

Koyo®

Inch Series

• General Bearings •

TAPERED ROLLER BEARINGS



JTEKT

JTEKT CORPORATION

CAT. NO. B2009E

Koyo®

Inch Series

TAPERED ROLLER BEARINGS

CAT. NO. B2009E

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

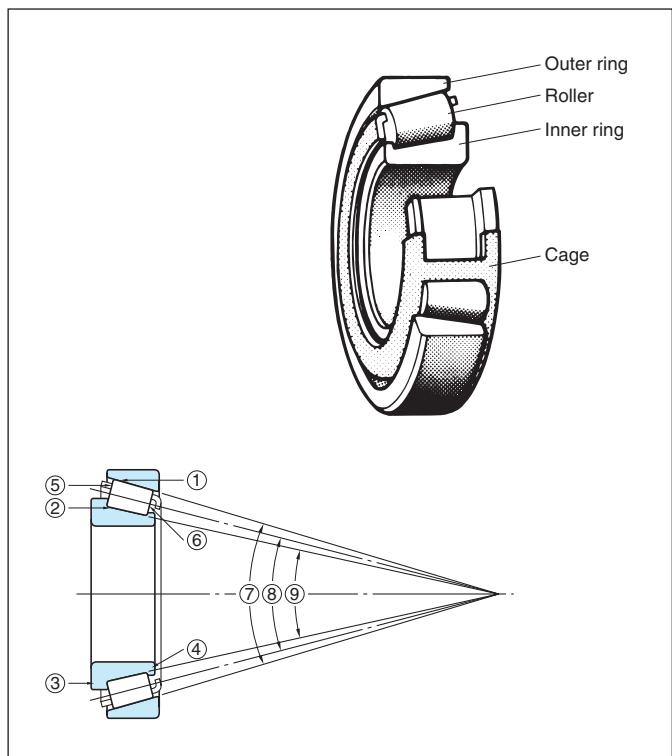
1 Structure of tapered roller bearings

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.

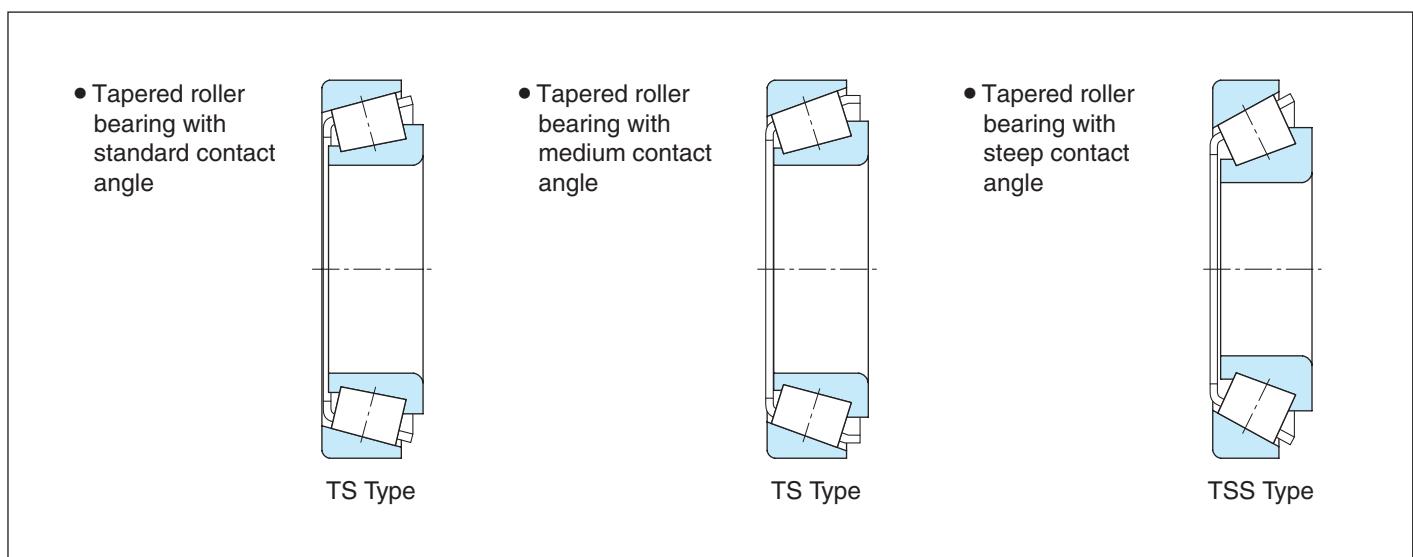
The raceway surfaces of inner ring and outer ring and the rolling contact surface of rollers are designed so that the respective apexes converge at a point on the bearing center line.

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



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.

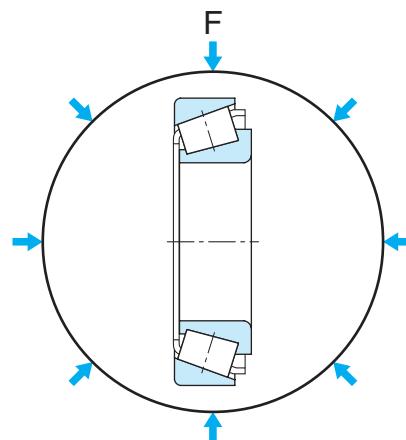
2) The outer ring can be mounted separately from the inner ring assembly

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 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 :

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

where :

L_{10} : basic rating life $\times 10^6$ 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 :

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

where :

L_{10h} : life in terms of hours h

$$\left. \begin{aligned} L_{10h} &= L_{10} \times \frac{10^6}{60n} \\ &= \left(\frac{C}{P} \right)^{10/3} \frac{10^6}{60n} \\ &= \left(\frac{C}{P} \right)^{10/3} \frac{16\,667}{n} \end{aligned} \right\}$$

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**.

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

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

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

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)**.

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

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 mm²/s or less
Roller bearing 20 mm²/s or less

- Operation at very slow rotational speed
Product of rolling element pitch diameter and 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 <i>n</i> (min ⁻¹)	Coefficient of rotational speed <i>f_n</i>	Rotational speed <i>n</i> (min ⁻¹)	Coefficient of rotational speed <i>f_n</i>	Rotational speed <i>n</i> (min ⁻¹)	Coefficient of rotational speed <i>f_n</i>	Rotational speed <i>n</i> (min ⁻¹)	Coefficient of rotational speed <i>f_n</i>
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.

