6464	6420	39.3	1.55	87.0	3.43	81.0	3.19	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62
	2.5575	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	747SR	742	32.4	1.28	86.0	3.39	81.0	3.19	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
64.963	2.5576	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	3.6	0.14	3.2	0.13	156	226	569	563	28.6	1.13	81.0	3.19	74.0	2.91	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
64.986	2.5585	112.712	4.4375	30.162	1.1875	30.924	1.2175	23.812	0.9375	2.4	0.09	3.2	0.13	147	207	39586	39520	23.3	0.92	76.0	2.99	72.0	2.83	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72
64.988	2.5586	107.950	4.2500	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	0.8	0.03	92.8	143	29588	29522	24.7	0.97	78.0	3.07	72.0	2.83	98.0	3.86	103.0	4.06	0.46	1.31	0.72	26.9	21.1	1.28
65.000	2.5591	110.000	4.3307	22.000	0.8661	21.996	0.8660	18.824	0.7411	2.0	0.08	1.2	0.05	86.4	116	399	394A	21.3	0.84	76.0	2.99	73.0	2.87	101.0	3.98	104.5	4.11	0.40	1.49	0.82	25.0	17.2	1.46
	2.5591	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.4	0.09	3.2	0.13	118	161	478	472A	24.9	0.98	77.0	3.03	73.0	2.87	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
65.088	2.5625	122.238	4.8125	51.595	2.0313	51.702	2.0355	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5554R	5535	39.0	1.54	83.0	3.27	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
	2.5625	135.755																															

Tapered roller bearings

TS type
 d (66.675) ~ (69.850) mm
 (2.6250) ~ (2.7500) inch



$$P = XF_r + YF_a$$

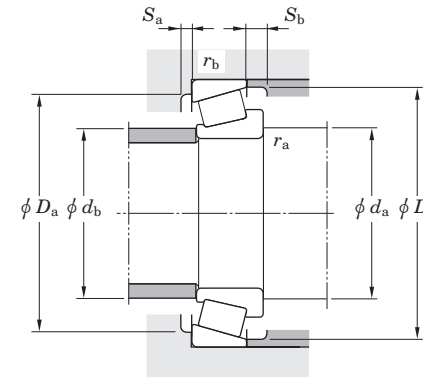
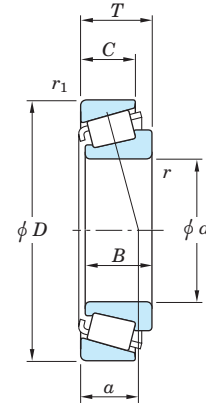
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor				
d		D		T		B		C		r (min.)		r_1 (min.)		C_r	C_{or}	Inner ring (Cone)	Outer ring (Cup)	a	d_a		d_b		D_a		D_b		e	Y_1	Y_0	Radial	Axial	K		
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch									
66.675	2.6250	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	3.6	0.14	0.8	0.03	111	164	3984	3925	25.9	1.02	80.0	3.15	74.0	2.91	101.0	3.98	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46	
	2.6250	112.712	4.4375	30.162	1.1875	30.048	1.1830	23.812	0.9375	5.6	0.22	0.8	0.03	111	164	3994	3925	25.9	1.02	84.0	3.31	74.0	2.91	101.0	3.98	106.0	4.17	0.40	1.49	0.82	32.4	22.3	1.46	
	2.6250	112.712	4.4375	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	147	207	39590	39520	23.3	0.92	80.0	3.15	74.0	2.91	101.0	3.98	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72	
	2.6250	112.712	4.4375	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	0.8	0.03	147	207	39590	39521	23.3	0.92	80.0	3.15	74.0	2.91	103.0	4.06	107.0	4.21	0.34	1.77	0.97	42.6	24.7	1.72	
	2.6250	117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	5.6	0.22	3.2	0.13	118	179	33261	33462	27.8	1.09	86.0	3.39	76.0	2.99	104.0	4.09	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34	
	2.6250	117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	118	179	33262	33462	27.8	1.09	81.0	3.19	75.0	2.95	104.0	4.09	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34	
	2.6250	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.0	0.08	3.2	0.13	118	161	478S	472A	24.9	0.98	78.0	3.07	74.0	2.91	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52	
	2.6250	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.4	0.09	3.2	0.13	118	161	479	472A	24.9	0.98	78.0	3.07	74.0	2.91	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52	
	2.6250	122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	560	553X	28.7	1.13	81.0	3.19	75.0	2.95	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69	
	2.6250	122.238	4.8125	38.100	1.5000	38.354	1.5100	29.718	1.1700	3.6	0.14	1.6	0.06	191	249	HM212049	HM212010	27.3	1.07	82.0	3.23	75.5	2.97	110.0	4.33	116.0	4.57	0.34	1.78	0.98	55.5	32.0	1.73	
	2.6250	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813844	HM813811	32.9	1.30	85.0	3.35	78.0	3.07	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17	
	2.6250	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	641	633	30.3	1.19	83.0	3.27	77.0	3.03	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62	
	2.6250	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	4.3	0.17	3.2	0.13	266	357	6386	6320	34.8	1.37	87.0	3.43	77.5	3.05	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80	
	2.6250	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	8.6	0.34	3.2	0.13	266	357	6386A	6320	34.8	1.37	92.0	3.62	77.0	3.03	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80	
	2.6250	135.755	5.3447	53.975	2.1250	56.007	2.2050	44.450	1.7500	6.4	0.25	3.2	0.13	266	357	6389	6320	34.8	1.37	91.0	3.58	77.5	3.05	117.0	4.61	126.0	4.96	0.32	1.85	1.02	78.4	43.5	1.80	
	2.6250	136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	241	308	H414242	H414210	30.3	1.19	85.0	3.35	81.0	3.19	121.0	4.76	129.0	5.08	0.36	1.67	0.92	70.0	43.1	1.62	
	2.6250	136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715341	H715311	37.0	1.46	89.0	3.50	83.0	3.27	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24	
	68.262	2.6875	103.188	4.0625	43.658	1.7188	51.702	2.0355	36.512	1.4375	3.6	0.14	3.2	0.13	221	318	5557R	5535	31.1	1.22	86.0	3.39	72.0	2.83	106.0	4.17	116.0	4.57	0.36	1.67	0.92	64.5	39.5	1.63
		2.6875	110.000	4.3307	22.000	0.8661	21.996	0.8660	18.824	0.7411	2.4	0.09	1.2	0.05	86.4	116	399A	394A	21.3	0.84	78.0	3.07	74.0	2.91	101.0	3.98	104.5	4.11	0.40	1.49	0.82	25.0	17.2	1.46
		2.6875	110.000	4.3307	22.000	0.8661	21.996	0.8660	18.824	0.7411	5.2	0.20	1.2	0.05	86.4	116	399AS	394A	21.3	0.84	83.0	3.27	74.0	2.91	101.0	3.98	104.5	4.11	0.40	1.49	0.82	25.0	17.2	1.46
2.6875		117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	118	179	33269	33462	27.8	1.09	82.0	3.23	76.0	2.99	104.0	4.09	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34	
2.6875		120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	3.6	0.14	3.2	0.13	118	161	480	472A	24.9	0.98	82.0	3.23	75.0	2.95	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52	
2.6875		122.238	4.8125	38.100	1.5000	36.678	1.4440	30.162	1.1875	3.6	0.14	3.2	0.13	162	223	560S	553X	28.7	1.13	83.0	3.27	76.0	2.99	108.0	4.25	115.0	4.53	0.35	1.73	0.95	47.1	27.9	1.69	
2.6875		127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	3.6	0.14	3.2	0.13	156	226	570	563	28.6	1.13	83.0	3.27	77.0	3.03	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61	
2.6875		130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	642	633	30.3	1.19	84.0	3.31	79.0	3.11	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62	
2.6875		136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	642	632	30.3	1.19	84.0	3.31	79.0	3.11	118.0	4.65	125.0	4.92	0.36	1.66	0.91	57.4	35.5	1.62	
2.6875		136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	241	308	H414245	H414210	30.3	1.19	86.0	3.39	82.0	3.23	121.0	4.76	129.0	5.08	0.36	1.67	0.92	70.0	43.1	1.62	
2.6875		136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	7.1	0.28	3.2	0.13	241	308	H414245A	H414210	30.3	1.19	89.0	3.50	83.0	3.27	121.0	4.76	129.0	5.08	0.36	1.67	0.92	70.0	43.1	1.62	
2.6875		136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715343	H715311	37.0	1.46	90.0	3.54	84.0	3.31	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24	
2.6875		152.400	6.0000	47.625	1.8750	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	244	278	9185	9121	44.5	1.75	94.0	3.70	81.5	3.21	130.0	5.12	145.0	5.71	0.66	0.91	0.50	71.3	79.9	0.89	
69.850		2.7500	98.425	3.8750	13.495	0.5313	13.495	0.5313	9.525	0.3750	1.6	0.06	1.6	0.06	39.3	59.8	LL713049	LL713010	18.4	0.72	77.0	3.03	74.0	2.91	92.0	3.62	94.5	3.72	0.44	1.37	0.75	11.1	8.35	1.33
	2.7500	112.71																																

TS type
d (69.850) ~ (73.025) mm
(2.7500) ~ (2.8750) inch



$$P = XF_r + YF_a$$

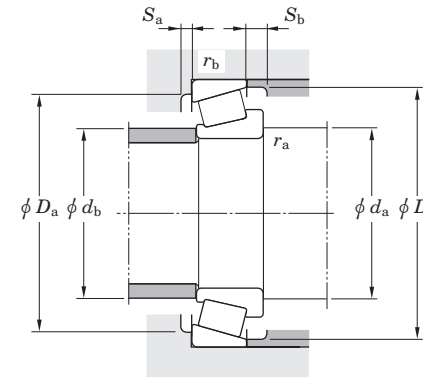
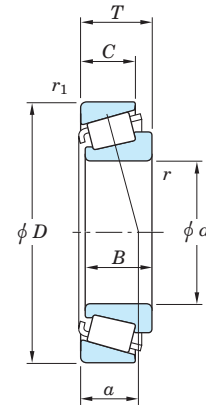
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
69.850	2.7500	123.825	4.8750	30.162	1.1875	29.007	1.1420	24.605	0.9687	3.6	0.14	3.2	0.13	118	161	482	472X	26.0	1.02	83.0	3.27	77.0	3.03	109.0	4.29	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.7500	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	3.6	0.14	3.2	0.13	156	226	566	563	28.6	1.13	85.0	3.35	78.0	3.07	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.7500	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	0.8	0.03	3.2	0.13	156	226	566S	563	28.6	1.13	79.0	3.11	78.0	3.07	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.7500	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813846	HM813811	32.9	1.30	88.0	3.46	81.0	3.19	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.7500	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	643	633	30.3	1.19	86.0	3.39	80.0	3.15	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62
	2.7500	136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715344	H715311	37.0	1.46	92.0	3.62	85.0	3.35	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24
	2.7500	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	655	653	33.4	1.31	88.0	3.46	82.0	3.23	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	2.7500	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	5.2	0.20	3.2	0.13	285	404	6454	6420	39.3	1.55	94.0	3.70	85.0	3.35	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62
	2.7500	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	6.4	0.25	3.2	0.13	285	404	6484	6420	39.3	1.55	95.0	3.74	85.0	3.35	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62
	2.7500	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	5.2	0.20	3.2	0.13	264	368	744AR	742	32.4	1.28	92.0	3.62	82.0	3.23	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
2.7500	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	745AR	742	32.4	1.28	88.0	3.46	82.0	3.23	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80	
2.7500	168.275	6.6250	53.975	2.1250	56.363	2.2190	41.275	1.6250	3.6	0.14	3.2	0.13	344	467	835R	832	35.0	1.38	91.0	3.58	84.0	3.31	149.0	5.87	155.0	6.10	0.30	2.00	1.10	101	51.6	1.95	
69.952	2.7540	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	2.0	0.08	2.0	0.08	90.0	127	34274	34478	26.8	1.06	81.0	3.19	78.0	3.07	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
70.000	2.7559	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.0	0.08	3.2	0.13	118	161	484	472A	24.9	0.98	80.0	3.15	77.0	3.03	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
	2.7559	125.052	4.9233	23.731	0.9343	23.012	0.9060	16.401	0.6457	2.0	0.08	2.0	0.08	90.0	127	34275	34492A	25.9	1.02	82.0	3.23	78.0	3.07	112.0	4.41	118.0	4.65	0.45	1.33	0.73	26.0	20.0	1.30
70.637	2.7810	112.712	4.4375	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	97.0	155	29681	29620	26.2	1.03	84.0	3.31	79.0	3.11	101.0	3.98	109.0	4.29	0.49	1.23	0.68	28.1	23.4	1.20
	2.7810	120.650	4.7500	25.400	1.0000	25.400	1.0000	19.050	0.7500	1.2	0.05	3.2	0.13	97.0	155	29680	29630	26.2	1.03	80.0	3.15	78.0	3.07	104.0	4.09	113.0	4.45	0.49	1.23	0.68	28.1	23.4	1.20
71.438	2.8125	117.475	4.6250	30.162	1.1875	30.162	1.1875	23.812	0.9375	3.6	0.14	3.2	0.13	118	179	33281	33462	27.8	1.09	85.0	3.35	79.0	3.11	104.0	4.09	112.0	4.41	0.44	1.38	0.76	34.4	25.6	1.34
	2.8125	120.000	4.7244	32.545	1.2813	32.545	1.2813	26.195	1.0313	3.6	0.14	3.2	0.13	150	218	47490R	47420	26.6	1.05	86.0	3.39	79.0	3.11	107.0	4.21	114.0	4.49	0.36	1.67	0.92	43.7	26.9	1.62
	2.8125	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	3.6	0.14	3.2	0.13	156	226	567A	563	28.6	1.13	86.0	3.39	80.0	3.15	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.8125	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	6.4	0.25	3.2	0.13	156	226	567S	563	28.6	1.13	92.0	3.62	80.0	3.15	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
	2.8125	127.000	5.0000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	1.6	0.06	166	235	HM813849	HM813811	32.9	1.30	89.0	3.50	81.9	3.22	113.0	4.45	121.0	4.76	0.50	1.20	0.66	48.6	41.7	1.17
	2.8125	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	197	267	644	633	30.3	1.19	87.0	3.43	81.0	3.19	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62
	2.8125	130.175	5.1250	41.275	1.6250	41.275	1.6250	31.750	1.2500	6.4	0.25	3.2	0.13	197	267	645	633	30.3	1.19	93.0	3.66	81.0	3.19	116.0	4.57	124.0	4.88	0.36	1.66	0.91	57.4	35.5	1.62
	2.8125	133.350	5.2500	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	495S	492A	29.8	1.17	88.0	3.46	82.0	3.23	120.0	4.72	128.0	5.04	0.44	1.35	0.74	38.8	29.4	1.32
	2.8125	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	0.8	0.03	154	245	47675R	47620A	29.2	1.15	88.0	3.46	82.0	3.23	121.0	4.76	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	2.8125	136.525	5.3750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	241	308	H414249	H414210	30.3	1.19	89.0	3.50	83.3	3.28	121.0	4.76	129.0	5.08	0.36	1.67	0.92	70.0	43.1	1.62
2.8125	136.525	5.3750	46.038	1.8125	46.038	1.8125	36.512	1.4375	3.6	0.14	3.2	0.13	231	369	H715345	H715311	37.0	1.46	93.0	3.66	87.0	3.43	118.0	4.65	132.0	5.20	0.47	1.27	0.70	67.8	54.8	1.24	
73.000	2.8740	120.000	4.7244	29.002	1.1418	29.007	1.1420	23.444	0.9230	2.0	0.08	3.2	0.13	118	161	486X	472A	24.9	0.98	83.0	3.27	78.0	3.07	106.0	4.17	114.0	4.49	0.38	1.56	0.86	34.5	22.7	1.52
73.025	2.8750	112.712	4.4375	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	97.0	155	29685	29620	26.2	1.03	86.0	3.39	80.0	3.15	101.0	3.98	109.0	4.29	0.49	1.23	0.68	28.1	23.4	1.20
	2.8750	117.475	4.6250	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	101	166	LM814845	LM814810	27.6	1.09	87.0	3.43	81.0	3.19	105.0	4.13	113.0	4.45	0.51	1.18	0.65	29.2	25.4	1.15

TS type
d (73.025) ~ (76.200) mm
(2.8750) ~ (3.0000) inch



$$P = XF_r + YF_a$$

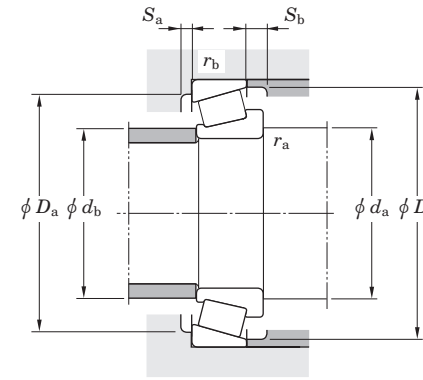
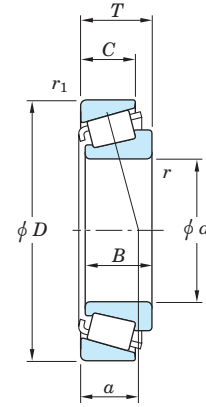
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
73.025	2.8750	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	3.6	0.14	3.2	0.13	285	404	6460	6420	39.3	1.55	93.0	3.66	87.0	3.43	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62
	2.8750	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	744R	742	32.4	1.28	91.0	3.58	85.0	3.35	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
	2.8750	152.400	6.0000	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	657	652	33.4	1.31	90.0	3.54	85.0	3.35	134.0	5.28	141.0	5.55	0.41	1.47	0.81	60.9	42.6	1.43
	2.8750	159.995	6.2990	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	0.8	0.03	273	391	762	752A	35.5	1.40	92.0	3.62	97.0	3.82	146.0	5.75	149.0	5.87	0.34	1.76	0.97	80.0	46.6	1.72
	2.8750	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	762	752	35.5	1.40	92.0	3.62	97.0	3.82	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
73.817	2.9062	112.712	4.4375	25.400	1.0000	25.400	1.0000	19.050	0.7500	1.6	0.06	3.2	0.13	97.0	155	29688	29620	26.2	1.03	83.0	3.27	81.0	3.19	101.0	3.98	109.0	4.29	0.49	1.23	0.68	28.1	23.4	1.20
	2.9062	127.000	5.0000	36.512	1.4375	36.170	1.4240	28.575	1.1250	0.8	0.03	3.2	0.13	156	226	568	563	28.6	1.13	83.0	3.27	82.0	3.23	112.0	4.41	120.0	4.72	0.36	1.65	0.91	45.8	28.5	1.61
74.612	2.9375	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	577R	572	31.0	1.22	91.0	3.58	85.0	3.35	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	2.9375	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	658	653	33.4	1.31	92.0	3.62	86.0	3.39	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	2.9375	150.000	5.9055	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.0	0.12	208	301	658	653X	33.4	1.31	92.0	3.62	86.0	3.39	133.0	5.24	141.0	5.55	0.41	1.47	0.81	60.9	42.6	1.43
74.976	2.9518	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	2.0	0.08	2.0	0.08	90.0	127	34294	34478	26.8	1.06	85.0	3.35	83.0	3.27	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
74.986	2.9522	127.000	5.0000	30.162	1.1875	31.000	1.2205	22.225	0.8750	2.4	0.09	3.2	0.13	143	225	42686X	42620	27.1	1.07	85.0	3.35	81.0	3.19	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
74.988	2.9523	127.000	5.0000	30.162	1.1875	31.000	1.2205	22.225	0.8750	6.4	0.25	3.2	0.13	143	225	42686	42620	27.1	1.07	95.0	3.74	84.0	3.31	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
75.000	2.9528	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	2.4	0.09	2.0	0.08	90.0	127	34295	34478	26.8	1.06	86.0	3.39	83.0	3.27	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
	2.9528	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.0	0.12	3.2	0.13	316	471	6555R	6535	41.0	1.61	95.0	3.74	85.0	3.35	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
76.200	3.0000	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	3.6	0.14	2.0	0.08	90.0	127	34301	34478	26.8	1.06	89.0	3.50	83.0	3.27	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
	3.0000	125.412	4.9375	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	1.6	0.06	101	162	27684	27620	24.7	0.97	91.0	3.58	84.0	3.31	115.0	4.53	120.0	4.72	0.42	1.44	0.79	29.2	20.8	1.41
	3.0000	127.000	5.0000	26.988	1.0625	23.012	0.9060	19.842	0.7812	2.0	0.08	3.2	0.13	90.0	127	34300	34500	29.2	1.15	86.0	3.39	83.0	3.27	112.0	4.41	118.0	4.65	0.45	1.33	0.73	26.0	20.0	1.30
	3.0000	127.000	5.0000	30.162	1.1875	31.000	1.2205	22.225	0.8750	3.6	0.14	3.2	0.13	143	225	42687	42620	27.1	1.07	90.0	3.54	84.0	3.31	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
	3.0000	127.000	5.0000	30.162	1.1875	31.000	1.2205	22.225	0.8750	6.4	0.25	3.2	0.13	143	225	42688	42620	27.1	1.07	96.0	3.78	84.0	3.31	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
	3.0000	129.975	5.1171	33.249	1.3090	31.000	1.2205	27.000	1.0630	3.6	0.14	2.4	0.09	143	225	42687	42624	30.1	1.19	90.0	3.54	84.0	3.31	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
	3.0000	133.350	5.2500	30.162	1.1875	29.769	1.1720	22.225	0.8750	6.4	0.25	3.2	0.13	133	198	495AX	492A	29.8	1.17	98.0	3.86	86.0	3.39	120.0	4.72	128.0	5.04	0.44	1.35	0.74	38.8	29.4	1.32
	3.0000	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	6.4	0.25	3.2	0.13	154	245	47678R	47620	29.2	1.15	97.0	3.82	90.0	3.54	119.0	4.69	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.0000	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	0.8	0.03	154	245	47679R	47620A	29.2	1.15	91.0	3.58	85.0	3.35	121.0	4.76	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.0000	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	0.8	0.03	3.2	0.13	154	245	47680R	47620	29.2	1.15	86.0	3.39	85.0	3.35	119.0	4.69	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.0000	135.733	5.3438	44.450	1.7500	46.101	1.8150	34.925	1.3750	3.6	0.14	3.2	0.13	213	337	5760	5735	33.0	1.30	94.0	3.70	88.0	3.46	119.0	4.69	130.0	5.12	0.41	1.48	0.81	62.5	43.4	1.44
	3.0000	136.525	5.3750	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	495A	493	29.8	1.17	92.0	3.62	86.0	3.39	122.0	4.80	130.0	5.12	0.44	1.35	0.74	38.8	29.4	1.32
	3.0000	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	575R	572	31.0	1.22	92.0	3.62	86.0	3.39	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.0000	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	6.7	0.26	3.2	0.13	175	262	575SR	572	31.0	1.22	99.0	3.90	86.0	3.39	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.0000	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	0.8	0.03	183	287	590A	592XE	33.4	1.31	95.0	3.74	89.0	3.50	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.0000	149.225	5.8750	53.975	2.1250	54.229	2.1350	44.450	1.7500	3.6	0.14	3.2	0.13	285	404	6461	6420	39.3	1.55	96.0	3.78	89.5	3.52	129.0	5.08	141.0	5.55	0.36	1.66	0.91	83.9	51.9	1.62

TS type
d (76.200) ~ (82.550) mm
(3.0000) ~ (3.2500) inch



$$P = XF_r + YF_a$$

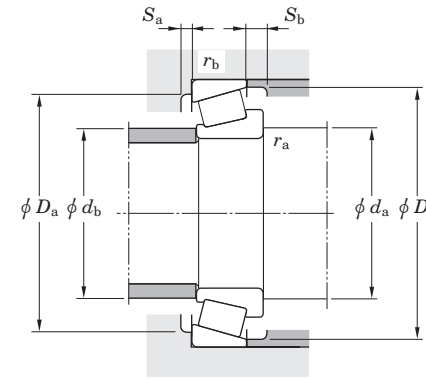
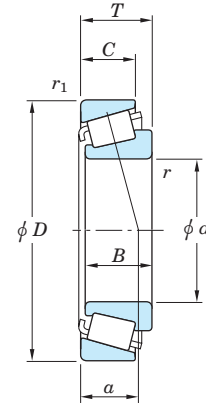
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
76.200	3.0000	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6576R	6535	41.0	1.61	99.0	3.90	89.0	3.50	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.0000	168.275	6.6250	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	755	753	35.5	1.40	95.0	3.74	88.0	3.46	147.0	5.79	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
	3.0000	169.850	6.6870	62.705	2.4687	63.830	2.5130	44.450	1.7500	3.6	0.14	3.2	0.13	316	471	6554R	6520	41.0	1.61	99.0	3.90	89.0	3.50	147.0	5.79	162.0	6.38	0.40	1.50	0.82	92.9	63.5	1.46
	3.0000	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	3.6	0.14	3.2	0.13	440	602	HH221430	HH221410	42.5	1.67	101.0	3.98	95.0	3.74	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75
77.356	3.0455	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	3.6	0.14	2.0	0.08	90.0	127	34304	34478	26.8	1.06	90.0	3.54	85.0	3.35	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
77.788	3.0625	117.475	4.6250	25.400	1.0000	25.400	1.0000	19.050	0.7500	3.6	0.14	3.2	0.13	101	166	LM814849	LM814810	27.6	1.09	91.0	3.58	85.0	3.35	105.0	4.13	113.0	4.45	0.51	1.18	0.65	29.2	25.4	1.15
	3.0625	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	3.6	0.14	2.0	0.08	90.0	127	34306	34478	26.8	1.06	90.0	3.54	84.0	3.31	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
	3.0625	121.442	4.7812	24.608	0.9688	23.012	0.9060	17.462	0.6875	6.4	0.25	2.0	0.08	90.0	127	34307	34478	26.8	1.06	96.0	3.78	84.0	3.31	110.0	4.33	116.0	4.57	0.45	1.33	0.73	26.0	20.0	1.30
	3.0625	127.000	5.0000	30.162	1.1875	31.000	1.2205	22.225	0.8750	3.6	0.14	3.2	0.13	143	225	42690	42620	27.1	1.07	91.0	3.58	85.0	3.35	114.0	4.49	121.0	4.76	0.42	1.43	0.79	41.4	29.6	1.40
	3.0625	133.350	5.2500	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	495AS	492A	29.8	1.17	93.0	3.66	87.0	3.43	120.0	4.72	128.0	5.04	0.44	1.35	0.74	38.8	29.4	1.32
	3.0625	135.733	5.3438	44.450	1.7500	46.101	1.8150	34.925	1.3750	3.6	0.14	3.2	0.13	213	337	5795	5735	33.0	1.30	96.0	3.78	89.0	3.50	119.0	4.69	130.0	5.12	0.41	1.48	0.81	62.5	43.4	1.44
79.375	3.1250	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	661	653	33.4	1.31	96.0	3.78	90.0	3.54	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	3.1250	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	3.2	0.13	183	287	595A	592XS	33.4	1.31	98.0	3.86	91.0	3.58	133.0	5.24	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.1250	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	750R	742	32.4	1.28	96.0	3.78	90.0	3.54	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
	3.1250	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	7.9	0.31	3.2	0.13	273	391	756A	752	35.5	1.40	106.0	4.17	91.0	3.58	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
	3.1250	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	3.6	0.14	3.2	0.13	440	602	HH221431	HH221410	42.5	1.67	103.0	4.06	97.0	3.82	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75
	3.1250	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	3.6	0.14	3.2	0.13	440	602	HH221431	HH221410	42.5	1.67	103.0	4.06	97.0	3.82	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75
79.985	3.1490	136.525	5.3750	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	496X	493	29.8	1.17	94.0	3.70	88.0	3.46	122.0	4.80	130.0	5.12	0.44	1.35	0.74	38.8	29.4	1.32
	3.1490	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	578R	572	31.0	1.22	95.0	3.74	89.0	3.50	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.1490	152.400	6.0000	39.688	1.5625	36.322	1.4300	30.162	1.1875	3.6	0.14	3.2	0.13	183	287	590	592A	37.1	1.46	98.0	3.86	92.0	3.62	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
80.000	3.1496	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.0	0.12	3.2	0.13	264	368	748R	742	32.4	1.28	95.0	3.74	91.0	3.58	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
	3.1496	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.0	0.12	3.2	0.13	316	471	6556R	6535	41.0	1.61	99.0	3.90	89.0	3.50	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.1496	168.275	6.6250	53.975	2.1250	56.363	2.2190	41.275	1.6250	3.0	0.12	3.2	0.13	344	467	838XR	832	35.0	1.38	93.0	3.66	92.0	3.62	149.0	5.87	155.0	6.10	0.30	2.00	1.10	101	51.6	1.95
	3.1496	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	3.0	0.12	3.2	0.13	385	565	864XR	854	39.9	1.57	100.0	3.94	95.0	3.74	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	3.1496	200.000	7.8740	52.761	2.0772	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	347	471	98316	98788	54.5	2.15	111.0	4.37	105.0	4.13	174.0	6.85	188.0	7.40	0.63	0.95	0.52	101	109	0.93
80.962	3.1875	133.350	5.2500	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	496	492A	29.8	1.17	95.0	3.74	89.0	3.50	120.0	4.72	128.0	5.04	0.44	1.35	0.74	38.8	29.4	1.32
	3.1875	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	3.2	0.13	154	245	47681R	47620	29.2	1.15	95.0	3.74	89.0	3.50	119.0	4.69	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.1875	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	0.8	0.03	154	245	47681R	47620A	29.2	1.15	95.0	3.74	89.0	3.50	121.0	4.76	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.1875	133.350	5.2500	39.688	1.5625	39.688	1.5625	32.545	1.2813	3.6	0.14	3.2	0.13	177	306	HM516447	HM516410	32.2	1.27	97.0	3.82	91.0	3.58	118.0	4.65	128.0	5.04	0.40	1.49	0.82	51.8	35.6	1.46
	3.1875	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	581R	572	31.0	1.22	96.0	3.78	90.0	3.54	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.1875	146.050	5.7500	38.100	1.5000	38.100	1.5000	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	662	653	30.2	1.19	97.0	3.82	90.0	3.54	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43

TS type
d (82.550) ~ (85.725) mm
(3.2500) ~ (3.3750) inch



$$P = XF_r + YF_a$$

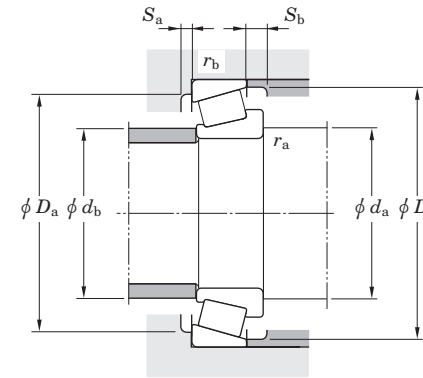
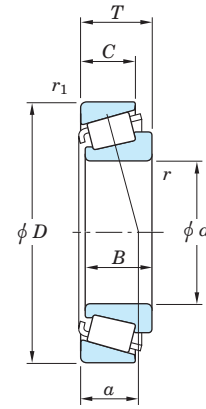
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
82.550	3.2500	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	0.8	0.03	154	245	47686R	47620A	29.2	1.15	97.0	3.82	90.0	3.54	121.0	4.76	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.2500	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	6.7	0.26	0.8	0.03	154	245	47687R	47620A	29.2	1.15	103.0	4.06	90.0	3.54	121.0	4.76	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45
	3.2500	133.350	5.2500	39.688	1.5625	39.688	1.5625	32.545	1.2813	6.7	0.26	3.2	0.13	177	306	HM516448	HM516410	32.2	1.27	105.0	4.13	92.0	3.62	118.0	4.65	128.0	5.04	0.40	1.49	0.82	51.8	35.6	1.46
	3.2500	133.350	5.2500	39.688	1.5625	39.688	1.5625	32.545	1.2813	3.6	0.14	3.2	0.13	177	306	HM516449	HM516410	32.2	1.27	99.0	3.90	92.0	3.62	118.0	4.65	128.0	5.04	0.40	1.49	0.82	51.8	35.6	1.46
	3.2500	139.700	5.5000	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	580R	572X	31.0	1.22	98.0	3.86	91.0	3.58	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.2500	139.700	5.5000	36.512	1.4375	36.098	1.4212	28.575	1.1250	6.7	0.26	3.2	0.13	175	262	582R	572X	31.0	1.22	104.0	4.09	91.0	3.58	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.2500	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	3.6	0.14	3.2	0.13	175	262	580R	572	31.0	1.22	98.0	3.86	91.0	3.58	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.2500	139.992	5.5115	36.512	1.4375	36.098	1.4212	28.575	1.1250	6.7	0.26	3.2	0.13	175	262	582R	572	31.0	1.22	104.0	4.09	91.0	3.58	125.0	4.92	133.0	5.24	0.40	1.49	0.82	51.2	35.3	1.45
	3.2500	142.138	5.5960	42.862	1.6875	42.862	1.6875	34.133	1.3438	3.6	0.14	3.2	0.13	219	351	HM617045	HM617010	35.2	1.39	100.0	3.94	93.0	3.66	125.0	4.92	137.0	5.39	0.43	1.39	0.76	64.4	47.5	1.35
	3.2500	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	663	653	33.4	1.31	99.0	3.90	92.0	3.62	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	3.2500	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	6.7	0.26	3.2	0.13	208	301	663A	653	33.4	1.31	105.0	4.13	92.0	3.62	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	3.2500	150.000	5.9055	35.992	1.4170	36.322	1.4300	27.000	1.0630	3.6	0.14	3.0	0.12	183	287	595	593X	33.4	1.31	100.0	3.94	93.0	3.66	134.0	5.28	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.2500	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	3.6	0.14	3.2	0.13	264	368	749AR	742	32.4	1.28	99.0	3.90	93.0	3.66	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
	3.2500	150.089	5.9090	44.450	1.7500	46.672	1.8375	36.512	1.4375	6.7	0.26	3.2	0.13	264	368	750AR	742	32.4	1.28	106.0	4.17	93.0	3.66	134.0	5.28	142.0	5.59	0.33	1.84	1.01	77.3	43.0	1.80
	3.2500	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	757	752	35.5	1.40	100.0	3.94	94.0	3.70	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
3.2500	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6559R	6535	41.0	1.61	104.0	4.09	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46	
3.2500	168.275	6.6250	53.975	2.1250	56.363	2.2190	41.275	1.6250	0.8	0.03	3.2	0.13	344	467	839R	832	35.0	1.38	95.0	3.74	94.0	3.70	149.0	5.87	155.0	6.10	0.30	2.00	1.10	101	51.6	1.95	
3.2500	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	3.2	0.13	3.2	0.13	385	565	867XR	854	39.9	1.57	103.0	4.06	98.0	3.86	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75	
83.345	3.2813	125.412	4.9375	25.400	1.0000	25.400	1.0000	19.845	0.7813	0.8	0.03	1.6	0.06	101	162	27689	27620	24.7	0.97	90.0	3.54	90.0	3.54	115.0	4.53	120.0	4.72	0.42	1.44	0.79	29.2	20.8	1.41
	3.2813	125.412	4.9375	25.400	1.0000	25.400	1.0000	19.845	0.7813	3.6	0.14	1.6	0.06	101	162	27690	27620	24.7	0.97	96.0	3.78	90.0	3.54	115.0	4.53	120.0	4.72	0.42	1.44	0.79	29.2	20.8	1.41
	3.2813	125.412	4.9375	25.400	1.0000	25.400	1.0000	19.845	0.7813	6.4	0.25	1.6	0.06	101	162	27691	27620	24.7	0.97	102.0	4.02	90.0	3.54	115.0	4.53	120.0	4.72	0.42	1.44	0.79	29.2	20.8	1.41
3.2813	133.350	5.2500	33.338	1.3125	33.338	1.3125	26.195	1.0313	3.6	0.14	3.2	0.13	154	245	47688R	47620	29.2	1.15	97.0	3.82	90.0	3.54	119.0	4.69	128.0	5.04	0.40	1.48	0.82	44.7	30.9	1.45	
84.138	3.3125	133.350	5.2500	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	498	492A	29.8	1.17	98.0	3.86	91.0	3.58	120.0	4.72	128.0	5.04	0.44	1.35	0.74	38.8	29.4	1.32
	3.3125	149.225	5.8750	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	664	652A	33.4	1.31	100.0	3.94	95.0	3.74	132.0	5.20	141.0	5.55	0.41	1.47	0.81	60.9	42.6	1.43
	3.3125	152.400	6.0000	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	664	652	33.4	1.31	100.0	3.94	95.0	3.74	134.0	5.28	141.0	5.55	0.41	1.47	0.81	60.9	42.6	1.43
84.963	3.3450	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6578R	6535	41.0	1.61	109.0	4.29	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
84.976	3.3455	136.525	5.3750	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	499A	493	29.8	1.17	98.0	3.86	92.0	3.62	122.0	4.80	130.0	5.12	0.44	1.35	0.74	38.8	29.4	1.32
85.000	3.3465	152.400	6.0000	39.688	1.5625	36.322	1.4300	30.162	1.1875	3.2	0.13	3.2	0.13	183	287	596X	592A	37.1	1.46	101.0	3.98	96.0	3.78	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
	3.3465	152.400	6.0000	39.688	1.5625	36.322	1.4300	30.162	1.1875	3.0	0.12	3.2	0.13	183	287	599X	592A	37.1	1.46	100.0	3.94	96.0	3.78	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
	3.3465	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.0	0.12	3.2	0.13	316	471	6557R	6535	41.0	1.61	95.0	3.74	85.0	3.35	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.3465	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	3.0	0.12	3.2	0.13	385	565	865XR	854	39.9	1.57	105.0	4.13	100.0	3.94	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	3.3465	200.00																															