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

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
	Normal operation	1
	When impact load is applied	1.5
Without bearing rotation (occasional oscillation)	Normal operation	0.5
	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,

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

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 $Y = 0$.

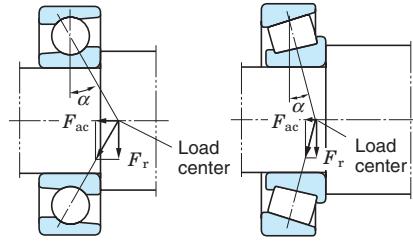
Hence, the dynamic equivalent load rating is $P_r = F_r$.

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.

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



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	$\frac{F_{rB}}{2Y_B} + K_a$	$P_A = XF_{rA} + Y_A \left(\frac{F_{rB}}{2Y_B} + K_a \right)$ $P_A = F_{rA}, \text{ where } P_A < F_{rA}$
			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	$\frac{F_{rA}}{2Y_A} - K_a$	$P_B = XF_{rB} + Y_B \left(\frac{F_{rA}}{2Y_A} - K_a \right)$ $P_B = F_{rB}, \text{ where } P_B < F_{rB}$

4.2 Static equivalent load

The static equivalent load is a theoretical load calculated such that, during rotation at very low speed or when bearings are stationary, the same contact stress as that imposed under actual loading condition is generated at the contact center between raceway and rolling element to which the maximum load is applied.

For radial bearings, radial load passing through the bearing center is used for the calculation; for thrust bearings, axial load in a direction along the bearing axis is used.

The static equivalent load can be calculated using the following equations.

[Radial bearings] ... The greater value obtained by the following two equations is used.

$$P_0 = X_0 F_r + Y_0 F_a \dots \quad (4.3)$$

$$P_{0r} = F_r \dots \quad (4.4)$$

where :

P_{0r} : static equivalent radial load

P_{0a} : static equivalent axial load

F_r : radial load N

F_a : axial load

X_0 : static radial load factor

γ_0 : static axial load factor

values of X_0 and Y_0 are listed in the bearing specification table.

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. ≤ 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	
mm	inch	mm	inch	max.		max.		max.		max.	
—	—	304.8	12.0	51		38		8		4	
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
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	max.	max.	max.	max.	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,

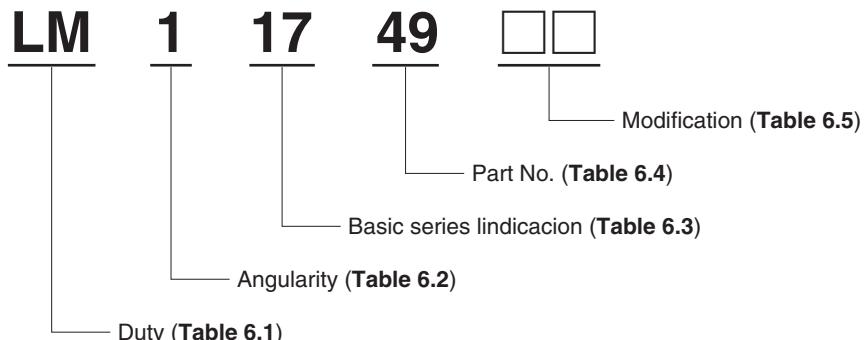


Table 6.1 Duty

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	$0^{\circ} < \alpha < 24^{\circ}$
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

angularity and dimensions of the inch series tapered roller bearings.

Modification (Table 6.5)

Part No. (Table 6.4)

Basic series lindicacion (Table 6.3)

Angularity (Table 6.2)

Duty (Table 6.1)

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;

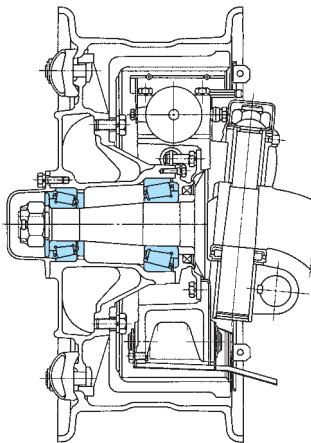
Code	Details
A	Bearing limit for overall width or size in master closer than standard.
B	Single outer ring with flange.
BR	Single or double outer ring or inner ring with snap ring.
BW	Single outer ring with flange and slotted.
CR	Rib outer ring.
CP	Chrome plated inner ring and outer ring.
D	Double inner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

7 Typical applications

Automotive

• Front wheels

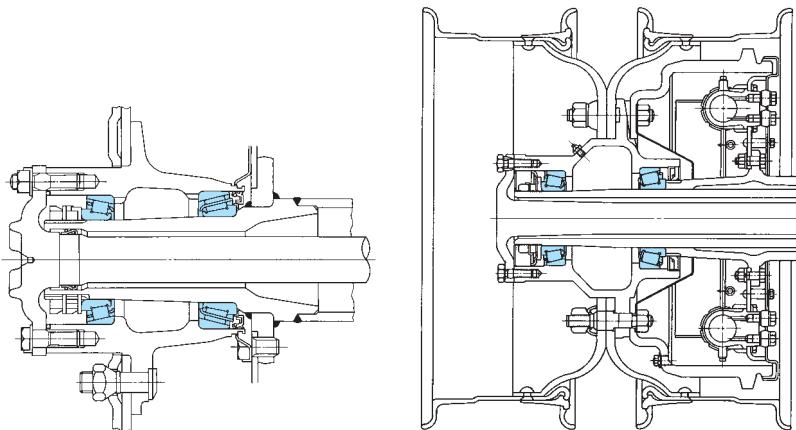
In general, automotive front wheel bearings are primarily subjected to radial loads. However, during cornering or running on bad roads, substantial moment loads can be imposed. Therefore, it is extremely important to select bearings which can absorb these moment loads without difficulty. At the present 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 mis-align during cornering, which can have an adverse affect on service life, bearings which offer superior performance under these conditions should be selected.