TS type
d (85.725) ~ 89.992 mm
(3.3750) ~ 3.5430 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

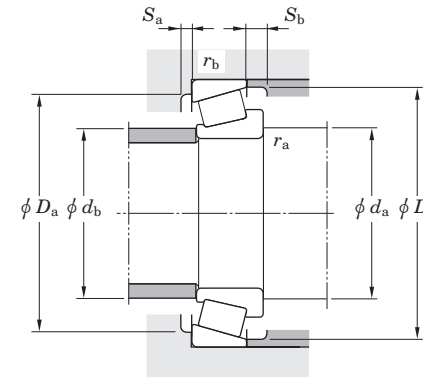
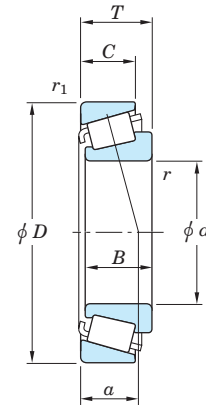
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
85.725	3.3750	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	3.6	0.14	3.2	0.13	208	301	665	653	33.4	1.31	102.0	4.02	95.0	3.74	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	3.3750	146.050	5.7500	41.275	1.6250	41.275	1.6250	31.750	1.2500	6.4	0.25	3.2	0.13	208	301	665A	653	33.4	1.31	107.0	4.21	95.0	3.74	131.0	5.16	139.0	5.47	0.41	1.47	0.81	60.9	42.6	1.43
	3.3750	152.400	6.0000	39.688	1.5625	36.322	1.4300	30.162	1.1875	3.6	0.14	3.2	0.13	183	287	596	592A	37.1	1.46	102.0	4.02	96.0	3.78	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
	3.3750	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	758	752	35.5	1.40	103.0	4.06	97.0	3.82	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
	3.3750	161.925	6.3750	62.705	2.4687	63.830	2.5130	42.862	1.6875	6.7	0.26	3.2	0.13	316	471	6553R	6535	49.8	1.96	113.0	4.45	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.3750	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	677	672	38.6	1.52	105.0	4.13	99.0	3.90	149.0	5.87	160.0	6.30	0.47	1.28	0.70	65.8	52.9	1.24
	3.3750	168.275	6.6250	53.975	2.1250	56.363	2.2190	41.275	1.6250	3.6	0.14	3.2	0.13	344	467	841R	832	35.0	1.38	104.0	4.09	97.0	3.82	149.0	5.87	155.0	6.10	0.30	2.00	1.10	101	51.6	1.95
	3.3750	170.045	6.6947	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	2.4	0.09	224	349	677	673SA	38.6	1.52	105.0	4.13	99.0	3.90	151.0	5.94	160.0	6.30	0.47	1.28	0.70	65.8	52.9	1.24
87.312	3.4375	123.825	4.8750	20.638	0.8125	20.638	0.8125	16.670	0.6563	1.6	0.06	1.6	0.06	81.8	145	L217847	L217810	20.7	0.81	96.0	3.78	93.0	3.66	116.0	4.57	119.0	4.69	0.33	1.82	1.00	23.5	13.2	1.77
	3.4375	136.525	5.3750	30.162	1.1875	29.769	1.1720	22.225	0.8750	3.6	0.14	3.2	0.13	133	198	495X	493	29.8	1.17	100.0	3.94	94.0	3.70	122.0	4.80	130.0	5.12	0.44	1.35	0.74	38.8	29.4	1.32
	3.4375	152.400	6.0000	39.688	1.5625	36.322	1.4300	30.162	1.1875	3.6	0.14	3.2	0.13	183	287	596S	592A	37.1	1.46	103.0	4.06	97.0	3.82	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
	3.4375	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	7.9	0.31	3.2	0.13	385	565	869R	854	39.9	1.57	117.0	4.61	102.0	4.02	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	3.4375	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	7.9	0.31	3.2	0.13	440	602	HH221432	HH221410	42.5	1.67	118.0	4.65	103.0	4.06	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75
88.824	3.4970	161.925	6.3750	62.705	2.4687	63.830	2.5130	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6552XR	6535	49.8	1.96	109.0	4.29	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
88.900	3.5000	123.825	4.8750	20.638	0.8125	20.638	0.8125	16.670	0.6563	1.6	0.06	1.6	0.06	81.8	145	L217849	L217810	20.7	0.81	97.0	3.82	94.0	3.70	116.0	4.57	119.0	4.69	0.33	1.82	1.00	23.5	13.2	1.77
	3.5000	146.050	5.7500	33.338	1.3125	34.925	1.3750	26.195	1.0313	3.6	0.14	3.2	0.13	178	293	47885R	47820	32.6	1.28	104.0	4.09	98.0	3.86	131.0	5.16	140.0	5.51	0.45	1.34	0.74	51.6	39.5	1.31
	3.5000	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	0.8	0.03	183	287	593	592XE	33.4	1.31	104.0	4.09	98.0	3.86	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.5000	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	6.4	0.25	0.8	0.03	183	287	593A	592XE	33.4	1.31	110.0	4.33	98.0	3.86	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.5000	152.400	6.0000	39.688	1.5625	36.322	1.4300	33.338	1.3125	3.6	0.14	3.2	0.13	183	287	593	592	37.1	1.46	104.0	4.09	98.0	3.86	135.0	5.31	144.0	5.67	0.44	1.36	0.75	53.5	40.4	1.32
	3.5000	152.400	6.0000	39.688	1.5625	39.688	1.5625	30.162	1.1875	6.4	0.25	3.2	0.13	248	359	HM518445	HM518410	33.1	1.30	110.0	4.33	98.0	3.86	135.0	5.31	146.0	5.75	0.40	1.49	0.82	72.3	49.6	1.46
	3.5000	159.995	6.2990	47.625	1.8750	48.260	1.9000	38.100	1.5000	7.1	0.28	0.8	0.03	273	391	766	752A	35.5	1.40	113.0	4.45	99.0	3.90	146.0	5.75	149.0	5.87	0.34	1.76	0.97	80.0	46.6	1.72
	3.5000	160.096	6.3030	30.124	1.1860	30.162	1.1875	22.301	0.8780	2.4	0.09	3.2	0.13	165	221	69350X	69630	30.6	1.20	103.0	4.06	97.0	3.82	143.0	5.63	149.0	5.87	0.42	1.42	0.78	47.7	34.5	1.38
	3.5000	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	759	752	35.5	1.40	106.0	4.17	99.0	3.90	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
	3.5000	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	7.1	0.28	3.2	0.13	273	391	766	752	35.5	1.40	113.0	4.45	99.0	3.90	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
	3.5000	161.925	6.3750	53.975	2.4687	55.100	2.1693	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6580R	6535	49.8	1.96	109.0	4.29	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.5000	161.925	6.3750	62.705	2.4687	63.830	2.5130	42.862	1.6875	3.6	0.14	3.2	0.13	316	471	6552R	6535	49.8	1.96	109.0	4.29	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
	3.5000	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	679	672	38.6	1.52	107.0													

Tapered roller bearings

TS type
 d 90.000 ~ 98.425 mm
 3.5433 ~ 3.8750 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

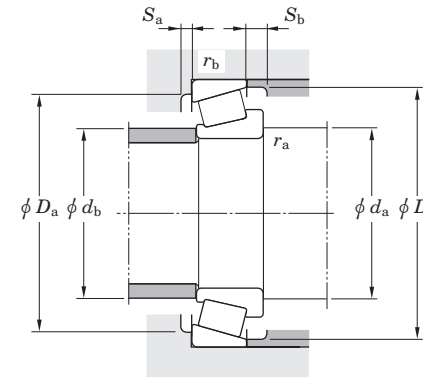
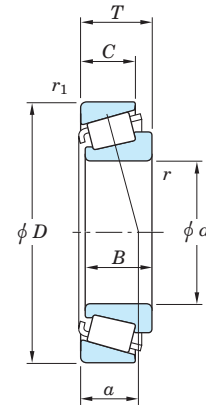
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
90.000	3.5433	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.0	0.12	0.8	0.03	183	287	597X	592XE	33.4	1.31	104.0	4.09	99.0	3.90	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.5433	160.000	6.2992	53.975	2.1250	55.100	2.1693	44.450	1.7500	3.0	0.12	3.0	0.12	316	471	6581XR	6525X	41.0	1.61	102.0	4.02	98.0	3.86	141.0	5.55	153.5	6.04	0.40	1.50	0.82	92.9	63.5	1.46
	3.5433	161.925	6.3750	53.975	2.1250	55.100	2.1693	42.862	1.6875	3.0	0.12	3.2	0.13	316	471	6581XR	6535	41.0	1.61	102.0	4.02	98.0	3.86	141.0	5.55	154.0	6.06	0.40	1.50	0.82	92.9	63.5	1.46
90.488	3.5625	161.925	6.3750	47.625	1.8750	48.260	1.9000	38.100	1.5000	3.6	0.14	3.2	0.13	273	391	760	752	35.5	1.40	107.0	4.21	101.0	3.98	144.0	5.67	150.0	5.91	0.34	1.76	0.97	80.0	46.6	1.72
92.075	3.6250	130.175	5.1250	20.638	0.8125	21.432	0.8438	16.670	0.6563	3.6	0.14	1.6	0.06	97.0	167	L319245	L319210	22.2	0.87	107.0	4.21	101.0	3.98	122.0	4.80	125.0	4.92	0.35	1.72	0.95	27.7	16.5	1.68
	3.6250	146.050	5.7500	33.338	1.3125	34.925	1.3750	26.195	1.0313	3.6	0.14	3.2	0.13	178	293	47890R	47820	32.6	1.28	107.0	4.21	101.0	3.98	131.0	5.16	140.0	5.51	0.45	1.34	0.74	51.6	39.5	1.31
	3.6250	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	0.8	0.03	183	287	598	592XE	33.4	1.31	107.0	4.21	101.0	3.98	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.6250	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	6.4	0.25	0.8	0.03	183	287	598A	592XE	33.4	1.31	113.0	4.45	101.0	3.98	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.6250	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	681	672	38.6	1.52	110.0	4.33	104.0	4.09	149.0	5.87	160.0	6.30	0.47	1.28	0.70	65.8	52.9	1.24
	3.6250	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	6.4	0.25	3.2	0.13	224	349	681A	672	38.6	1.52	116.0	4.57	104.0	4.09	149.0	5.87	160.0	6.30	0.47	1.28	0.70	65.8	52.9	1.24
	3.6250	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	3.6	0.14	3.2	0.13	288	438	778	772	39.5	1.56	111.0	4.37	105.0	4.13	161.0	6.34	168.0	6.61	0.39	1.56	0.86	84.5	55.7	1.52
3.6250	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	7.9	0.31	3.2	0.13	385	565	857R	854	39.9	1.57	121.0	4.76	106.0	4.17	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75	
3.6250	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	7.9	0.31	3.2	0.13	440	602	HH221438	HH221410	42.5	1.67	121.0	4.76	106.0	4.17	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75	
93.662	3.6875	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	0.8	0.03	183	287	597	592XE	33.4	1.31	109.0	4.29	102.0	4.02	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
94.976	3.7392	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	3.6	0.14	3.2	0.13	385	565	867AR	854	39.9	1.57	114.0	4.49	108.0	4.25	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
95.000	3.7402	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	6.4	0.25	3.2	0.13	385	565	862R	854	39.9	1.57	120.0	4.72	108.0	4.25	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
95.250	3.7500	128.588	5.0625	15.875	0.6250	15.083	0.5938	11.908	0.4688	1.6	0.06	1.6	0.06	58.0	93.0	LL319349	LL319310	20.3	0.80	103.0	4.06	100.0	3.94	122.0	4.80	125.0	4.92	0.35	1.71	0.94	16.4	9.85	1.67
	3.7500	130.175	5.1250	20.638	0.8125	21.432	0.8438	16.670	0.6563	1.6	0.06	1.6	0.06	97.0	167	L319249	L319210	22.2	0.87	107.0	4.21	101.0	3.98	122.0	4.80	125.0	4.92	0.35	1.72	0.95	27.7	16.5	1.68
	3.7500	146.050	5.7500	33.338	1.3125	34.925	1.3750	26.195	1.0313	3.6	0.14	3.2	0.13	178	293	47896R	47820	32.6	1.28	110.0	4.33	103.0	4.06	131.0	5.16	140.0	5.51	0.45	1.34	0.74	51.6	39.5	1.31
	3.7500	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	3.6	0.14	0.8	0.03	183	287	594	592XE	33.4	1.31	110.0	4.33	104.0	4.09	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.7500	147.638	5.8125	35.717	1.4062	36.322	1.4300	26.192	1.0312	5.2	0.20	0.8	0.03	183	287	594A	592XE	33.4	1.31	113.0	4.45	104.0	4.09	135.0	5.31	142.0	5.59	0.44	1.36	0.75	53.5	40.4	1.32
	3.7500	157.162	6.1875	36.512	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.2	0.13	180	288	52375	52618	36.0	1.42	112.0	4.41	105.0	4.13	142.0	5.59	153.0	6.02	0.47	1.26	0.69	52.7	42.8	1.23
	3.7500	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	683	672	38.6	1.52	113.0	4.45	106.0	4.17	149.0	5.87	160.0	6.30	0.47	1.28	0.70	65.8	52.9	1.24
	3.7500	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	3.6	0.14	3.2	0.13	288	438	776	772	39.5	1.56	114.0	4.49	107.0	4.21	161.0	6.34	168.0	6.61	0.39	1.56	0.86	84.5	55.7	1.52
	3.7500	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	7.9	0.31	3.2	0.13	385	565	864R	854	39.9	1.57	123.0	4.84	108.0	4.25	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
3.7500	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	7.9	0.31	3.2	0.13	440	602	HH221440	HH221410	42.5	1.67	125.0	4.92	110.0	4.33	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75	
96.838	3.8125	148.430	5.8437	28.575	1.1250	28.971	1.1406	21.433	0.8438	3.6	0.14	3	0.12	143	225	42381	42584	31.9	1.26	110.0	4.33	104.0	4.09	134.0	5.28	142.0	5.59	0.49	1.22	0.67	41.4	34.8	1.19
98.425	3.8750	160.000	6.2992	36.512	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.0	0.12	180	288	52387	52630X	36.0	1.42	114.0	4.49	108.0	4.25	144.0	5.67	154.0	6.06	0.47	1.26	0.69	52.7	42.8	1.23
	3.8750	161.925	6.3750	36.512	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.2	0.13	180	288	52387	52637	36.0	1.42	114.0	4.49	108.0	4.25	144.0	5.67	154.0	6.06	0.47	1.26	0.69	52.7	42.8	1.23
	3.8750	161.925	6.3750	39.688	1.5625	36.116	1.4219	29.370	1.1563	3.6	0.14	3.2	0.13	180	288	52387	52638	39.2	1.54	114.0	4.49	108.0	4.25	144.0	5.67	154.0	6.06	0.47	1.26	0.69	52.7	42.8	1.23
	3.8750	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	685	672	38.6	1.52	116.0	4.57	109.0	4.29	149.0</									