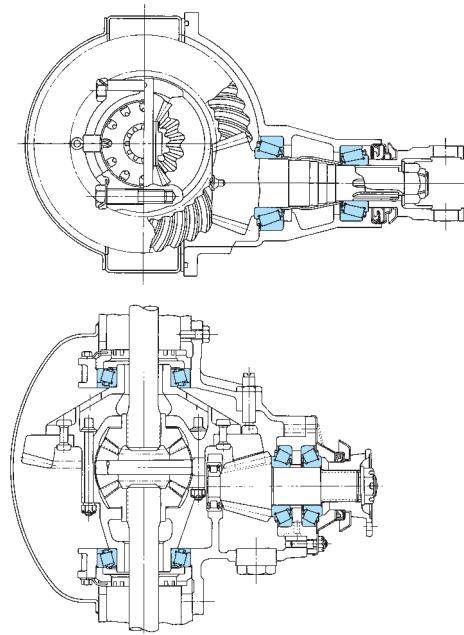


• Differentials

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).

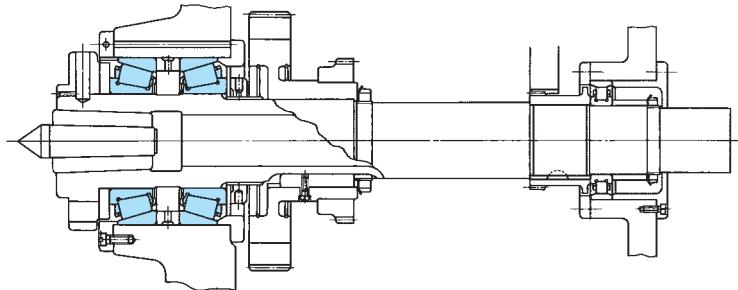
The differential ring gear is supported by tapered roller bearings mounted face to face.



General industries

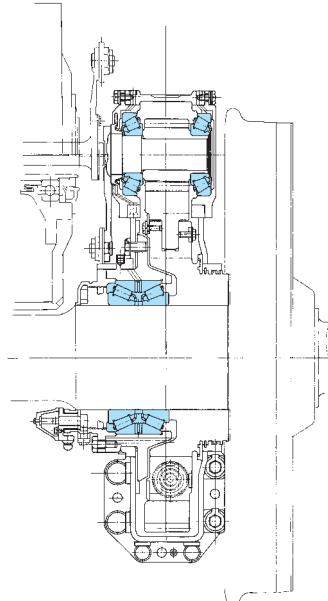
• Machine tool spindles

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.

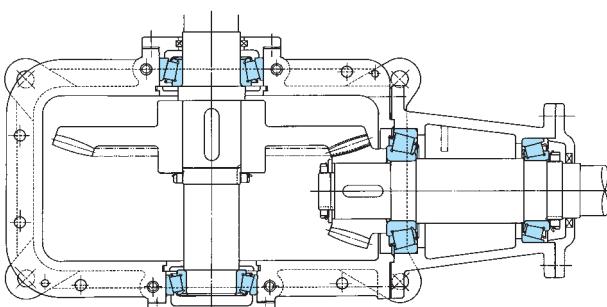


• Electric railway car gear units

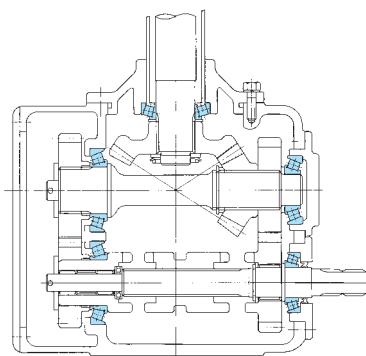
The driving axles of electric cars are equipped with gearing units to transmit the torque and rotation generated by the traction main motors. In the parallel cardan gear units (currently more widely used than square cardan gear units), both the pinion shaft and gear housing are generally fitted with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



• Bevel-gear units



• Farm equipment, transmission



Specification tables of tapered roller bearings

8 Series No. INDEX

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	336	55	332A	
	337	51		
	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
	350A	53	353	59
	355	57,59	354	57
	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	61,63,67
	375S	65	372A	65
	376	61	374	65
	376A	61		
	377	67		
	377A	67		
	377S	67		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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385	385	69	382	69
	385A	65	382A	61,65,69,71
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	385AX	65	383A	67
	385X	69	383X	69
	386	69		
	386A	61		
	387	69		
	387A	69		
	387AS	69		
	387S	69		
	388A	71		
	389	69		
	389AS	67		
	389S	69		
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		
415	415	53	414	41,47,49,53,
	416	41		55
	417	47	414A	41,49,53
	418	53	414X	53
	419	55		
	420	55		
	421	49		
	422	53		
	423X	55		
	424X	49		
435	435	59	432	47,49,55,57,
	436	61		59
	438	59	432A	45,53,57,59,
	439	57		61
	440	53		
	441	49		
	442S	55		
	443	45		
	444	53		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
435	447	57		
	449	47		
455	455	65	452	65
	455S	65	453	67
	456	67	453A	57,59,63,69
	458	59	453X	57,61,63,67,
	458S	61		69
	460	59	454	65,69
	461	57		
	462	69		
	463	63		
	464	57		
	464A	57		
	465	63		
	465A	63		
	466	69		
	466S	69		
	467	63		
	468	67		
	469	69		
475	475	69	472	73,75,77
	475X	69	472A	69,73,75,77,
	476	73	472X	79
	476A	73		75,79
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	478	75		
	478S	77		
	479	77		
	480	77		
	482	77,79		
	482A	77		
	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		
	496X	83		
	497	85		
	497A	85		
	498	85		
	499A	85		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	525A	53		
	525X	53		
	526	57		
	526A	57		
	527	59		
	527S	61		
	528	63		
	528A	63		
	529	65		
	529X	65		
535	535	59	532	59,63
	536	63	532A	59
	537	65	532X	53,55,57,63, 65,67
	539	67	533A	67
	539A	67		
	540	67		
	541	57		
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	555S	71	553	73
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	557S	67		
	558	73		
	558A	73		
	559	75		
	560	77		
	560S	77		
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	565S	75		
	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		
615	615	59	612	53,59,63,67,
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	620	53	612S	67
	621	67	613X	67
	622A	69		
	622X	69		
	623	71		
	623A	71		
	624	67		
635	635	71	632	71,77
	636	69	633	69,73,75,77,
	637	73		79
	639	75		
	641	77		
	642	77		
	643	79		
	644	79		
	645	79		
655	655	79	652	81,85
	656	75	652A	79,85
	657	79,81	653	75,79,81,83,
	658	81		85,87
	659	81	653X	81
	661	83		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	663	85		
	663A	85		
	664	85		
	665	87		
	665A	87		
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	679	87		
	681	89		
	681A	89		
	683	89		
	685	89		
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	744AR	79		
	744R	81		
	745AR	79		
	745SR	75		
	747SR	75		
	748R	83		
749R	748SR	81		
	749AR	85		
	749R	85		
	749SR	85		
	750AR	85		
	750R	83		
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	758	87		
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	778	89		
	779	89		
	780	91		
	782	91		
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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	860R	91		
	861R	91		
	862R	89		
	863R	91		
	863XR	91		
	864R	89		
	864XR	83		
	865XR	85		
	866R	89		
	867AR	89		
	867XR	85		
	869R	87		
935	935	91	930	93 91,93
	936	91		
	938	93		
	938S	93		
	939	93		
	941	91		
	942	93		
	947	93		
1200	1280	37	1220	37
1300	1380	37	1328	37
1600	1674	43	1620	43,45
	1680	45		
1700	1755	37	1729	35,37
	1774	35	1729X	35,37
	1775	35	1730	35,37
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	1985R	39	1931	37
	1986R	37	1932	37
	1987R	39		
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	1994XR	37		
	1997XR	39		

Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	A2037	35		
	A2043	35		
	A2047	35		
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	2559	41	2523	41
	2578	39	2523S	41
	2580	43	2525	41
	2581	45		
	2582	43		
	2585	45		
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	2685	37		
	2687	39		
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	2689	39		
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	2793R	47		
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Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page	Series No.	Inner ring (Cone)	Page	Outer ring (Cup)	Page
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	3188S	43	3125	43		3775	65	3726	61
	3188X	37	3126	43		3776	61	3730	59,61,63,65,
	3189	39	3129	43		3777	61		67
	3189X	39	3130	39,43,45		3778	61	3732	59,61,65
	3190	41				3779	61		
	3190S	41				3780	65		
	3191	43				3781	63		
	3192	41				3781A	63		
	3193	43				3782	59		
	3194	45				3783	59		
	3196	45				3784	65		
	3197	45			3800	3872	47	3820	47,49
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	3199	43				3875	51		
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	H715340	75		
	H715341	77		
	H715343	77		
	H715344	79		
	H715345	79		
LM770900	LM770945	97	LM770910	97
LM772700	LM772748	97	LM772710	97
776000	EE776430	97	776520	97
LL778100	LL778149	97	LL778110	97
HM801300	HM801346	51	HM801310	51,55
	HM801346X	51		
	HM801349	55		
M802000	M802048	55	M802011	55
HM803100	HM803145	55	HM803110	55,59
	HM803146	55		
	HM803149	59		
M804000	M804049	61	M804010	61
HM804800	HM804840	57	HM804810	57,59,61,63
	HM804842	59	HM804811	59
	HM804843	59		
	HM804846	61		
	HM804848	63		
	HM804849	63		
LM806600	LM806649	67	LM806610	67
HM807000	HM807035	57	HM807010	57,59,63,65,
	HM807040	59		67
	HM807044	63		
	HM807046	65		
	HM807049	67		
HM813800	HM813836	67	HM813810	69,73
	HM813840	69	HM813811	67,73,75,77,
	HM813841	73		79
	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	HH923649	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		
HH953700	HH953749	103	HH953710	103
H961600	H961649	103	H961610	103
LM961500	LM961548	103	LM961510	103

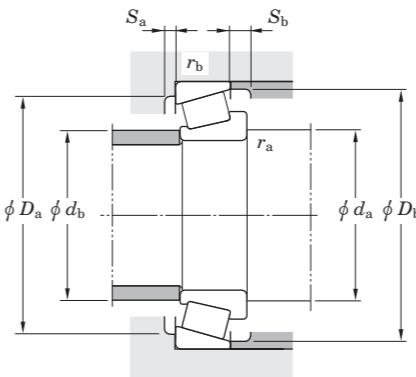
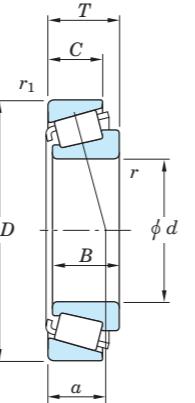
Metric "J" series

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



$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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

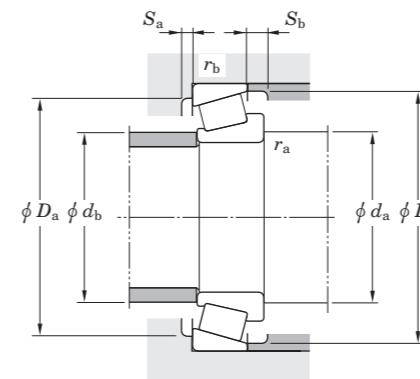
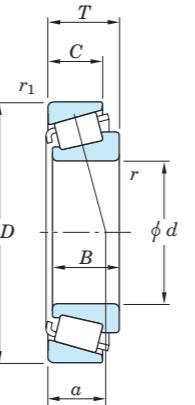
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b mm inch			d_a mm inch	d_b mm inch	D_a mm inch	D_b 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		
11.112 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	10.998 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																						