Tapered roller bearings

TS type
 d 99.975 ~ 107.950 mm
 3.9360 ~ 4.2500 inch



$$P = XF_r + YF_a$$

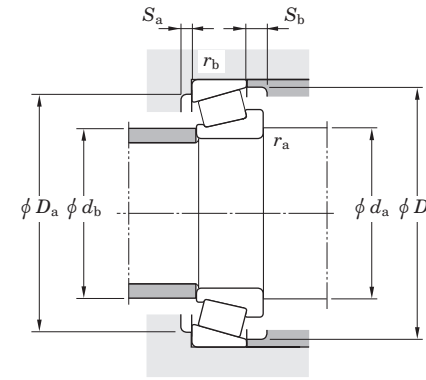
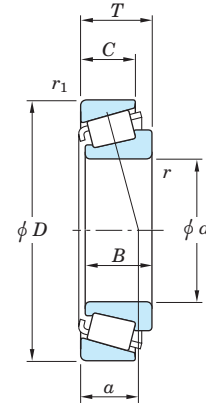
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions													Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor		
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						mm	inch	mm	inch	mm	inch	mm	inch							mm
99.975	3.9360	156.975	6.1801	42.000	1.6535	42.000	1.6535	34.000	1.3386	7.9	0.31	3.6	0.14	245	396	HM220149	HM220110	32.4	1.28	123.0	4.84	108.0	4.25	142.0	5.59	151.0	5.94	0.33	1.80	0.99	71.8	40.8	1.76
	3.9360	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	3.6	0.14	3.2	0.13	513	699	HH224334	HH224310	47.6	1.87	122.0	4.80	117.0	4.61	192.0	7.56	202.0	7.95	0.33	1.84	1.01	151	84.2	1.80
99.982	3.9363	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	6.4	0.25	3.2	0.13	385	565	863R	854	39.9	1.57	125.0	4.92	103.0	4.06	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	3.9363	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	6.4	0.25	3.2	0.13	440	602	HH221447	HH221410	42.5	1.67	126.0	4.96	114.0	4.49	171.0	6.73	179.0	7.05	0.33	1.79	0.99	129	73.6	1.75
100.000	3.9370	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	3.6	0.14	3.2	0.13	288	438	783	772	39.5	1.56	118.0	4.65	111.0	4.37	161.0	6.34	168.0	6.61	0.39	1.56	0.86	84.5	55.7	1.52
	3.9370	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	6.0	0.24	3.2	0.13	385	565	863XR	854	39.9	1.57	122.0	4.80	117.0	4.61	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	3.9370	200.000	7.8740	52.761	2.0772	49.213	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	347	471	98394X	98788	54.7	2.15	126.0	4.96	120.5	4.75	174.0	6.85	188.0	7.40	0.63	0.95	0.52	101	109	0.93
100.012	3.9375	157.162	6.1875	36.512	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.2	0.13	180	288	52393	52618	36.0	1.42	113.0	4.45	115.0	4.53	142.0	5.59	153.0	6.02	0.47	1.26	0.69	52.7	42.8	1.23
101.600	4.0000	157.162	6.1875	36.512	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.2	0.13	180	288	52400	52618	36.0	1.42	114.0	4.49	115.0	4.53	142.0	5.59	153.0	6.02	0.47	1.26	0.69	52.7	42.8	1.23
	4.0000	157.162	6.1875	36.512	1.4375	36.116	1.4219	26.195	1.0313	7.9	0.31	3.2	0.13	180	288	52401	52618	36.0	1.42	126.0	4.96	111.0	4.37	142.0	5.59	153.0	6.02	0.47	1.26	0.69	52.7	42.8	1.23
	4.0000	161.925	6.3750	36.513	1.4375	36.116	1.4219	26.195	1.0313	3.6	0.14	3.2	0.13	180	288	52400	52637	36.0	1.42	117.0	4.61	111.0	4.37	144.0	5.67	154.0	6.06	0.47	1.26	0.69	52.7	42.8	1.23
	4.0000	168.275	6.6250	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	224	349	687	672	38.6	1.52	114.0	4.49	115.0	4.53	146.0	5.75	157.0	6.18	0.47	1.28	0.70	65.8	52.9	1.24
	4.0000	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	3.6	0.14	3.2	0.13	288	438	780	772	39.5	1.56	114.0	4.49	120.0	4.72	156.0	6.14	165.0	6.50	0.39	1.56	0.86	84.5	55.7	1.52
	4.0000	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	9.5	0.37	3.2	0.13	385	565	860R	854	39.9	1.57	126.0	4.96	114.0	4.49	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	4.0000	190.500	7.5000	57.150	2.2500	57.531	2.2650	44.450	1.7500	7.9	0.31	3.2	0.13	385	565	861R	854	39.9	1.57	129.0	5.08	114.0	4.49	170.0	6.69	174.0	6.85	0.33	1.79	0.99	113	64.6	1.75
	4.0000	190.500	7.5000	57.150	2.2500	57.531	2.2650	46.038	1.8125	7.9	0.31	3.2	0.13	440	602	HH221449	HH221410	42.5	1.67	123.0	4.84	119.0	4.69	168.0	6.61	178.0	7.01	0.33	1.79	0.99	129	73.6	1.75
	4.0000	200.000	7.8740	52.761	2.0772	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	347	471	98400	98788	54.5	2.15	114.0	4.49	123.0	4.84	170.0	6.69	185.0	7.28	0.63	0.95	0.52	101	109	0.93
	4.0000	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	450	674	941	932	47.6	1.87	121.0	4.76	135.0	5.31	181.0	7.13	192.0	7.56	0.33	1.84	1.01	133	73.9	1.80
4.0000	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	513	699	HH224335	HH224310	47.6	1.87	121.0	4.76	134.0	5.28	189.0	7.44	201.0	7.91	0.33	1.84	1.01	151	84.2	1.80	
104.775	4.1250	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	3.6	0.14	3.2	0.13	288	438	782	772	39.5	1.56	117.0	4.61	120.0	4.72	156.0	6.14	165.0	6.50	0.39	1.56	0.86	84.5	55.7	1.52
	4.1250	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	6.4	0.25	3.2	0.13	288	438	786	772	39.5	1.56	123.0	4.84	120.0	4.72	156.0	6.14	165.0	6.50	0.39	1.56	0.86	84.5	55.7	1.52
	4.1250	180.975	7.1250	47.625	1.8750	48.006	1.8900	38.100	1.5000	7.1	0.28	3.2	0.13	288	438	787	772	39.5	1.56	129.0	5.08	116.0	4.57	161.0	6.34	168.0	6.61	0.39	1.56	0.86	84.5	55.7	1.52
	4.1250	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	303	483	71412	71750	40.9	1.61	117.0	4.61	131.0	5.16	167.0	6.57	177.0	6.97	0.42	1.44	0.79	89.0	63.3	1.41
106.362	4.1875	165.100	6.5000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	3.2	0.13	195	325	56418R	56650	38.6	1.52	122.0	4.80	116.0	4.57	149.0	5.87	159.0	6.26	0.50	1.21	0.66	56.7	48.2	1.18
	4.1875	165.100	6.5000	36.513	1.4375	36.513	1.4375	26.988	1.0625	3.6	0.14	3.2	0.13	184	300	56418	56650	38.5	1.52	122.0	4.80	116.0	4.57	149.0	5.87	159.0	6.26	0.50	1.21	0.66	53.7	45.7	1.18
107.950	4.2500	146.050	5.7500	21.432	0.8438	21.432	0.8438	16.670	0.6563	1.6	0.06	1.6	0.06	86.4	167	L521949R	L521910	26.2	1.03	116.0	4.57	114.0	4.49	136.0	5.35	141.0	5.55	0.39	1.53	0.84	24.8	16.7	1.49
	4.2500	158.750	6.2500	23.020	0.9063	21.438	0.8440	15.875	0.6250	3.6	0.14	3.2	0.13	104	169	37425	37625	36.5	1.44	121.0	4.76	121.0	4.76	141.0	5.55	148.0	5.83	0.61	0.99	0.54	29.7	30.8	1.97
	4.2500	159.987	6.2987	34.925	1.3750	34.925	1.3750	26.988	1.0625	3.6	0.14	3.2	0.13	184	319	LM522546	LM522510	32.9	1.30	122.0	4.80	116.0	4.57	146.0	5.75	154.0	6.06	0.40	1.50	0.82	53.4	36.5	1.46
	4.2500	161.925	6.3750	23.020	0.9063	21.438	0.8440	15.875	0.6250	3.6	0.14	3.2	0.13	104	169	37425	37637	36.5	1.44	122.0	4.80	115.0	4.53	145.0	5.71	152.0	5.98	0.61	0.99	0.54	29.7	30.8	0.97
	4.2500	161.925	6.3750	34.925	1.3750	34.925	1.3750	26.988	1.0625	3.6	0.14	3.2	0.13	173	293	48190	48120	39.1	1.54	121.0	4.76	120.0	4.72	145.0	5.71	154.0	6.06	0.51	1.19	0.65	50.3	43.4	1.16
	4.2500	165.100	6.5000	36.512	1.4375	36.512	1.4375	26.988	1.0625	3.6	0.14	3.2	0.13	195	325	56425R	56650	38.6	1.52	123.0	4.84	117.0	4.61	149.0	5.87								

TS type
d 109.538 ~ 123.825 mm
4.3125 ~ 4.8750 inch



$$P = XF_r + YF_a$$

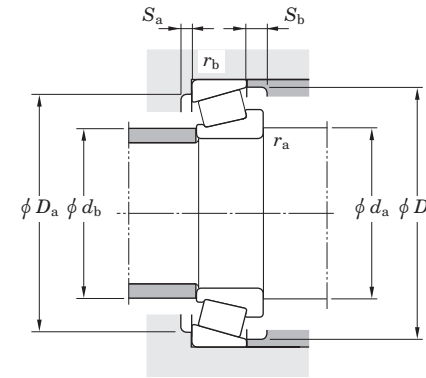
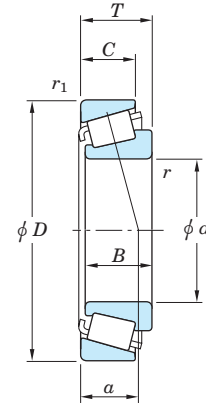
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
109.538	4.3125	158.750	6.2500	23.020	0.9063	21.438	0.8440	15.875	0.6250	3.6	0.14	3.2	0.13	104	169	37431	37625	36.5	1.44	123.0	4.84	116.0	4.57	143.0	5.63	152.0	5.98	0.61	0.99	0.54	29.7	30.8	0.97
109.952	4.3288	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	303	483	71432	71750	40.9	1.61	129.0	5.08	123.0	4.84	171.0	6.73	181.0	7.13	0.42	1.44	0.79	89.0	63.3	1.41
109.987	4.3302	159.987	6.2987	34.925	1.3750	34.925	1.3750	26.988	1.0625	7.9	0.31	3.2	0.13	184	319	LM522548	LM522510	32.9	1.30	131.0	5.16	121.0	4.76	146.0	5.75	154.0	6.06	0.40	1.50	0.82	53.4	36.5	1.46
109.992	4.3304	159.987	6.2987	34.925	1.3750	34.925	1.3750	26.988	1.0625	3.6	0.14	3.2	0.13	184	319	LM522549	LM522510	32.9	1.30	123.0	4.84	121.0	4.76	146.0	5.75	154.0	6.06	0.40	1.50	0.82	53.4	36.5	1.46
109.992	4.3304	177.800	7.0000	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	234	380	64433R	64700	42.8	1.69	128.0	5.04	121.0	4.76	160.0	6.30	172.6	6.80	0.52	1.16	0.64	68.4	60.3	1.13
110.000	4.3307	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	6.4	0.25	3.2	0.13	450	674	942	932	47.6	1.87	136.0	5.35	124.0	4.88	187.0	7.36	193.0	7.60	0.33	1.84	1.01	133	73.9	1.80
111.125	4.3750	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	303	483	71437	71750	40.9	1.61	129.0	5.08	123.0	4.84	171.0	6.73	181.0	7.13	0.42	1.44	0.79	89.0	63.3	1.41
111.917	4.4062	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	13.5	0.53	3.2	0.13	450	674	947	932	47.6	1.87	151.0	5.94	125.0	4.92	187.0	7.36	193.0	7.60	0.33	1.84	1.01	133	73.9	1.80
114.046	4.4900	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	450	674	938S	932	47.6	1.87	141.0	5.55	128.0	5.04	187.0	7.36	193.0	7.60	0.33	1.84	1.01	133	73.9	1.80
114.300	4.5000	152.400	6.0000	21.433	0.8438	21.433	0.8438	16.670	0.6563	1.6	0.06	1.6	0.06	96.4	197	L623149	L623110	27.7	1.09	130.0	5.12	120.0	4.72	143.0	5.63	148.0	5.83	0.41	1.45	0.80	27.5	19.4	1.42
	4.5000	155.575	6.1250	21.433	0.8438	21.433	0.8438	21.433	0.8438	1.6	0.06	1.6	0.06	96.4	197	L623149	L623114	27.7	1.09	130.0	5.12	120.0	4.72	143.0	5.63	149.0	5.87	0.41	1.45	0.80	27.5	19.4	1.42
	4.5000	177.800	7.0000	41.275	1.6250	41.275	1.6250	30.162	1.1875	3.6	0.14	3.2	0.13	234	380	64450R	64700	42.8	1.69	131.0	5.16	125.0	4.92	160.0	6.30	172.0	6.77	0.52	1.16	0.64	68.4	60.3	1.13
	4.5000	180.975	7.1250	34.925	1.3750	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	171	247	68450	68712	40.6	1.60	127.0	5.00	131.0	5.16	161.0	6.34	170.0	6.69	0.50	1.21	0.66	49.7	42.2	1.18
	4.5000	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	303	483	71450	71750	40.9	1.61	127.0	5.00	131.0	5.16	167.0	6.57	177.0	6.97	0.42	1.44	0.79	89.0	63.3	1.41
	4.5000	206.375	8.1250	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	450	674	938	930	47.6	1.87	141.0	5.55	128.0	5.04	184.0	7.24	193.0	7.60	0.33	1.84	1.01	133	73.9	1.79
	4.5000	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	450	674	938	932	47.6	1.87	141.0	5.55	128.0	5.04	187.0	7.36	193.0	7.60	0.33	1.84	1.01	133	73.9	1.80
	4.5000	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	13.5	0.53	3.2	0.13	450	674	939	932	47.6	1.87	153.0	6.02	127.0	5.00	187.0	7.36	193.0	7.60	0.33	1.84	1.01	133	73.9	1.80
	4.5000	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	513	699	HH224346	HH224310	47.6	1.87	134.0	5.28	134.0	5.28	189.0	7.44	201.0	7.91	0.33	1.84	1.01	151	84.2	1.80
	4.5000	273.050	10.7500	82.550	3.2500	82.550	3.2500	53.975	2.1250	6.4	0.25	6.4	0.25	707	898	HH926744	HH926710	76.1	3.00	133.0	5.24	151.0	5.94	230.0	9.06	252.0	9.92	0.63	0.95	0.52	208	225	0.93
114.976	4.5266	212.725	8.3750	66.675	2.6250	66.675	2.6250	53.975	2.1250	7.1	0.28	3.2	0.13	513	699	HH224349	HH224310	47.6	1.87	135.0	5.31	134.0	5.28	189.0	7.44	201.0	7.91	0.33	1.84	1.01	151	84.2	1.80
115.087	4.5310	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	303	483	71453	71750	40.9	1.61	133.0	5.24	126.0	4.96	171.0	6.73	181.0	7.13	0.42	1.44	0.79	89.0	63.3	1.41
	4.5310	190.500	7.5000	47.625	1.8750	49.212	1.9375	34.925	1.3750	7.9	0.31	3.2	0.13	303	483	71455	71750	40.9	1.61	136.0	5.35	131.0	5.16	167.0	6.57	177.0	6.97	0.42	1.44	0.79	89.0	63.3	1.41
117.475	4.6250	179.975	7.0856	34.925	1.3750	31.750	1.2500	25.400	1.0000	3.6	0.14	0.8	0.03	171	247	68462	68709	40.7	1.60	132.0	5.20	125.0	4.90	165.0	6.50	172.0	6.77	0.50	1.21	0.66	49.7	42.2	1.18
	4.6250	180.975	7.1250	34.925	1.3750	31.750	1.2500	25.400	1.0000	3.6	0.14	3.2	0.13	171	247	68462	68712	40.6	1.60	130.0	5.12	131.0	5.16	161.0	6.34	170.0	6.69	0.50	1.21	0.66	49.7	42.2	1.18
	4.6250	180.975	7.1250	34.925	1.3750	31.750	1.2500	25.400	1.0000	7.9	0.31	3.2	0.13	171	247	68463	68712	40.6	1.60	141.0	5.55	125.0	4.92	163.0	6.42	172.0	6.77	0.50	1.21	0.66	49.7	42.2	1.18
120.650	4.7500	174.625	6.8750	35.720	1.4063	36.513	1.4375	27.783	1.0938	3.6	0.14	1.6	0.06	208	362	M224749	M224710	32.1	1.26	135.0	5.31	129.0	5.08	162.0	6.38	168.0	6.61	0.33	1.80	0.99	60.1	34.2	1.76
	4.7500	190.500	7.5000	46.038	1.8125	46.038	1.8125	34.925	1.3750	3.6	0.14	1.6	0.06	313	512	HM624749	HM624710	41.6	1.64	146.0	5.75	132.0	5.20	174.0	6.85	184.0	7.24	0.43	1.41	0.77	91.4	66.7	1.37
	4.7500	199.974	7.8730	46.038	1.8125	46.038	1.8125	34.925	1.3750	3.6	0.14	1.6	0.06	313	512	HM624749	HM624716	41.6	1.64	146.0	5.75	132.0	5.20	174.0	6.85	184.0	7.24	0.43	1.41	0.77	91.4	66.7	1.37
	4.7500	206.375	8.1250	47.625	1.8750	47.625	1.8750	34.925	1.3750	3.2	0.13	3.2	0.13	326	548	795	792	45.7	1.80	139.0	5.47	134.0	5.28	186.0	7.32	198.0	7.80	0.46	1.31	0.72	95.2	74.6	1.27
	4.7500	234.950	9.2500	63.500	2.5000	63.500	2.5000	49.213	1.9375	6.4	0.25	3.2	0.13	523	826	95475	95925	49.9	1.96	149.0	5.87	137.0	5.39	209.0	8.23	217.0	8.54	0.37	1.62	0.89	154	97.1	1.58
	4.7500	254.000	10.0000	77.788	3.0625	82.550	3.2500	6																									

TS type
d 127.000 ~ 255.600 mm
5.0000 ~ 10.0630 inch



$$P = XF_r + YF_a$$

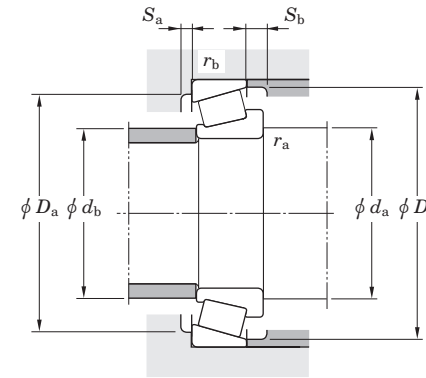
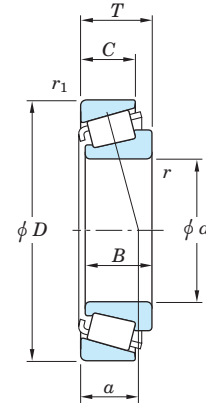
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a		d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
127.000	5.0000	165.895	6.5313	18.258	0.7188	17.463	0.6875	13.495	0.5313	1.6	0.06	1.6	0.06	91.1	166	LL225749	LL225710	24.3	0.96	135.0	5.31	133.0	5.24	156.0	6.14	160.0	6.30	0.33	1.80	0.99	25.9	14.7	1.76
	5.0000	169.863	6.6875	25.400	1.0000	26.195	1.0313	20.638	0.8125	1.6	0.06	1.6	0.06	131	250	L225849	L225810	27.6	1.09	136.0	5.35	134.0	5.28	160.0	6.30	164.0	6.46	0.33	1.80	0.99	37.9	21.6	1.76
	5.0000	180.975	7.1250	25.400	1.0000	26.195	1.0313	20.638	0.8125	1.6	0.06	1.6	0.06	131	250	L225849	L225818	27.6	1.09	136.0	5.35	134.0	5.28	164.0	6.46	166.0	6.54	0.33	1.80	0.99	37.9	21.6	1.76
	5.0000	182.563	7.1875	39.688	1.5625	38.100	1.5000	33.338	1.3125	3.6	0.14	3.2	0.13	227	429	48290	48220	34.1	1.34	141.0	5.55	135.0	5.31	168.0	6.61	176.0	6.93	0.31	1.97	1.08	65.8	34.3	1.92
	5.0000	196.850	7.7500	46.038	1.8125	46.038	1.8125	38.100	1.5000	3.6	0.14	3.2	0.13	311	561	67388	67322	39.7	1.56	144.0	5.67	138.0	5.43	180.0	7.09	189.0	7.44	0.34	1.74	0.96	90.6	53.3	1.70
	5.0000	203.200	8.0000	46.038	1.8125	46.038	1.8125	38.100	1.5000	3.6	0.14	3.2	0.13	311	561	67388	67320	39.7	1.56	144.0	5.67	138.0	5.43	183.0	7.20	191.0	7.52	0.34	1.74	0.96	90.6	53.3	1.70
	5.0000	215.900	8.5000	47.625	1.8750	47.625	1.8750	34.925	1.3750	3.6	0.14	3.2	0.13	322	549	74500	74850	49.7	1.96	148.0	5.83	141.0	5.55	196.0	7.72	208.0	8.19	0.49	1.23	0.68	94.0	78.3	1.20
	5.0000	234.950	9.2500	63.500	2.5000	63.500	2.5000	49.213	1.9375	6.4	0.25	3.2	0.13	523	826	95500	95925	49.9	1.96	154.0	6.06	142.0	5.59	209.0	8.23	217.0	8.54	0.37	1.62	0.89	154	97.1	1.58
5.0000	254.000	10.0000	77.788	3.0625	82.550	3.2500	61.912	2.4375	9.5	0.37	6.4	0.25	717	1 050	HH228349	HH228310	54.3	2.14	164.0	6.46	148.0	5.83	223.0	8.78	234.0	9.21	0.32	1.87	1.03	211	116	1.82	
128.588	5.0625	206.375	8.1250	47.625	1.8750	47.625	1.8750	34.925	1.3750	3.2	0.13	3.2	0.13	326	548	799	792	45.7	1.80	146.0	5.75	140.0	5.51	186.0	7.32	198.0	7.80	0.46	1.31	0.72	95.2	74.6	1.27
130.000	5.1181	206.375	8.1250	47.625	1.8750	47.625	1.8750	34.925	1.3750	3.6	0.14	3.2	0.13	326	548	797	792	45.7	1.80	148.0	5.83	141.0	5.55	186.0	7.32	198.0	7.80	0.46	1.31	0.72	95.2	74.6	1.27
133.350	5.2500	177.008	6.9688	25.400	1.0000	26.195	1.0313	20.638	0.8125	1.6	0.06	1.6	0.06	141	278	L327249	L327210	29.1	1.15	142.0	5.59	145.0	5.71	164.0	6.46	171.0	6.73	0.35	1.72	0.95	40.4	24.1	1.68
142.875	5.6250	200.025	7.8750	41.275	1.6250	39.688	1.5625	34.130	1.3437	7.9	0.31	3.3	0.13	246	491	48684	48620	38.4	1.51	166.0	6.54	151.0	5.94	185.0	7.28	193.0	7.60	0.34	1.78	0.98	71.3	41.0	1.74
	5.6250	200.025	7.8750	41.275	1.6250	39.688	1.5625	34.130	1.3437	3.6	0.14	3.3	0.13	246	491	48685	48620	38.4	1.51	156.0	6.14	157.0	6.18	182.0	7.17	192.0	7.56	0.34	1.78	0.98	71.3	41.0	1.74
158.750	6.4800	225.425	8.8750	41.275	1.6250	39.688	1.5625	33.338	1.3125	3.6	0.14	3.2	0.13	258	568	46780R	46720	44.0	1.73	176.0	6.93	169.0	6.65	209.0	8.23	218.0	8.58	0.38	1.57	0.86	74.6	48.9	1.53
165.100	6.5000	225.425	8.8750	41.275	1.6250	39.688	1.5625	33.338	1.3125	7.9	0.31	3.2	0.13	258	568	46790AR	46720	44.0	1.73	181.0	7.13	174.0	6.85	209.0	8.23	218.0	8.58	0.38	1.57	0.86	74.6	48.9	1.53
	6.5000	225.425	8.8750	41.275	1.6250	39.688	1.5625	33.338	1.3125	3.6	0.14	3.2	0.13	258	568	46790R	46720	44.0	1.73	181.0	7.13	174.0	6.85	209.0	8.23	218.0	8.58	0.38	1.57	0.86	74.6	48.9	1.53
166.688	6.5625	225.425	8.8750	41.275	1.6250	39.688	1.5625	33.338	1.3125	3.6	0.14	3.2	0.13	258	568	46792R	46720	44.0	1.73	182.0	7.17	175.0	6.89	209.0	8.23	218.0	8.58	0.38	1.57	0.86	74.6	48.9	1.53
171.450	6.7500	222.250	8.7500	25.400	1.0000	24.608	0.9688	19.050	0.7500	1.6	0.06	1.6	0.06	157	299	L435049	L435010	36.0	1.42	181.0	7.13	179.0	7.05	211.0	8.31	215.0	8.46	0.38	1.60	0.88	44.9	28.8	1.56
196.850	7.7500	254.000	10.0000	28.575	1.1250	27.783	1.0938	21.433	0.8438	1.6	0.06	1.6	0.06	188	387	L540049	L540010	43.1	1.70	206.0	8.11	214.0	8.43	238.0	9.37	245.0	9.65	0.40	1.51	0.83	53.5	36.3	1.47
212.725	8.3750	336.550	13.2500	65.088	2.5625	65.088	2.5625	50.800	2.0000	6.4	0.25	3.2	0.13	708	1 380	M246932	M246910	59.9	2.36	238.0	9.37	229.0	9.02	313.0	12.32	322.0	12.68	0.33	1.80	0.99	206	117	1.76
220.878	8.6960	317.500	12.5000	47.625	1.8750	52.388	2.0625	36.513	1.4375	3.2	0.13	3.2	0.13	488	928	LM245833	LM245810	50.5	1.99	234.0	9.21	253.0	9.96	296.0	11.65	304.0	11.97	0.33	1.80	0.99	141	80.0	1.76
228.600	9.0000	358.775	14.1250	71.438	2.8125	71.438	2.8125	53.975	2.1250	3.6	0.14	3.2	0.13	773	1 590	M249732	M249710	64.4	2.54	242.0	9.53	279.0	10.98	330.0	12.99	343.0	13.50	0.33	1.80	0.99	225	128	1.76
230.188	9.0625	317.500	12.5000	47.625	1.8750	52.388	2.0625	36.513	1.4375	3.2	0.13	3.2	0.13	488	928	LM245846	LM245810	50.5	1.99	242.0	9.53	238.0	9.37	309.0	12.17	312.0	12.28	0.33	1.80	0.99	141	80.0	1.76
231.775	9.1250	317.500	12.5000	47.625	1.8750	52.388	2.0625	36.513	1.4375	3.2	0.13	3.2	0.13	488	928	LM245848	LM245810	50.5	1.99	244.0	9.61	240.0	9.45	309.0	12.17	312.0	12.28	0.33	1.80	0.99	141	80.0	1.76
	9.1250	336.550	13.2500	65.088	2.5625	65.088	2.5625	50.800	2.0000	6.4	0.25	3.2	0.13	708	1 380	M246942	M246910	59.9	2.36	258.0	10.16	249.0	9.80	313.0	12.32	322.0	12.68	0.33	1.80	0.99	206	117	1.76
	9.1250	336.550	13.2500	65.088	2.5625	69.850	2.7500	50.800	2.0000	6.4	0.25	3.2	0.13	708	1 380	M246943	M246910	59.9	2.36	258.0	10.16	249.0	9.80	313.0	12.32	322.0	12.68	0.33	1.80	0.99	206	117	1.76
	9.1250	358.775	14.1250	71.438	2.8125	71.438	2.8125	53.975	2.1250	6.4	0.25	3.2	0.13	773	1 590	M249734	M249710	64.4	2.54	258.0	10.16	253.0	9.96	335.0	13.19	343.0	13.50	0.33	1.80	0.99	225	128	1.76
237.330	9.3437	336.550	13.2500	65.088	2.5625	65.088	2.5625	50.800	2.0000	6.4	0.25	3.2	0.13	708	1 380	M246949	M246910	59.9	2.36	262.0	10.31	253.0	9.96	313.0	12.32	322.0	12.68	0.33	1.80	0.99	206	117	1.76
	9.3437	358.775	14.1250	71.438	2.8125	71.438	2.8125	53.975	2.1250	6.4	0.25	3.2	0.13	773	1 590	M249736	M249710	64.4	2.54	262.0	10.31	258.0	10.16	335.0	13.19	343.0	13.50	0.33	1.80	0.99	225	128	1.76
254.000	10.0000	358.775	14.1250	71																													

TS type
d 257.175 ~ 1 092.200 mm
10.1250 ~ 43.0000 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

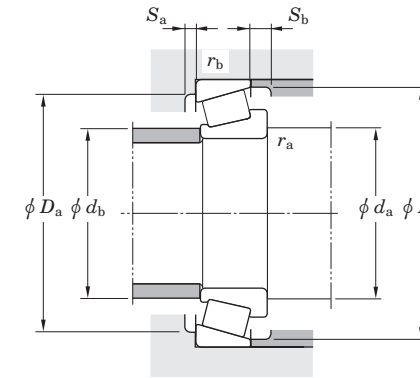
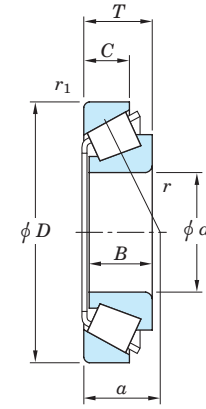
Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant e	Axial load factors		Reference rating (kN)		Factor K				
d	D	T	B	C	r (min.)	r ₁ (min.)	C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a	d _b	D _a	D _b	Y ₁	Y ₀	Radial	Axial														
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch						
257.175	10.1250	342.900	13.5000	57.150	2.2500	57.150	2.2500	44.450	1.7500	6.4	0.25	3.2	0.13	612	1 280	M349549	M349510	60.1	2.37	276.0	10.87	276.0	10.87	320.0	12.60	330.0	12.99	0.35	1.73	0.95	177	105	1.68
	10.1250	358.775	14.1250	71.438	2.8125	76.200	3.0000	53.975	2.1250	1.6	0.06	3.2	0.13	773	1 590	M249747	M249710	64.4	2.54	276.0	10.87	272.0	10.71	335.0	13.19	343.0	13.50	0.33	1.80	0.99	225	128	1.76
292.100	11.5000	374.650	14.7500	47.625	1.8750	47.625	1.8750	34.925	1.3750	3.6	0.14	3.2	0.13	468	971	L555249	L555210	64.7	2.55	306.0	12.05	309.0	12.17	351.0	13.82	360.0	14.17	0.40	1.49	0.82	136	93.2	1.46
431.800	17.0000	533.400	21.0000	46.038	1.8125	46.038	1.8125	34.925	1.3750	3.2	0.13	3.2	0.13	557	1 380	80385	80325	69.1	2.72	450.0	17.72	446.0	17.56	510.0	20.08	510.0	20.08	0.31	1.96	1.08	160	83.3	1.91
450.850	17.7500	603.250	23.7500	85.725	3.3750	84.138	3.3125	60.325	2.3750	6.4	0.25	3.2	0.13	1 380	3 170	LM770945	LM770910	116.0	4.57	484.0	19.06	474.0	18.66	570.0	22.44	584.0	22.99	0.45	1.32	0.73	401	311	1.29
457.200	18.0000	573.088	22.5625	74.613	2.9375	74.613	2.9375	57.150	2.2500	6.4	0.25	6.4	0.25	1 100	2 930	L570649	L570610	100.4	3.95	485.0	19.09	475.0	18.70	543.0	21.38	558.0	21.97	0.40	1.49	0.82	319	219	1.45
	18.0000	596.900	23.5000	76.200	3.0000	73.025	2.8750	53.975	2.1250	9.5	0.37	3.2	0.13	1 120	2 620	EE244180	244235	103.1	4.06	494.0	19.45	478.0	18.82	567.0	22.32	570.5	22.47	0.40	1.48	0.82	325	225	1.44
479.425	18.8750	679.450	26.7500	128.588	5.0625	128.588	5.0625	101.600	4.0000	6.4	0.25	6.4	0.25	2 470	5 550	M272749	M272710	122.2	4.81	516.0	20.31	507.0	19.96	633.0	24.92	649.5	25.57	0.33	1.80	0.99	726	413	1.76
482.600	19.0000	634.873	24.9950	80.963	3.1875	80.963	3.1875	63.500	2.5000	6.4	0.25	3.2	0.13	1 320	3 290	EE243190	243250	100.0	3.94	516.0	20.31	510.0	20.08	603.0	23.74	609.5	24.00	0.34	1.75	0.96	382	224	1.70
488.950	19.2500	634.873	24.9950	84.138	3.3125	84.138	3.3125	61.913	2.4375	6.4	0.25	3.2	0.13	1 440	3 420	LM772748	LM772710	124.5	4.90	522.0	20.55	510.0	20.08	600.0	23.62	613.5	24.15	0.47	1.27	0.70	418	338	1.24
	19.2500	660.400	26.0000	93.663	3.6875	94.458	3.7188	69.850	2.7500	6.4	0.25	6.4	0.25	1 810	3 960	EE640192	640260	98.4	3.87	522.0	20.55	513.0	20.20	624.0	24.57	630.5	24.82	0.31	1.95	1.07	524	275	1.91
498.475	19.6250	634.873	24.9950	80.963	3.1875	80.963	3.1875	63.500	2.5000	6.4	0.25	3.2	0.13	1 320	3 290	EE243196	243250	100.0	3.94	528.0	20.79	522.0	20.55	603.0	23.74	609.5	24.00	0.34	1.75	0.96	382	224	1.70
536.575	21.1250	761.873	29.9950	146.050	5.7500	146.050	5.7500	114.300	4.5000	6.4	0.25	6.4	0.25	3 290	7 190	M276449	M276410	135.7	5.34	576.0	22.68	570.0	22.44	711.0	27.99	725.5	28.57	0.33	1.80	0.99	966	549	1.76
539.750	21.2500	635.000	25.0000	50.800	2.0000	50.800	2.0000	38.100	1.5000	6.4	0.25	6.4	0.25	752	1 970	LL575349	LL575310	101.4	3.99	564.0	22.20	555.0	21.85	612.0	24.09	621.0	24.45	0.41	1.48	0.81	215	149	1.44
549.097	21.6180	692.150	27.2500	80.963	3.1875	80.962	3.1875	61.913	2.4375	6.4	0.25	6.4	0.25	1 410	3 700	L476548	L476510	113.6	4.47	579.0	22.80	570.0	22.44	657.0	25.87	666.0	26.22	0.38	1.59	0.88	407	262	1.55
549.275	21.6250	692.150	27.2500	80.963	3.1875	80.963	3.1875	61.913	2.4375	6.4	0.25	6.4	0.25	1 410	3 700	L476549	L476510	113.6	4.47	579.0	22.80	570.0	22.44	657.0	25.87	666.0	26.22	0.38	1.59	0.88	407	262	1.55
584.200	23.0000	685.800	27.0000	49.213	1.9375	49.213	1.9375	34.925	1.3750	3.6	0.14	3.2	0.13	723	1 930	LL778149	LL778110	113.8	4.48	603.0	23.74	600.0	23.62	663.0	26.10	669.0	26.34	0.44	1.36	0.75	206	155	1.33
609.600	24.0000	762.000	30.0000	95.250	3.7500	92.075	3.6250	71.438	2.8125	6.4	0.25	6.4	0.25	1 700	4 510	L879947	L879910	153.0	6.02	642.0	25.28	633.0	24.92	720.0	28.35	743.0	29.25	0.49	1.23	0.67	496	416	1.19
	24.0000	787.400	31.0000	93.663	3.6875	93.663	3.6875	69.850	2.7500	6.4	0.25	6.4	0.25	1 980	4 970	EE649240	649310	126.9	5.00	642.0	25.28	633.0	24.92	747.0	29.41	756.0	29.76	0.37	1.61	0.89	574	365	1.57
759.924	29.9183	889.000	35.0000	88.900	3.5000	88.900	3.5000	71.999	2.8346	3.2	0.13	3.2	0.13	1 860	5 630	L183448	L183410	123.1	4.85	783.0	30.83	780.0	30.71	864.0	34.02	872.0	34.33	0.31	1.97	1.08	537	280	1.91
1 092.200	43.0000	1 320.800	52.0000	95.250	3.7500	88.900	3.5000	69.850	2.7500	6.4	0.25	6.4	0.25	2 660	7 140	EE776430	776520	170.5	6.71	1 135.0	44.69	1 130.0	44.49	1 260.0	49.61	1 280.5	50.41	0.57	1.05	0.58	761	746	1.02

Note 1) SP indicates the specially chamfered from.