TS type

d 21.430 ~ (25.400) mm

0.8437 ~ (1.0000) inch



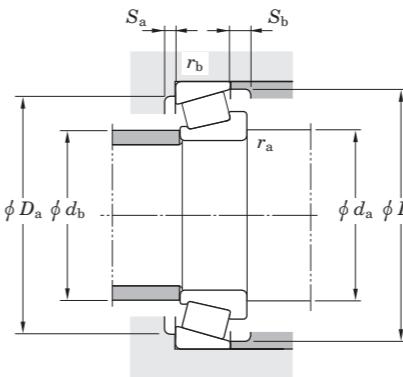
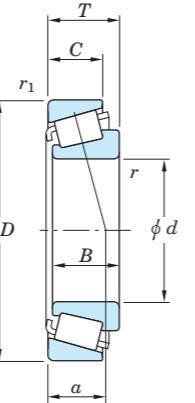
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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 e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor K										
d mm	d inch	D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch	r (min.) mm	r (min.) inch	C_r	C_{0r}	a mm	d_a mm	d_b mm	D_a mm	D_b mm																
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	0.8	0.03	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																					

TS type

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



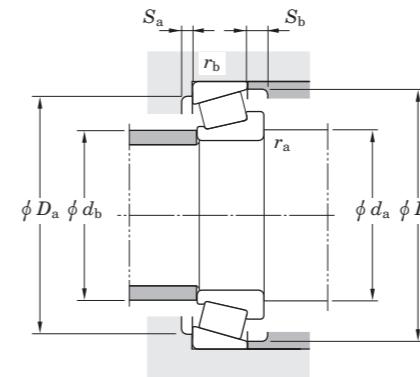
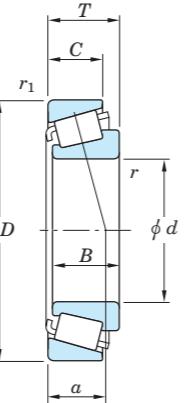
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN)	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial													
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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	1.2											

TS type

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



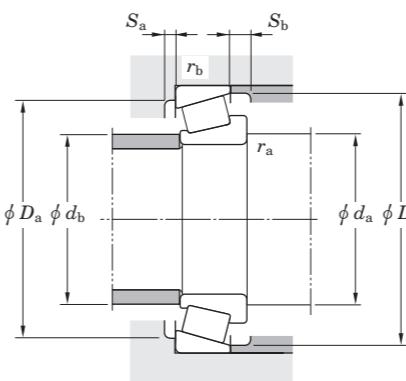
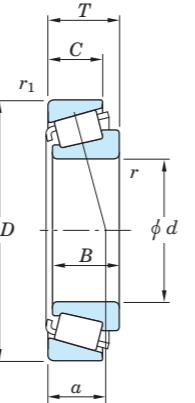
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial K											
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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.					

TS type

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



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

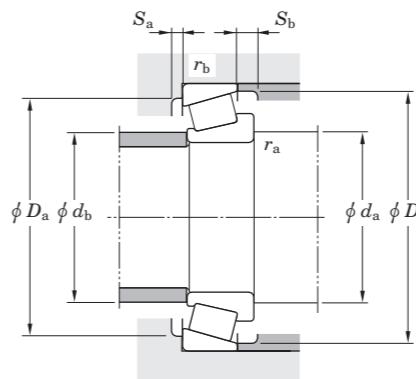
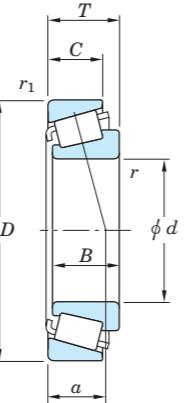
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial K										
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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				

TS type

 d (31.750) ~ 33.338 mm

(1.2500) ~ 1.3125 inch



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

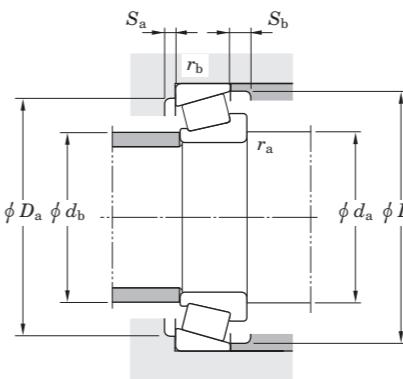
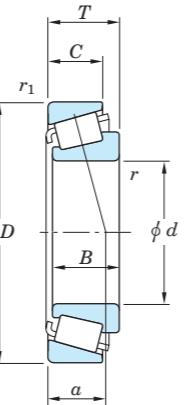
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm	d inch	Boundary dimensions								Basic load ratings (kN)	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial												
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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												

TS type

d 34.925 ~ (34.980) mm

1.3750 ~ (1.3772) inch



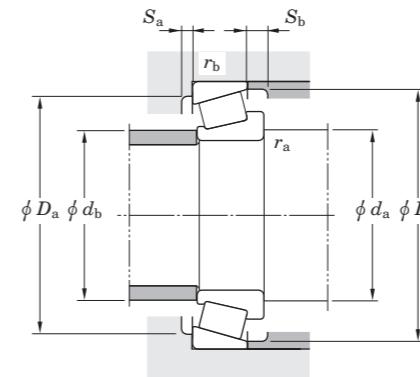
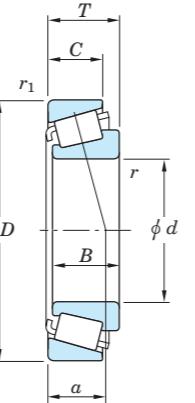
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial K									
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	Load center		d _a mm inch	d _b mm inch					d _a mm inch		d _b mm inch		D _a mm inch		D _b mm inch												
	mm inch	mm inch	mm inch	mm inch	mm inch	mm inch	a mm	a 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	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	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	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	16137	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</td																															

TS type

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



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

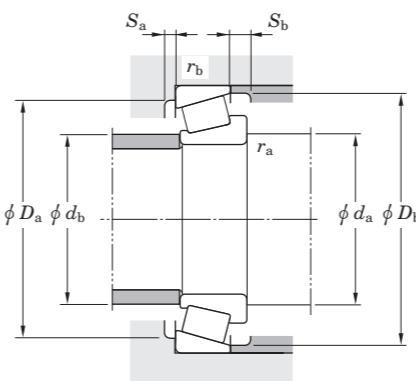
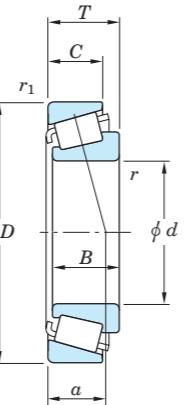
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K											
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	d_a mm	d_b mm	D_a mm	D_a inch	D_b mm	D_b 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				