TSS type

d 15.875 ~ (44.450) mm
0.6250 ~ (1.7500) inch



$$P = XF_r + YF_a$$

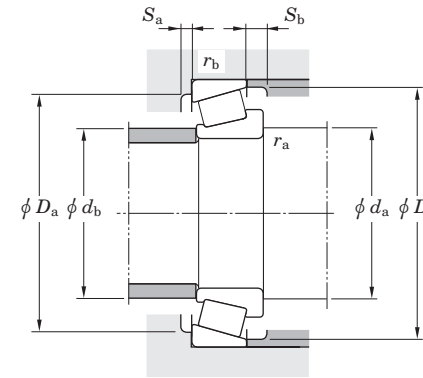
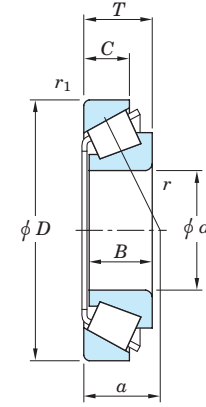
$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions													Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor		
d		D		T		B		C		r (min.)		r_1 (min.)		C_r	C_{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d_a		d_b		D_a		D_b		e	Y_1	Y_0	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
15.875	0.6250	42.862	1.6875	14.288	0.5625	14.288	0.5625	9.525	0.3750	1.6	0.06	1.6	0.06	17.8	17.7	11590	11520	13.1	0.52	24.5	0.96	22.5	0.89	34.5	1.36	39.5	1.56	0.70	0.85	0.47	5.15	6.15	0.83
23.812	0.9375	65.088	2.5625	22.225	0.8750	21.463	0.8450	15.875	0.6250	1.6	0.06	1.6	0.06	47.8	51.7	23092	23256	20.1	0.79	38.5	1.52	34.5	1.36	53.0	2.09	61.0	2.40	0.73	0.82	0.45	13.8	17.3	0.80
24.384	0.9600	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	0.8	0.03	1.6	0.06	69.4	72.5	43096	43312	23.7	0.93	40.5	1.59	39.5	1.56	62.0	2.44	68.0	2.68	0.67	0.90	0.49	20.1	23.0	0.88
25.000	0.9842	65.088	2.5625	22.225	0.8750	21.463	0.8450	15.875	0.6250	1.6	0.06	1.6	0.06	47.8	51.7	23098	23256	20.1	0.79	39.0	1.54	34.5	1.36	53.0	2.09	61.0	2.40	0.73	0.82	0.45	13.8	17.3	0.80
25.400	1.0000	65.088	2.5625	22.225	0.8750	21.463	0.8450	15.875	0.6250	1.6	0.06	1.6	0.06	47.8	51.7	23100	23256	20.1	0.79	39.0	1.54	34.5	1.36	53.0	2.09	61.0	2.40	0.73	0.82	0.45	13.8	17.3	0.80
28.575	1.1250	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	0.8	0.03	1.6	0.06	69.4	72.5	43112	43312	23.7	0.93	42.5	1.67	41.5	1.63	67.0	2.64	74.0	2.91	0.67	0.90	0.49	20.1	23.0	0.88
29.987	1.1806	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	1.6	0.06	1.6	0.06	69.4	72.5	43117	43312	23.7	0.93	45.0	1.77	42.0	1.65	62.0	2.44	68.0	2.68	0.67	0.90	0.49	20.1	23.0	0.88
30.162	1.1875	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	1.6	0.06	1.6	0.06	69.4	72.5	43118	43312	23.7	0.93	45.0	1.77	42.0	1.65	62.0	2.44	68.0	2.68	0.67	0.90	0.49	20.1	23.0	0.88
31.750	1.2500	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	1.6	0.06	1.6	0.06	69.4	72.5	43125	43312	23.7	0.93	44.0	1.73	41.5	1.63	62.0	2.44	68.0	2.68	0.67	0.90	0.49	20.1	23.0	0.88
	1.2500	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	1.6	0.06	1.6	0.06	75.3	84.4	44126	44348	28.0	1.10	49.0	1.93	46.0	1.81	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
33.338	1.3125	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	3.6	0.14	1.6	0.06	69.4	72.5	43131	43312	23.7	0.93	51.0	2.01	48.0	1.89	62.0	2.44	68.0	2.68	0.67	0.90	0.49	20.1	23.0	0.88
	1.3125	79.375	3.1250	25.400	1.0000	24.074	0.9478	17.462	0.6875	2.0	0.08	1.6	0.06	69.4	72.5	43132	43312	23.7	0.93	48.0	1.89	42.0	1.65	62.0	2.44	73.0	2.87	0.67	0.90	0.49	20.1	23.0	0.88
	1.3125	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.0	0.08	1.6	0.06	75.3	84.4	44131	44348	28.0	1.10	51.0	2.01	48.0	1.89	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
36.512	1.4375	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.4	0.09	1.6	0.06	75.3	84.4	44143	44348	30.0	1.18	54.0	2.13	50.0	1.97	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
38.100	1.5000	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.4	0.09	1.6	0.06	75.3	84.4	44150	44348	28.0	1.10	55.0	2.17	51.0	2.01	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
	1.5000	95.250	3.7500	30.958	1.2188	28.301	1.1142	20.638	0.8125	1.6	0.06	0.8	0.03	88.7	98.4	53150	53375	30.0	1.18	55.0	2.17	52.5	2.07	81.0	3.19	89.0	3.50	0.74	0.81	0.45	25.7	32.6	0.79
	1.5000	95.250	3.7500	30.958	1.2188	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	99.7	120	HM903241	HM903210	30.8	1.21	61.0	2.40	54.0	2.13	81.0	3.19	91.0	3.58	0.74	0.81	0.45	29.0	36.6	0.79
	1.5000	98.425	3.8750	30.958	1.2188	28.301	1.1142	20.638	0.8125	1.6	0.06	0.8	0.03	88.7	98.4	53150	53387	30.0	1.18	55.0	2.17	53.0	2.09	82.0	3.23	91.0	3.58	0.74	0.81	0.45	25.7	32.6	0.79
39.688	1.5625	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.4	0.09	1.6	0.06	75.3	84.4	44156	44348	28.0	1.10	56.0	2.20	51.0	2.01	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
	1.5625	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	3.6	0.14	1.6	0.06	75.3	84.4	44158	44348	28.0	1.10	58.0	2.28	51.0	2.01	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
40.000	1.5748	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.4	0.09	1.6	0.06	75.3	84.4	44157	44348	28.0	1.10	56.0	2.20	51.0	2.01	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
41.275	1.6250	88.501	3.4843	25.400	1.0000	23.698	0.9330	17.462	0.6875	2.4	0.09	1.6	0.06	75.3	84.4	44162	44348	28.0	1.10	57.0	2.24	51.0	2.01	75.0	2.95	84.0	3.31	0.78	0.77	0.42	21.8	29.1	0.75
	1.6250	92.075	3.6250	26.195	1.0313	23.812	0.9375	16.670	0.6563	3.6	0.14	1.6	0.06	77.7	89.9	M903345	M903310	30.1	1.19	60.0	2.36	54.0	2.13	78.0	3.07	88.0	3.46	0.83	0.72	0.40	22.5	32.0	0.70
	1.6250	95.250	3.7500	30.958	1.2188	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	99.7	120	HM903245	HM903210	30.8	1.21	63.0	2.48	54.0	2.13	81.0	3.19	91.0	3.58	0.74	0.81	0.45	29.0	36.6	0.79
	1.6250	98.425	3.8750	30.958	1.2188	28.301	1.1142	20.638	0.8125	1.6	0.06	0.8	0.03	88.7	98.4	53162	53387	30.0	1.18	57.0	2.24	52.5	2.07	82.0	3.23	91.0	3.58	0.74	0.81	0.45	25.7	32.6	0.79
44.450	1.7500	95.250	3.7500	30.958	1.2188	28.301	1.1142	20.638	0.8125	3.6	0.14	0.8	0.03	88.7	98.4	53177	53375	30.0	1.18	63.0	2.48	52.5	2.07	81.0	3.19	89.0	3.50	0.74	0.81	0.45	25.7	32.6	0.79
	1.7500	95.250	3.7500	30.958	1.2188	28.301	1.1142	20.638	0.8125	2.0	0.08	0.8	0.03	88.7	98.4	53178	53375	30.0	1.18	60.0	2.36	52.5	2.07	81.0	3.19	89.0	3.50	0.74	0.81	0.45	25.7	32.6	0.79
	1.7500	95.250	3.7500	30.958	1.2188	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	99.7	120	HM903249	HM903210	30.8	1.21	65.0	2.56	54.0	2.13	81.0	3.19	91.0	3.58	0.74	0.81	0.45	29.0	36.6	0.79
	1.7500	98.425	3.8750	30.958	1.2188	28.301	1.1142	20.638	0.8125	1.2	0.05	1.6	0.06	88.7	98.4	53176	53387X	30.0	1.18	59.0	2.32	52.5	2.07	82.0	3.23	91.0	3.58	0.74	0.81	0.45	25.7	32.6	0.79
	1.7500	101.600	4.0000	30.958	1.2188	28.301	1.1142	20.638	0.8125	2.0	0.08	0.8	0.03	88.7	98.4	53178	53398	30.0	1.18	60.0	2.36	52.5	2.07	82.0	3.23	91.0	3.58	0.74	0.81	0.45	25.7	32.6	0.79
	1.7500	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2																					

TSS type
 d (44.450) ~ 68.262 mm
 (1.7500) ~ 2.6875 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

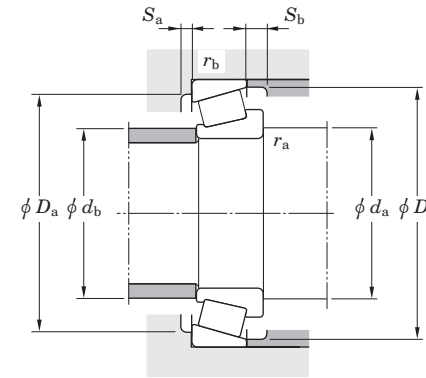
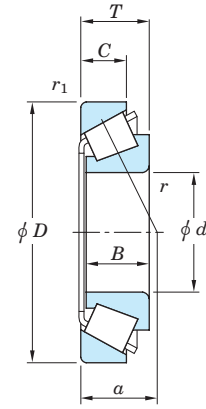
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r_1 (min.)		C_r	C_{or}	Inner ring (Cone)	Outer ring (Cup)	a	d_a		d_b		D_a		D_b		e	Y_1	Y_0	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch			mm	inch	mm	inch	mm	inch	mm	inch	mm	inch								
44.450	1.7500	112.712	4.4375	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	97.7	119	55175	55443	36.6	1.44	67.0	2.64	60.0	2.36	92.0	3.62	106.0	4.17	0.88	0.68	0.37	28.5	43.0	0.66
44.988	1.7712	95.250	3.7500	30.958	1.2188	28.575	1.1250	22.225	0.8750	3.6	0.14	0.8	0.03	99.7	120	HM903248	HM903210	30.8	1.21	65.0	2.56	54.0	2.13	81.0	3.19	91.0	3.58	0.74	0.81	0.45	29.0	36.6	0.79
47.625	1.8750	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	97.7	119	55187	55437	36.6	1.44	69.0	2.72	62.0	2.44	92.0	3.62	105.0	4.13	0.88	0.68	0.37	28.5	43.0	0.66
	1.8750	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	111	150	55187CR	55437	36.6	1.44	69.0	2.72	62.0	2.44	92.0	3.62	105.0	4.13	0.88	0.68	0.37	32.3	48.8	0.66
	1.8750	111.125	4.3750	30.162	1.1875	28.575	1.1250	20.638	0.8125	3.6	0.14	3.2	0.13	107	142	HM907639	HM907614	37.2	1.46	72.0	2.83	65.0	2.56	91.0	3.58	105.0	4.13	0.88	0.68	0.37	31.2	47.1	0.66
	1.8750	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72187	72487	38.0	1.50	72.0	2.83	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
49.974	1.9675	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	97.7	119	55196	55437	36.6	1.44	71.0	2.80	64.0	2.52	92.0	3.62	105.0	4.13	0.88	0.68	0.37	28.5	43.0	0.66
	1.9675	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	2.0	0.08	3.2	0.13	97.7	119	55197	55437	36.6	1.44	68.0	2.68	64.0	2.52	92.0	3.62	105.0	4.13	0.88	0.68	0.37	28.5	43.0	0.66
50.800	2.0000	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	97.7	119	55200	55437	36.6	1.44	71.0	2.80	64.0	2.52	92.0	3.62	105.0	4.13	0.88	0.68	0.37	28.5	43.0	0.66
	2.0000	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	111	150	55200CR	55437	36.6	1.44	71.0	2.80	64.0	2.52	92.0	3.62	105.0	4.13	0.88	0.68	0.37	32.3	48.8	0.66
	2.0000	111.125	4.3750	30.162	1.1875	28.575	1.1250	20.638	0.8125	3.6	0.14	3.2	0.13	107	142	HM907643	HM907614	37.2	1.46	74.0	2.91	65.5	2.58	91.0	3.58	105.0	4.13	0.88	0.68	0.37	31.2	47.1	0.66
	2.0000	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72200	72487	38.0	1.50	74.0	2.91	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
	2.0000	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	156	190	72200C	72487	38.0	1.50	74.0	2.91	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	45.2	57.0	0.79
52.388	2.0625	111.125	4.3750	30.162	1.1875	26.909	1.0594	20.638	0.8125	3.6	0.14	3.2	0.13	97.7	119	55206	55437	36.6	1.44	72.0	2.83	64.0	2.52	92.0	3.62	105.0	4.13	0.88	0.68	0.37	28.5	43.0	0.66
53.975	2.1250	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72212	72487	38.0	1.50	77.0	3.03	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
	2.1250	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	156	190	72212C	72487	38.0	1.50	77.0	3.03	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	45.2	57.0	0.79
	2.1250	127.000	5.0000	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72212	72500	38.0	1.50	77.0	3.03	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
	2.1250	130.175	5.1250	36.512	1.4375	33.338	1.3125	23.812	0.9375	3.6	0.14	3.2	0.13	153	181	HM911242R	HM911210	41.8	1.65	79.0	3.11	74.0	2.91	109.0	4.29	124.0	4.88	0.82	0.73	0.40	44.3	62.1	0.71
	2.1250	136.525	5.3750	36.512	1.4375	33.236	1.3085	23.520	0.9260	0.8	0.03	3.2	0.13	150	177	78214	78537	46.2	1.82	75.0	2.95	77.0	3.03	115.0	4.53	130.0	5.12	0.87	0.69	0.38	43.6	64.6	0.68
	2.1250	140.030	5.5130	36.512	1.4375	33.236	1.3085	23.520	0.9260	3.6	0.14	2.4	0.09	150	177	78215	78551	46.2	1.82	81.0	3.19	75.0	2.95	117.0	4.61	132.0	5.20	0.87	0.69	0.38	43.6	64.6	0.68
55.562	2.1875	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72218	72487	38.0	1.50	78.0	3.07	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
57.150	2.2500	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	141	166	72225	72487	38.0	1.50	80.0	3.15	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	41.2	51.9	0.79
	2.2500	123.825	4.8750	36.512	1.4375	32.791	1.2910	25.400	1.0000	3.6	0.14	3.2	0.13	156	190	72225C	72487	38.0	1.50	80.0	3.15	66.0	2.60	102.0	4.02	116.0	4.57	0.74	0.81	0.45	45.2	57.0	0.79
	2.2500	136.525	5.3750	36.512	1.4375	33.236	1.3085	23.520	0.9260	3.6	0.14	3.2	0.13	150	177	78225	78537	46.2	1.82	83.0	3.27	77.0	3.03	115.0	4.53	130.0	5.12	0.87	0.69	0.38	43.6	64.6	0.68
	2.2500	140.030	5.5130	36.512	1.4375	33.236	1.3085	23.520	0.9260	3.6	0.14	2.4	0.09	150	177	78225	78551	46.2	1.82	83.0	3.27	77.0	3.03	117.0	4.61	132.0	5.20	0.87	0.69	0.38	43.6	64.6	0.68
60.325	2.3750	130.175	5.1250	36.512	1.4375	33.338	1.3125	23.812	0.9375	5.2	0.20	3.2	0.13	153	181	HM911245R	HM911210	41.8	1.65	87.0	3.43	74.5	2.93	109.0	4.29	124.0	4.88	0.82	0.73	0.40	44.3	62.1	0.71
	2.3750	136.525	5.3750	36.512	1.4375	33.236	1.3085	23.520	0.9260	5.2	0.20	3.2	0.13	150	177	78238	78537	46.2	1.82	83.0	3.27	75.0	2.95	115.0	4.53	130.0	5.12	0.87	0.69	0.38	43.6	64.6	0.68
	2.3750	140.030	5.5130	36.512	1.4375	33.236	1.3085	23.520	0.9260	5.2	0.20	2.4	0.09	150	177	78238	78551	46.2	1.82	83.0	3.27	75.0	2.95	117.0	4.61	132.0	5.20	0.87	0.69	0.38	43.6	64.6	0.68
61.912	2.4375	130.175	5.1250	36.512	1.4375	33.338	1.3125	23.812	0.9375	3.6	0.14	3.2	0.13	153	181	HM911249R	HM911210	41.8	1.65	88.0	3.46	75.0	2.95	109.0	4.29	123.5	4.86	0.82	0.73	0.40	44.3	62.1	0.71
	2.4375	146.050	5.7500	41.275	1.6250	39.688	1.5625	25.400	1.0000	3.6	0.14	3.2	0.13	199	232	H913842R	H913810	45.6	1.80	90.0	3.54	82.5	3.25	124.0	4.88	138.0	5.43	0.78	0.77	0.42	57.7	77.2	0.75
63.500	2.5000	136.525	5.3750	36.512	1.4375	33.236	1.3085	23.520	0.9260	2.4	0.09	3.2																					

TSS type

d 69.850 ~ 342.900 mm
2.7500 ~ 13.5000 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

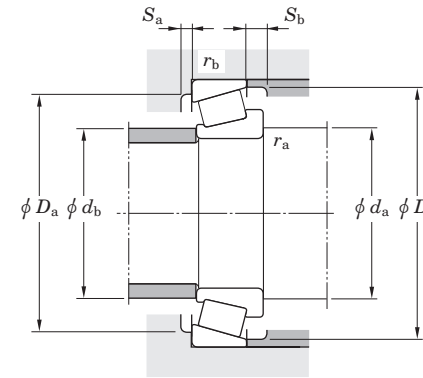
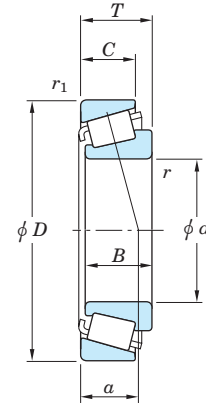
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant e	Axial load factors		Reference rating (kN)		Factor K				
d	D	T	B	C	r (min.)	r_1 (min.)	C_r	C_{or}	Inner ring (Cone)	Outer ring (Cup)	a	d_a	d_b	D_a	D_b	Y_1	Y_0	Radial	Axial														
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch												
69.850	2.7500	146.050	5.7500	41.275	1.6250	39.688	1.5625	25.400	1.0000	3.6	0.14	3.2	0.13	202	237	H913849R	H913810	45.6	1.80	95.0	3.74	82.5	3.25	124.0	4.88	138.0	5.43	0.78	0.77	0.42	58.7	78.5	0.75
69.914	2.7525	171.450	6.7500	49.212	1.9375	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	264	320	9382R	9321	55.1	2.17	105.0	4.13	98.0	3.86	147.0	5.79	164.0	6.46	0.76	0.79	0.43	76.9	100	0.77
76.200	3.0000	161.925	6.3750	49.212	1.9375	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	246	286	9285R	9220	50.2	1.98	103.0	4.06	90.5	3.56	138.0	5.43	153.0	6.02	0.71	0.85	0.47	71.6	86.8	0.83
	3.0000	177.800	7.0000	52.388	2.0625	46.038	1.8125	34.925	1.3750	3.6	0.14	3.2	0.13	264	320	9380R	9320	55.1	2.17	117.0	4.61	98.2	3.87	148.0	5.83	164.0	6.46	0.76	0.79	0.43	76.9	100	0.77
	3.0000	177.800	7.0000	52.388	2.0625	50.800	2.0000	34.925	1.3750	3.6	0.14	3.2	0.13	264	320	9378R	9320	55.1	2.17	117.0	4.61	98.2	3.87	148.0	5.83	164.0	6.46	0.76	0.79	0.43	76.9	100	0.77
84.138	3.3125	171.450	6.7500	49.212	1.9375	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	264	320	9385R	9321	55.1	2.17	111.0	4.37	98.0	3.86	147.0	5.79	164.0	6.46	0.76	0.79	0.43	76.9	100	0.77
96.838	3.8125	188.913	7.4375	50.800	2.0000	46.038	1.8125	31.750	1.2500	3.6	0.14	3.2	0.13	276	357	90381	90744	63.0	2.48	125.0	4.92	113.0	4.44	161.0	6.34	179.5	7.06	0.87	0.69	0.38	77	115	0.67
101.600	4.0000	250.825	9.8750	76.200	3.0000	73.025	2.8750	50.800	2.0000	6.4	0.25	6.4	0.25	548	691	HH923649	HH923610	74.0	2.91	149.0	5.87	131.0	5.16	207.0	8.15	229.0	9.02	0.71	0.85	0.47	162	196	0.83
	4.0000	250.825	9.8750	76.200	3.0000	73.025	2.8750	50.800	2.0000	6.4	0.25	3.2	0.13	548	691	HH923649	HH923611	74.0	2.91	149.0	5.87	131.0	5.16	210.0	8.27	229.0	9.02	0.71	0.85	0.47	162	196	0.83
111.125	4.3750	214.313	8.4375	55.563	2.1875	52.388	2.0625	39.688	1.5625	3.6	0.14	3.2	0.13	404	578	H924045	H924010	62.3	2.45	139.0	5.47	131.0	5.16	186.0	7.32	205.0	8.07	0.67	0.89	0.49	118	137	0.87
114.300	4.5000	228.600	9.0000	53.975	2.1250	49.428	1.9460	38.100	1.5000	3.6	0.14	3.2	0.13	430	651	HM926740	HM926710	67.9	2.67	146.0	5.75	142.0	5.59	200.0	7.87	219.0	8.62	0.74	0.81	0.45	126	159	0.79
127.000	5.0000	228.600	9.0000	53.975	2.1250	49.428	1.9460	38.100	1.5000	3.6	0.14	3.2	0.13	430	651	HM926747	HM926710	68.1	2.68	156.0	6.14	143.0	5.63	200.0	7.87	219.0	8.63	0.74	0.81	0.45	126	159	0.79
	5.0000	304.800	12.0000	88.900	3.5000	82.550	3.2500	57.150	2.2500	6.4	0.25	6.4	0.25	791	1060	HH932132	HH932110	92.1	3.63	182.0	7.17	172.0	6.77	260.0	10.24	288.0	11.34	0.73	0.82	0.45	233	290	0.80
127.792	5.0312	228.600	9.0000	53.975	2.1250	49.428	1.9460	38.100	1.5000	3.6	0.14	3.2	0.13	430	651	HM926749	HM926710	68.1	2.68	156.0	6.14	143.0	5.63	200.0	7.87	219.0	8.63	0.74	0.81	0.45	126	159	0.79
146.050	5.7500	304.800	12.0000	88.900	3.5000	82.550	3.2500	57.150	2.2500	6.4	0.25	6.4	0.25	791	1060	HH932145	HH932110	92.1	3.63	195.0	7.68	174.5	6.87	260.0	10.24	288.0	11.34	0.73	0.82	0.45	233	290	0.80
155.575	6.1250	330.200	13.0000	85.725	3.3750	79.375	3.1250	53.975	2.1250	6.4	0.25	6.4	0.25	868	1210	H936340	H936310	103.8	4.09	209.0	8.23	192.5	7.58	282.0	11.10	311.5	12.26	0.81	0.74	0.41	255	352	0.72
168.275	6.6250	330.200	13.0000	85.725	3.3750	79.375	3.1250	53.975	2.1250	6.4	0.25	6.4	0.25	868	1210	H936349	H936310	103.8	4.09	218.0	8.58	192.5	7.58	282.0	11.10	311.5	12.26	0.81	0.74	0.41	255	352	0.72
	6.6250	342.900	13.5000	85.725	3.3750	79.375	3.1250	53.975	2.1250	6.4	0.25	6.4	0.25	868	1210	H936349	H936316	103.8	4.09	218.0	8.58	192.5	7.58	287.0	11.30	311.5	12.26	0.81	0.74	0.41	255	352	0.72
177.800	7.0000	428.625	16.8750	106.362	4.1875	95.250	3.7500	61.912	2.4375	6.4	0.25	6.4	0.25	1070	1390	EE350701	351687	118.7	4.67	230.0	9.06	221.0	8.70	365.0	14.37	383.0	15.08	0.76	0.79	0.44	318	411	0.77
190.500	7.5000	428.625	16.8750	106.363	4.1875	95.250	3.7500	61.913	2.4375	6.4	0.25	6.4	0.25	1070	1390	EE350750	351687	118.7	4.67	240.0	9.45	237.0	9.33	365.0	14.37	383.0	15.08	0.76	0.79	0.44	318	411	0.77
203.200	8.0000	482.600	19.0000	117.475	4.6250	95.250	3.7500	73.025	2.8750	6.4	0.25	6.4	0.25	1450	2060	EE380080	380190	152.8	6.02	280.0	11.02	260.0	10.24	402.0	15.83	428.5	16.87	0.87	0.69	0.38	426	631	0.67
241.300	9.5000	508.000	20.0000	117.475	4.6250	95.250	3.7500	73.025	2.8750	6.4	0.25	6.4	0.25	1230	1800	EE390095	390200	168.1	6.62	297.0	11.69	288.0	11.34	423.0	16.65	456.0	17.96	0.94	0.64	0.35	366	587	0.62
254.000	10.0000	533.400	21.0000	133.350	5.2500	120.650	4.7500	77.788	3.0625	6.4	0.25	6.4	0.25	1780	2800	HH953749	HH953710	180.8	7.12	328.0	12.91	306.5	12.06	455.0	17.91	495.5	19.51	0.94	0.64	0.35	528	846	0.62
317.500	12.5000	622.300	24.5000	147.638	5.8125	131.763	5.1875	82.550	3.2500	14.3	0.56	12.7	0.50	2220	3490	H961649	H961610	210.5	8.29	410.0	16.14	373.0	14.69	531.0	20.91	581.5	22.90	0.94	0.64	0.35	659	1060	0.62
342.900	13.5000	457.098	17.9960	66.675	2.6250	63.500	2.5000	46.038	1.8125	3.2	0.13	3.2	0.13	729	1670	LM961548	LM961510	122.3	4.81	367.0	14.45	363.0	14.29	423.0	16.65	443.0	17.44	0.71	0.84	0.46	212	258	0.82

Tapered roller bearings

TS type
Metric "J" series
d 38.000 ~ 200.000 mm
1.4961 ~ 7.8740 inch



$$P = XF_r + YF_a$$

$$P_0 = 0.5 F_r + Y_0 F_a \text{ or } P_0 = F_r$$

$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Note) The Values of "e", "Y₁" and "Y₀" are given in the table below.

Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center		Mounting dimensions						Constant		Axial load factors		Reference rating (kN)		Factor			
d		D		T		B		C		r (min.)		r ₁ (min.)		C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a	d _a		d _b		D _a		D _b		e	Y ₁	Y ₀	Radial	Axial	K	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch					mm	inch	mm	inch	mm	inch	mm	inch								
38.000	1.4961	63.000	2.4803	17.000	0.6693	17.000	0.6693	13.500	0.5315	SP ¹⁾	SP ¹⁾	SP ¹⁾	SP ¹⁾	43.5	58.2	JL69349	JL69310	14.6	0.57	49.0	1.93	41.0	1.61	60.0	2.36	59.5	2.34	0.42	1.44	0.79	12.6	8.95	1.41
50.000	1.9685	82.000	3.2283	21.501	0.8465	21.501	0.8465	17.000	0.6693	3.0	0.12	0.5	0.02	71.7	97.9	JLM104948	JLM104910	16.2	0.64	60.0	2.36	55.0	2.17	76.0	2.99	78.0	3.07	0.31	1.97	1.08	20.8	10.8	1.92
	1.9685	90.000	3.5433	28.000	1.1024	28.000	1.1024	23.000	0.9055	3.0	0.12	2.5	0.10	105	138	JM205149	JM205110	20.2	0.80	62.0	2.44	57.0	2.24	80.0	3.15	85.0	3.35	0.33	1.82	1.00	30.6	17.2	1.78
	1.9685	105.000	4.1339	37.000	1.4567	36.000	1.4173	29.000	1.1417	3.0	0.12	2.8	0.11	149	205	JHM807045	JHM807012	29.4	1.16	69.0	2.72	63.0	2.48	90.0	3.54	100.0	3.94	0.49	1.23	0.68	43.5	36.3	1.20
55.000	2.1654	90.000	3.5433	23.000	0.9055	23.000	0.9055	18.500	0.7283	1.6	0.06	0.5	0.02	81.4	115	JLM506849	JLM506810	20.1	0.79	63.0	2.48	61.0	2.40	82.0	3.23	86.0	3.39	0.40	1.49	0.82	23.6	16.2	1.46
	2.1654	95.000	3.7402	29.000	1.1417	29.000	1.1417	23.500	0.9252	1.6	0.06	2.8	0.11	110	150	JM207049	JM207010	21.3	0.84	64.0	2.52	62.0	2.44	85.0	3.35	91.0	3.58	0.33	1.79	0.99	32.0	18.3	1.75
	2.1654	110.000	4.3307	39.000	1.5354	39.000	1.5354	32.000	1.2598	3.0	0.12	2.5	0.10	176	224	JH307749	JH307710	26.8	1.06	71.0	2.80	64.0	2.52	97.0	3.82	104.0	4.09	0.35	1.73	0.95	51.5	30.5	1.69
60.000	2.3622	95.000	3.7402	24.000	0.9449	24.000	0.9449	19.000	0.7480	5.0	0.20	2.5	0.10	86.1	125	JLM508748	JLM508710	21.2	0.83	75.0	2.95	66.0	2.60	85.0	3.35	91.0	3.58	0.40	1.49	0.82	25.0	17.2	1.46
65.000	2.5591	105.000	4.1339	24.000	0.9449	23.000	0.9055	18.500	0.7283	3.0	0.12	1.0	0.04	95.3	129	JLM710949	JLM710910	23.8	0.94	77.0	3.03	71.0	2.80	96.0	3.78	101.0	3.98	0.45	1.32	0.73	27.7	21.4	1.29
	2.5591	110.000	4.3307	28.000	1.1024	28.000	1.1024	22.500	0.8858	3.0	0.12	2.8	0.11	136	191	JM511946	JM511910	24.5	0.96	78.0	3.07	72.0	2.83	99.0	3.90	105.0	4.13	0.40	1.49	0.82	39.3	27.0	1.46
	2.5591	120.000	4.7244	39.000	1.5354	38.500	1.5157	32.000	1.2598	3.0	0.12	2.8	0.11	189	255	JH211749	JH211710	27.9	1.10	80.0	3.15	74.0	2.91	107.0	4.21	114.0	4.49	0.34	1.78	0.98	55.2	31.8	1.74
	2.5591	120.000	4.7244	39.000	1.5354	38.500	1.5157	32.000	1.2598	7.1	0.28	2.8	0.11	189	255	JH211749A	JH211710	27.9	1.10	88.0	3.46	74.0	2.91	107.0	4.21	114.0	4.49	0.34	1.78	0.98	55.2	31.8	1.74
70.000	2.7559	110.000	4.3307	26.000	1.0236	25.000	0.9843	20.500	0.8071	1.0	0.04	2.5	0.10	103	158	JLM813049	JLM813010	26.1	1.03	78.0	3.07	77.0	3.03	98.0	3.86	106.0	4.17	0.49	1.23	0.68	29.8	24.8	1.20
	2.7559	115.000	4.5276	29.000	1.1417	29.000	1.1417	23.000	0.9055	3.0	0.12	2.5	0.10	123	173	JM612949	JM612910	26.2	1.03	83.0	3.27	77.0	3.03	103.0	4.06	111.0	4.37	0.43	1.39	0.77	36.0	26.5	1.36
75.000	2.9528	115.000	4.5276	25.000	0.9843	25.000	0.9843	19.000	0.7480	3.0	0.12	2.8	0.11	101	151	JLM714149	JLM714110	25.5	1.00	87.0	3.43	81.0	3.19	104.0	4.09	111.0	4.37	0.46	1.31	0.72	29.4	23.0	1.28
	2.9528	120.000	4.7244	31.000	1.2205	29.500	1.1614	25.000	0.9843	3.0	0.12	2.8	0.11	145	216	JM714249	JM714210	30.0	1.18	88.0	3.46	82.9	3.26	108.0	4.25	115.0	4.53	0.44	1.35	0.74	42.2	32.1	1.32
	2.9528	145.000	5.7087	51.000	2.0079	51.000	2.0079	42.000	1.6535	3.0	0.12	2.5	0.10	290	412	JH415647	JH415610	36.6	1.44	94.0	3.70	89.0	3.50	129.0	5.08	139.0	5.47	0.36	1.66	0.91	85.1	52.7	1.62
80.000	3.1496	130.000	5.1181	35.000	1.3780	34.000	1.3386	28.500	1.1220	3.2	0.13	2.5	0.10	168	256	JM515649	JM515610	29.6	1.17	94.0	3.70	88.0	3.46	117.0	4.61	125.0	4.92	0.39	1.54	0.85	49.2	32.6	1.51
85.000	3.3465	130.000	5.1181	30.000	1.1811	29.000	1.1417	24.000	0.9449	3.0	0.12	2.5	0.10	142	228	JM716649	JM716610	29.1	1.15	98.0	3.86	92.0	3.62	117.0	4.61	125.0	4.92	0.44	1.35	0.74	41.3	31.4	1.32
	3.3465	140.000	5.5118	39.000	1.5354	38.000	1.4961	31.500	1.2402	3.0	0.12	2.5	0.10	203	308	JHM516849	JHM516810	32.8	1.29	100.0	3.94	93.9	3.70	125.0	4.92	134.0	5.28	0.41	1.47	0.81	59.5	41.4	1.44
	3.3465	150.000	5.9055	46.000	1.8110	46.000	1.8110	38.000	1.4961	3.0	0.12	2.5	0.10	274	390	JH217249	JH217210	33.6	1.32	101.0	3.98	95.2	3.75	134.0	5.28	142.0	5.59	0.33	1.80	0.99	80.3	45.6	1.76
90.000	3.5433	145.000	5.7087	35.000	1.3780	34.000	1.3386	27.000	1.0630	3.0	0.12	2.5	0.10	194	291	JM718149	JM718110	32.7	1.29	105.0	4.13	99.0	3.90	131.0	5.16	139.0	5.47	0.44	1.35	0.74	56.8	43.1	1.32
	3.5433	155.000	6.1024	44.000	1.7323	44.000	1.7323	35.500	1.3976	3.0	0.12	2.5	0.10	290	407	JHM318448	JHM318410	34.5	1.36	106.0	4.17	100.0	3.94	140.0	5.51	148.0	5.83	0.34	1.76	0.97	84.5	49.3	1.72
95.000	3.7402	150.000	5.9055	35.000	1.3780	34.000	1.3386	27.000	1.0630	3.0	0.12	2.5	0.10	187	294	JM719149	JM719113	33.5	1.32	109.0	4.29	104.0	4.09	135.0	5.31	143.0	5.63	0.44	1.36	0.75	54.5	41.2	1.32
100.000	3.9370	155.000	6.1024	36.000	1.4173	35.000	1.3780	28.000	1.1024	3.0	0.12	2.5	0.10	204	328	JM720249	JM720210	35.6	1.40	110.0	4.33	110.0	4.33	139.0	5.47	150.0	5.91	0.47	1.27	0.70	59.5	48.1	1.24
	3.9370	160.000	6.2992	41.000	1.6142	40.000	1.5748	32.000	1.2598	3.0	0.12	2.5	0.10	237	378	JHM720249	JHM720210	38.3	1.51	110.0	4.33	111.0	4.37	143.0	5.63	153.0	6.02	0.47	1.28	0.70	69.6	56.0	1.24
110.000	4.3307	165.000	6.4961	35.000	1.3780	35.000	1.3780	26.500	1.0433	3.0	0.12	2.5	0.10	195	325	JM822049	JM822010	38.1	1.50	121.0	4.76	121.0	4.76	148.0	5.83	157.0	6.18	0.50	1.21	0.66	56.7	48.2	1.18
	4.3307	180.000	7.0866	47.000	1.8504	46.000	1.8110	38.000	1.4961	3.0	0.12	2.5	0.10	306	487	JHM522649	JHM522610	40.6	1.60	121.0	4.76	125.0	4.92	160.0	6.30	171.0	6.73	0.41	1.48	0.81	90.1	62.5	1.44
170.000	6.6929	230.000	9.0551	39.000	1.5354	38.000	1.4961	31.000	1.2205	3.0	0.12	2.5	0.10	291	558	JHM534149	JHM534110	43.6	1.72	181.0	7.13	184.0	7.24	214.0	8.43	226.0	8.90	0.38	1.57	0.86	83.9	55.0	1.53
	6.6929	240.000	9.4488	46.000	1.8110	44.500	1.7520	37.000	1.4567	3.0	0.12	2.5	0.10	353	666	JM734449	JM734410	50.6	1.99	181.0	7.13	184.0	7.24	220.0	8.66	235.0	9.25	0.44	1.37	0.75	103	76.9	1.34
180.000	7.0866	250.000	9.8425	47.000	1.8504	45.000																											

Supplementary tables

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Supplementary table 2 Housing bore tolerances (deviation from nominal dimensions)