TS type

 d (36.512) ~ (38.100) mm

(1.4375) ~ (1.5000) inch



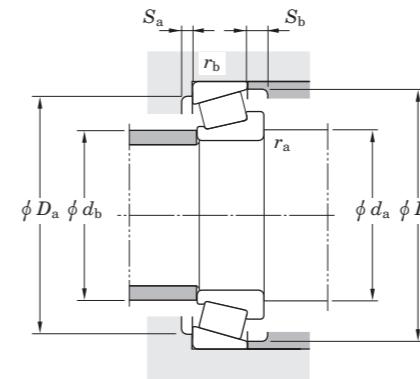
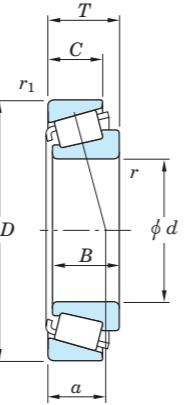
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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

d mm inch	D mm inch	Boundary dimensions								C_r C_{0r}	Basic load ratings (kN)	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions								Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor K									
		T mm inch	B mm inch	C mm inch	r (min.) mm inch	r_1 (min.) mm inch	a	d_a mm inch	d_b 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													
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		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		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	71.496	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</															

TS type

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



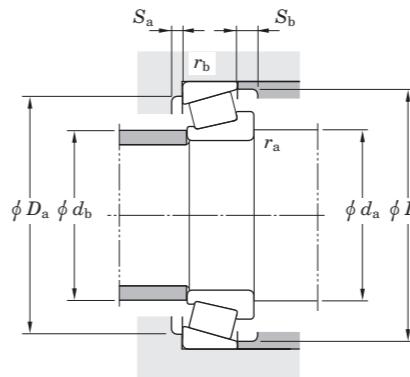
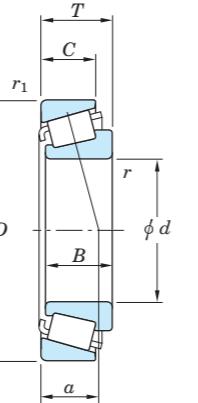
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions						Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K														
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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						

TS type

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



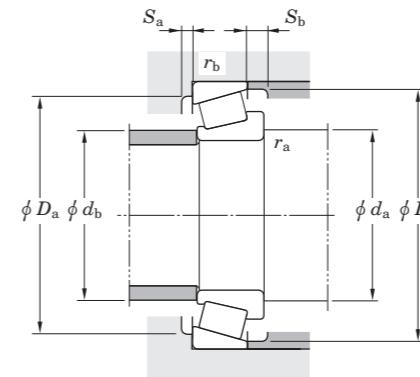
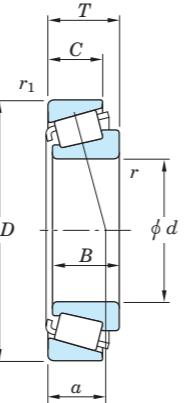
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial										
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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	0.8	0.03	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						

TS type

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

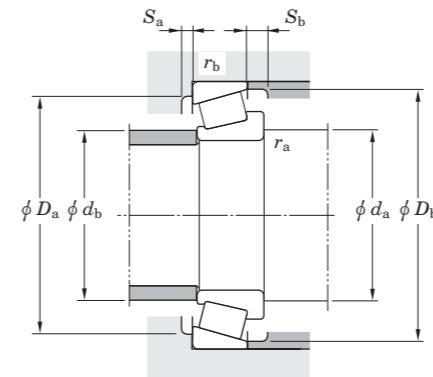
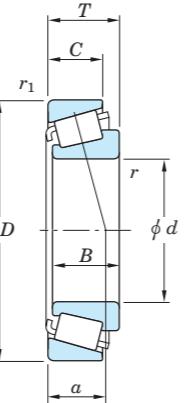


$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions						Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K											
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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																						

TS type
d (44.450) mm
(1.7500) 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

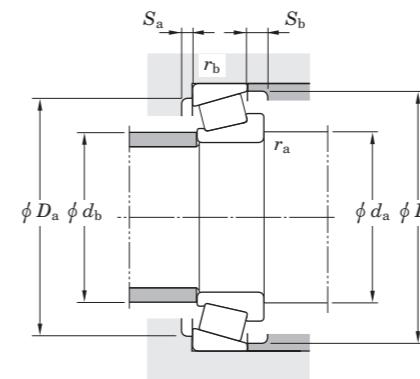
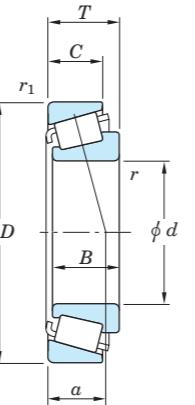
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial											
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	Load center		d_a mm inch	d_b mm inch					D_a mm inch	D_b mm inch																			
							a	mm	inch	mm	inch					mm	inch	mm	inch																
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	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																

TS type

d 44.869 ~ (47.625) mm

1.7665 ~ (1.8750) inch



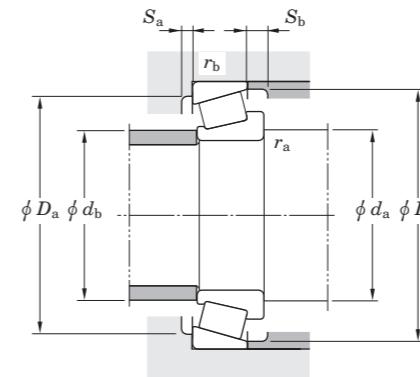
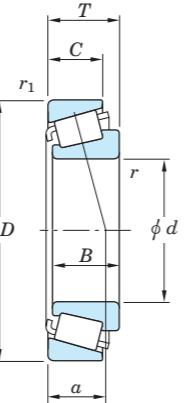
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K													
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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	30.162	1.1875	29.317	1.1542	24.605	0.9687	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</td													

TS type

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

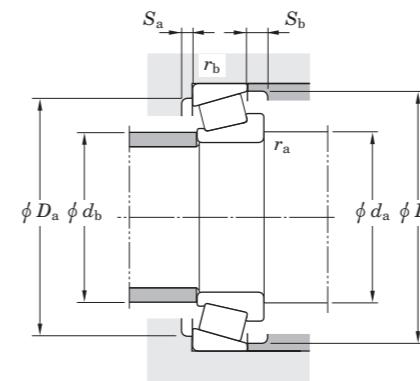
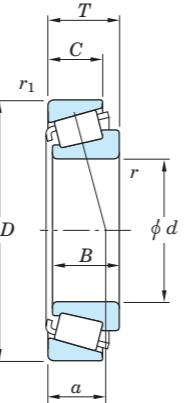


$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions						Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K													
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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																																		

TS type
d (50.800) mm
(2.0000) inch



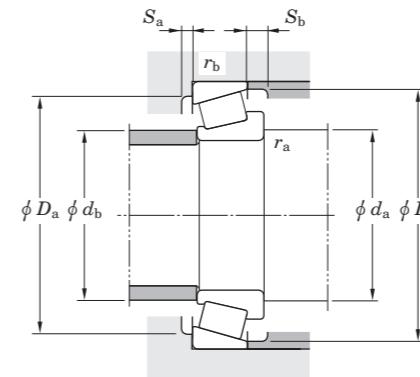
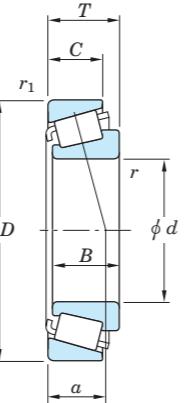
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

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) (500 rpm for 3 000 Hrs.)	Factor K										
d mm	D mm	T mm	B mm	C mm	r (min.) mm	r ₁ (min.) mm	C _r	C _{0r}	a mm	d _a mm	d _b mm	D _a mm	D _b mm	e	Y ₁	Y ₀																		
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	3																

TS type

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



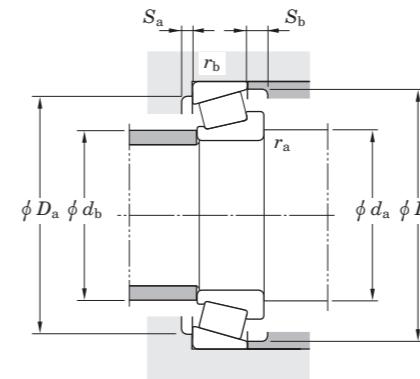
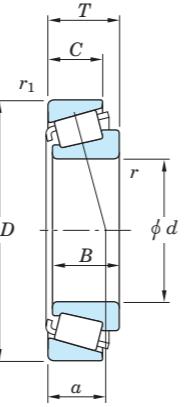
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

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) (500 rpm for 3 000 Hrs.)	Factor K											
d mm	d inch	D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch	r (min.) mm	r (min.) inch	r_1 (min.) mm	r_1 (min.) inch	C_r	C_{0r}	a mm	a inch	d_a mm	d_a inch	d_b mm	d_b inch	D_a mm	D_a inch	D_b mm	D_b inch	e	Y_1	Y_0							
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																																	

TS type

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



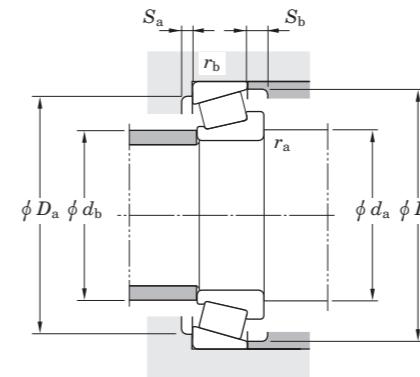
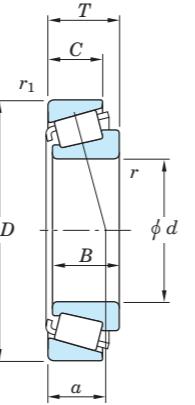
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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 Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor K											
d mm	d inch	D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch	r (min.) mm	r (min.) inch	r_1 (min.) mm	r_1 (min.) inch	C_r	C_{0r}	a mm	a inch	d_a mm	d_a inch	d_b mm	d_b inch	D_a mm	D_a inch	D_b mm	D_b 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.																									

TS type

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



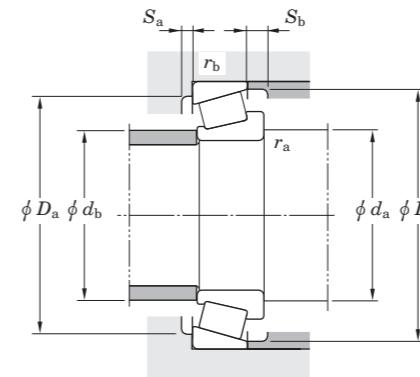
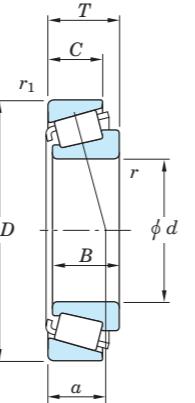
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm inch	D mm inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions								Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K											
		T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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									

TS type

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



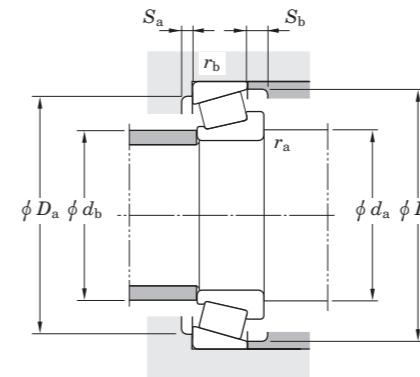
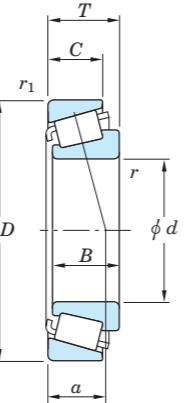
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d	d	Boundary dimensions								C_r	C_{0r}	Basic load ratings (kN)	Bearing No.	Load center	Mounting dimensions						Constant	Axial load factors	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor											
		D	T	B	C	r (min.)	r_1 (min.)	a	d_a						d_a	d_b	D_a	D_b	e	Y_1	Y_0														
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	mm	inch	mm	inch	mm	inch	mm	inch	Radial	Axial											
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	36.678	1.4440	30.162	1.1875	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			558R	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																									