Nominal bore dia. (mm)		Deviation classes of housing bore															Unit : μm							Nominal bore dia. (mm)		(Refer.)						
		over	up to	E 6	F 6	F 7	G 6	G 7	H 6	H 7	H 8	H 9	H 10	JS 5	JS 6	JS 7	J 6	J 7	K 5	K 6	K 7	M 5	M 6	M 7	N 5	N 6	N 7	P 6	P 7	R 7	over	up to
10	18	+43 +32	+27 +16	+34 +16	+17 +6	+24 +6	+11 0	+18 0	+27 0	± 43 0	± 70 0	± 4	± 5.5	± 9	+6 -5	+10 -8	+2 -6	+2 -9	+6 -12	-4 -12	-4 -15	0 -18	-9 -17	-9 -20	-5 -23	-15 -26	-11 -29	-16 -34	10	18	0 -8	
18	30	+53 +40	+33 +20	+41 +20	+20 +7	+28 +7	+13 0	+21 0	+33 0	± 52 0	± 84 0	± 4.5	± 6.5	± 10.5	+8 -5	+12 -9	+1 -8	+2 -11	+6 -15	-5 -14	-4 -17	0 -21	-12 -21	-11 -24	-7 -28	-18 -31	-14 -35	-20 -41	18	30	0 -9	
30	50	+66 +50	+41 +25	+50 +25	+25 +9	+34 +9	+16 0	+25 0	+39 0	± 62 0	± 100 0	± 5.5	± 8	± 12.5	+10 -6	+14 -11	+2 -9	+3 -13	+7 -18	-5 -16	-4 -20	0 -25	-13 -24	-12 -28	-8 -33	-21 -37	-17 -42	-25 -50	30	50	0 -11	
50	80	+79 +60	+49 +30	+60 +30	+29 +10	+40 +10	+19 0	+30 0	+46 0	± 74 0	± 120 0	± 6.5	± 9.5	± 15	+13 -6	+18 -12	+3 -10	+4 -15	+9 -21	-6 -19	-5 -24	0 -30	-15 -28	-14 -33	-9 -39	-26 -45	-21 -51	-30 -60 -32 -62	50	65	0 -13	
80	120	+94 +72	+58 +36	+71 +36	+34 +12	+47 +12	+22 0	+35 0	+54 0	± 87 0	± 140 0	± 7.5	± 11	± 17.5	+16 -6	+22 -13	+2 -13	+4 -18	+10 -25	-8 -23	-6 -28	0 -35	-18 -33	-16 -38	-10 -45	-30 -52	-24 -59	-38 -73 -41 -76	80	100	0 -15	
120	180	+110 +85	+68 +43	+83 +43	+39 +14	+54 +14	+25 0	+40 0	+63 0	+100 0	+160 0	± 9	± 12.5	± 20	+18 -7	+26 -14	+3 -15	+4 -21	+12 -28	-9 -27	-8 -33	0 -40	-21 -39	-20 -45	-12 -52	-36 -61	-28 -68	-48 -88 -50 -90 -53 -93	120	140	(up to 150) 0	
140	160																															(over to 150) 0
160	180																															0 -25
180	200																															0
180	250	+129 +100	+79 +50	+96 +50	+44 +15	+61 +15	+29 0	+46 0	+72 0	+115 0	+185 0	± 10	± 14.5	± 23	+22 -7	+30 -16	+2 -18	+5 -24	+13 -33	-11 -31	-8 -37	0 -46	-25 -45	-22 -51	-14 -60	-41 -70	-33 -79	-60 -106 -63 -109 -67 -113	180	225	0 -30	
200	225																															0
225	250																															0
250	280																															0
250	315	+142 +110	+88 +56	+108 +56	+49 +17	+69 +17	+32 0	+52 0	+81 0	+130 0	+210 0	± 11.5	± 16	± 26	+25 -7	+36 -16	+3 -20	+5 -27	+16 -36	-13 -36	-9 -41	0 -52	-27 -50	-25 -57	-14 -66	-47 -79	-36 -88	-74 -126 -78 -130	250	315	0 -35	
280	315																															0
315	355																															0
315	400	+161 +125	+98 +62	+119 +62	+54 +18	+75 +18	+36 0	+57 0	+89 0	+140 0	+230 0	± 12.5	± 18	± 28.5	+29 -7	+39 -18	+3 -22	+7 -29	+17 -40	-14 -39	-10 -46	0 -57	-30 -55	-26 -62	-16 -73	-51 -87	-41 -98	-87 -144 -93 -150	315	400	0 -40	
355	400																															0
400	450																															0
400	500	+175 +135	+108 +68	+131 +68	+60 +20	+83 +20	+40 0	+63 0	+97 0	+155 0	+250 0	± 13.5	± 20	± 31.5	+33 -7	+43 -20	+2 -25	+8 -32	+18 -45	-16 -43	-10 -50	0 -63	-33 -60	-27 -67	-17 -80	-55 -95	-45 -108	-103 -166 -109 -172	400	500	0 -45	
450	500																															0
500	560																															0
500	630	+189 +145	+120 +76	+146 +76	+66 +22	+92 +22	+44 0	+70 0	+110 0	+175 0	+280 0	± 16	± 22	± 35	-	-	0 -32	0 -44	0 -70	-26 -58	-26 -70	-26 -96	-44 -76	-44 -88	-44 -114	-78 -122	-78 -148	-150 -220 -155 -225	500	630	0 -50	
560	630																															0
630	710																															0
630	800	+210 +160	+130 +80	+160 +80	+74 +24	+104 +24	+50 0	+80 0	+125 0	+200 0	+320 0	± 18	± 25	± 40	-	-	0 -36	0 -50	0 -80	-30 -66	-30 -80	-30 -110	-50 -86	-50 -100	-50 -130	-88 -138	-88 -168	-175 -255 -185 -265	630	800	0 -75	
710	800																															0
800	900																															0
800	1 000	+226 +170	+142 +86	+176 +86	+82 +26	+116 +26	+56 0	+90 0	+140 0	+230 0	+360 0	± 20	± 28	± 45	-	-	0 -40	0 -56	0 -90	-34 -74	-34 -90	-34 -124	-56 -96	-56 -112	-56 -146	-100 -156	-100 -190	-210 -300 -220 -310	800	1 000	0 -100	
900	1 000																															0
1 000	1 250	+261 +195	+164 +98	+203 +98	+94 +28	+133 +28	+66 0	+105 0	+165 0	+260 0	+420 0	± 23.5	± 33	± 52.5	-	-	0 -47	0 -66	0 -105	-40 -87	-40 -106	-40 -145	-66 -113	-66 -132	-66 -171	-120 -186	-120 -225	-250 -355 -260 -365	1 000	1 250	0 -125	
1 120	1 250																															0

[Note] 1) ΔD_{mp} : single plane mean outside diameter deviation

Supplementary table 3 (1) SI units and conversion factors

Mass	SI units	Other units ¹⁾	Conversion into SI units	Conversion from SI units
Angle	rad [radian(s)]	° [degree(s)] ' [minute(s)] " [second(s)]	* 1° = $\pi / 180$ rad * 1' = $\pi / 10\,800$ rad * 1" = $\pi / 648\,000$ rad	1 rad = 57.295 78°
Length	m [meter(s)]	Å [Angstrom unit] μ [micron(s)] in [inch(es)] ft [foot (feet)] yd [yard(s)] mile [mile(s)]	1 Å = 10^{-10} m = 0.1 nm = 100 pm 1 μ = 1 μm 1 in = 25.4 mm 1 ft = 12 in = 0.304 8 m 1 yd = 3 ft = 0.914 4 m 1 mile = 5 280 ft = 1 609.344 m	1 m = 10^{10} Å 1 m = 39.37 in 1 m = 3.280 8 ft 1 m = 1.093 6 yd 1 km = 0.621 4 mile
Area	m ²	a [are(s)] ha [hectare(s)] acre [acre(s)]	1 a = 100 m ² 1 ha = 10 ⁴ m ² 1 acre = 4 840 yd ² = 4 046.86 m ²	1 km ² = 247.1 acre
Volume	m ³	ℓ, L [liter(s)] * cc [cubic centimeters] gal (US) [gallon(s)] floz (US) [fluid ounce(s)] barrel (US) [barrels (US)]	1 ℓ = 1 dm ³ = 10 ⁻³ m ³ 1 cc = 1 cm ³ = 10 ⁻⁶ m ³ 1 gal (US) = 231 in ³ = 3.785 41 dm ³ 1 floz (US) = 29.573 5 cm ³ 1 barrel (US) = 158.987 dm ³	1 m ³ = 10 ³ ℓ 1 m ³ = 10 ⁶ cc 1 m ³ = 264.17 gal 1 m ³ = 33 814 floz 1 m ³ = 6.289 8 barrel
Time	s [second(s)]	min [minute(s)] * h [hour(s)] * d [day(s)] *		
Angular velocity	rad/s			
Velocity	m/s	kn [knot(s)] m/h *	1 kn = 1 852 m/h	1 km/h = 0.539 96 kn
Acceleration	m/s ²	G	1 G = 9.806 65 m/s ²	1 m/s ² = 0.101 97 G
Frequency	Hz [hertz]	c/s [cycle(s)/second]	1 c/s = 1 s ⁻¹ = 1 Hz	
Rotational frequency	s ⁻¹	rpm [revolutions per minute] min ⁻¹ * r/min	1 rpm = 1/60 s ⁻¹	1 s ⁻¹ = 60 rpm
Mass	kg [kilogram(s)]	t [ton(s)] * lb [pound(s)] gr [grain(s)] oz [ounce(s)] ton (UK) [ton(s) (UK)] ton (US) [ton(s) (US)] car [carat(s)]	1 t = 10 ³ kg 1 lb = 0.453 592 37 kg 1 gr = 64.798 91 mg 1 oz = 1/16 lb = 28.349 5 g 1 ton (UK) = 1 016.05 kg 1 ton (US) = 907.185 kg 1 car = 200 mg	1 kg = 2.204 6 lb 1 g = 15.432 4 gr 1 kg = 35.274 0 oz 1 t = 0.984 2 ton (UK) 1 t = 1.102 3 ton (US) 1 g = 5 car

[Note] 1) * : Unit can be used as an SI unit.
No asterisk : Unit cannot be used.

Supplementary table 3 (2) SI units and conversion factors

Mass	SI units	Other units ¹⁾	Conversion into SI units	Conversion from SI units
Density	kg/m ³			
Linear density	kg/m			
Momentum	kg·m/s			
Moment of momentum, Angular momentum	} kg·m ² /s			
Moment of inertia		kg·m ²		
Force	N [newton(s)]	dyn [dyne(s)] kgf [kilogram-force] gf [gram-force] tf [ton-force] lbf [pound-force]	1 dyn = 10 ⁻⁵ N 1 kgf = 9.806 65 N 1 gf = 9.806 65 × 10 ⁻³ N 1 tf = 9.806 65 × 10 ³ N 1 lbf = 4.448 22 N	1 N = 10 ⁵ dyn 1 N = 0.101 97 kgf 1 N = 0.224 809 lbf
Moment of force	N·m [newton meter(s)]	gf·cm kgf·cm kgf·m tf·m lbf·ft	1 gf·cm = 9.806 65 × 10 ⁻⁵ N·m 1 kgf·cm = 9.806 65 × 10 ⁻² N·m 1 kgf·m = 9.806 65 N·m 1 tf·m = 9.806 65 × 10 ³ N·m 1 lbf·ft = 1.355 82 N·m	1 N·m = 0.101 97 kgf·m 1 N·m = 0.737 56 lbf·ft
Pressure, Normal stress	Pa [pascal(s)] or N/m ² {1 Pa = 1 N/m ² }	gf/cm ² kgf/mm ² kgf/m ² lbf/in ² bar [bar(s)] at [engineering air pressure] mH ₂ O, mAq [meter water column] atm [atmosphere] mHg [meter mercury column] Torr [torr]	1 gf/cm ² = 9.806 65 × 10 Pa 1 kgf/mm ² = 9.806 65 × 10 ⁶ Pa 1 kgf/m ² = 9.806 65 Pa 1 lbf/in ² = 6 894.76 Pa 1 bar = 10 ⁵ Pa 1 at = 1 kgf/cm ² = 9.806 65 × 10 ⁴ Pa 1 mH ₂ O = 9.806 65 × 10 ³ Pa 1 atm = 101 325 Pa 1 mHg = $\frac{101\ 325}{0.76}$ Pa 1 Torr = 1 mmHg = 133.322 Pa	1 MPa = 0.101 97 kgf/mm ² 1 Pa = 0.101 97 kgf/m ² 1 Pa = 0.145 × 10 ⁻³ lbf/in ² 1 Pa = 10 ⁻² mbar 1 Pa = 7.500 6 × 10 ⁻³ Torr
Viscosity	Pa·s [pascal second]	P [poise] kgf·s/m ²	10 ⁻² P = 1 cP = 1 mPa·s 1 kgf·s/m ² = 9.806 65 Pa·s	1 Pa·s = 0.101 97 kgf·s/m ²
Kinematic viscosity	m ² /s	St [stokes]	10 ⁻² St = 1 cSt = 1 mm ² /s	
Surface tension	N/m			

Supplementary table 3 (3) SI units and conversion factors

Mass	SI units	Other units ¹⁾	Conversion into SI units	Conversion from SI units
Work, energy	J [joule(s)] {1 J = 1 N·m}	eV [electron volt(s)] * erg [erg(s)] kgf·m lbf·ft	1 eV = (1.602 189 2 ± 0.000 004 6) × 10 ⁻¹⁹ J 1 erg = 10 ⁻⁷ J 1 kgf·m = 9.806 65 J 1 lbf·ft = 1.355 82 J	1 J = 10 ⁷ erg 1 J = 0.101 97 kgf·m 1 J = 0.737 56 lbf·ft
Power	W [watt(s)]	erg/s [ergs per second] kgf·m/s PS [French horse-power] HP [horse-power (British)] lbf·ft/s	1 erg/s = 10 ⁻⁷ W 1 kgf·m/s = 9.806 65 W 1 PS = 75 kgf·m/s = 735.5 W 1 HP = 550 lbf·ft/s = 745.7 W 1 lbf·ft/s = 1.355 82 W	1 W = 0.101 97 kgf·m/s 1 W = 0.001 36 PS 1 W = 0.001 34 HP
Thermo-dynamic temperature	K [kelvin(s)]			
Celsius temperature	°C [celsius(s)] {t °C = (t + 273.15) K}	°F [degree(s) Fahrenheit]	t °F = $\frac{5}{9} (t - 32) °C$	t °C = $(\frac{9}{5} t + 32) °F$
Linear expansion coefficient	K ⁻¹	°C ⁻¹ [per degree]		
Heat	J [joule(s)] {1 J = 1 N·m}	erg [erg(s)] kgf·m cal _{IT} [I. T. calories]	1 erg = 10 ⁻⁷ J 1 cal _{IT} = 4.186 8 J 1 Mcal _{IT} = 1.163 kW·h	1 J = 10 ⁷ erg 1 J = 0.238 85 cal _{IT} 1 kW·h = 0.86 × 10 ⁶ cal _{IT}
Thermal conductivity	W/(m·K)	W/(m·°C) cal/(s·m·°C)	1 W/(m·°C) = 1 W/(m·K) 1 cal/(s·m·°C) = 4.186 05 W/(m·K)	
Coefficient of heat transfer	W/(m ² ·K)	W/(m ² ·°C) cal/(s·m ² ·°C)	1 W/(m ² ·°C) = 1 W/(m ² ·K) 1 cal/(s·m ² ·°C) = 4.186 05 W/(m ² ·K)	
Heat capacity	J/K	J/°C	1 J/°C = 1 J/K	
Massic heat capacity	J/(kg·K)	J/(kg·°C)		

[Note] 1) * : Unit can be used as an SI unit.
No asterisk : Unit cannot be used.

Supplementary table 3 (4) SI units and conversion factors

Mass	SI units	Other units ¹⁾	Conversion into SI units	Conversion from SI units
Electric current	A [ampere(s)]			
Electric charge, quantity of electricity	C [coulomb(s)] {1 C = 1 A·s}	A·h	* 1 A·h = 3.6 kC	
Tension, electric potential	V [volt(s)] {1 V = 1 W / A}			
Capacitance	F [farad(s)] {1 F = 1 C / V}			
Magnetic field strength	A / m	Oe [oersted(s)]	$1 \text{ Oe} = \frac{10^3}{4\pi} \text{ A/m}$	$1 \text{ A/m} = 4\pi \times 10^{-3} \text{ Oe}$
Magnetic flux density	T [tesla(s)] {1 T = 1 N / (A·m)} = 1 Wb/m ² = 1 V·s/m ²	Gs [gauss(es)] γ [gamma(s)]	1 Gs = 10 ⁻⁴ T 1 γ = 10 ⁻⁹ T	1 T = 10 ⁴ Gs 1 T = 10 ⁹ γ
Magnetic flux	Wb [weber(s)] {1 Wb = 1 V·s}	Mx [maxwell(s)]	1 Mx = 10 ⁻⁸ Wb	1 Wb = 10 ⁸ Mx
Self inductance	H [henry (-ries)] {1 H = 1 Wb / A}			
Resistance (to direct current)	Ω [ohm(s)] {1 Ω = 1 V / A}			
Conductance (to direct current)	S [siemens] {1 S = 1 A / V}			
Active power	W {1 W = 1 J / s} = 1 A·V}			

Supplementary table 4 Greek alphabet list

Name	Roman type	Italic type		Name	Roman type	Italic type	
	Capital	Capital	Lowercase		Capital	Capital	Lowercase
alpha	A	<i>A</i>	α	nu	N	<i>N</i>	ν
beta	B	<i>B</i>	β	xi	Ξ	Ξ	ξ
gamma	Γ	Γ	γ	omicron	O	<i>O</i>	<i>o</i>
delta	Δ	Δ	δ	pi	Π	Π	π
epsilon	E	<i>E</i>	ϵ	rho	P	<i>P</i>	ρ
zeta	Z	<i>Z</i>	ζ	sigma	Σ	Σ	σ
eta	H	<i>H</i>	η	tau	T	<i>T</i>	τ
theta	Θ	Θ	θ	upsilon	Y	<i>Y</i>	υ
iota	I	<i>I</i>	ι	phi	Φ	Φ	ϕ
kappa	K	<i>K</i>	κ	chi	X	<i>X</i>	χ
lambda	Λ	Λ	λ	psi	Ψ	Ψ	ψ
mu	M	<i>M</i>	μ	omega	Ω	Ω	ω

Supplementary table 5 Prefixes used with SI units

Factor	Prefix		Factor	Prefix	
	Name	Symbol		Name	Symbol
10^{18}	exa	E	10^{-1}	deci	d
10^{15}	peta	P	10^{-2}	centi	c
10^{12}	tera	T	10^{-3}	milli	m
10^9	giga	G	10^{-6}	micro	μ
10^6	mega	M	10^{-9}	nano	n
10^3	kilo	k	10^{-12}	pico	p
10^2	hecto	h	10^{-15}	femto	f
10	deka	da	10^{-18}	atto	a

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