TS type

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



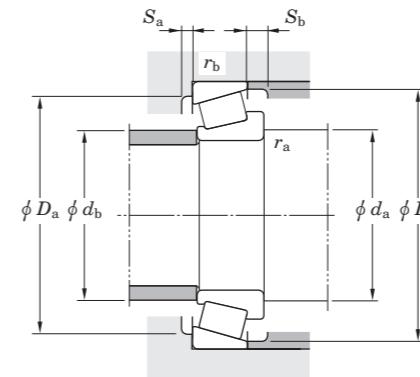
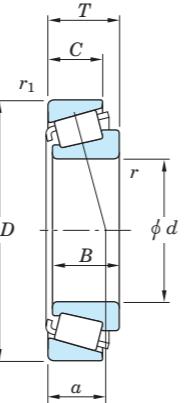
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions						Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K														
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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	36.170	1.4240	28.575	1.1250									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					

TS type

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



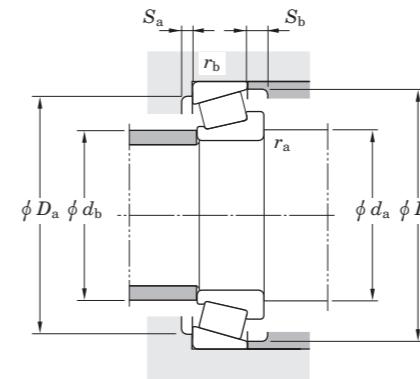
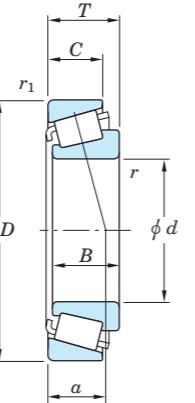
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm inch	D mm inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K												
		T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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	
	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.			

TS type

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



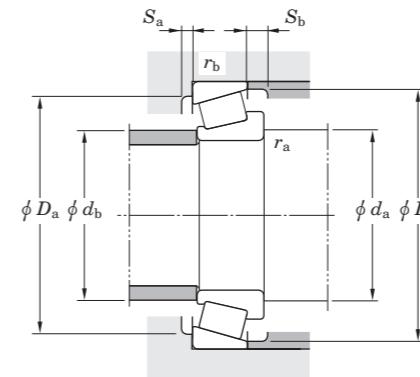
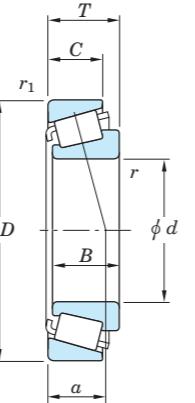
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial												
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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</															

TS type

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



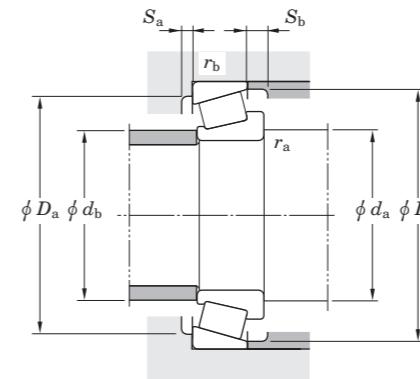
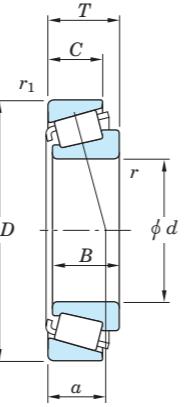
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K												
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a mm inch	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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	2																													

TS type

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



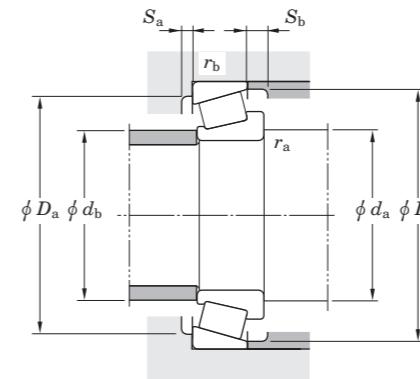
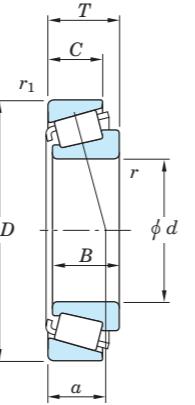
$P = XF_r + YF_a$	
$P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$	
$F_a / F_r \leq e$	$F_a / F_r > e$
X	Y
1	0
0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions						Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K		
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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							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									
	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									
	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									
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							26.0	20.0	1.30
	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									
	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									
	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									
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							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									
	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									
	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									
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							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									
	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									
	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									
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							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									
	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									
	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									
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							38.8	29.4	1.32
	3.1875	133.350																						

TS type

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



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

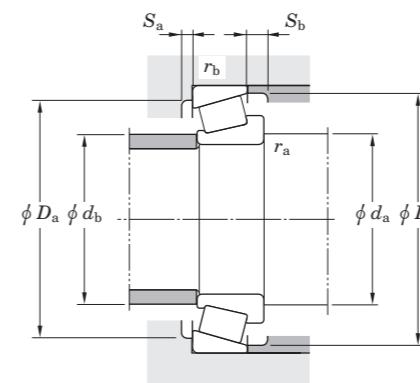
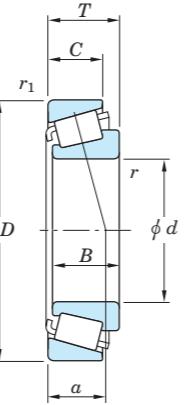
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm inch	D mm inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions								Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K									
		T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	a	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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																															

TS type

 d (85.725) ~ 89.992 mm

(3.3750) ~ 3.5430 inch



$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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

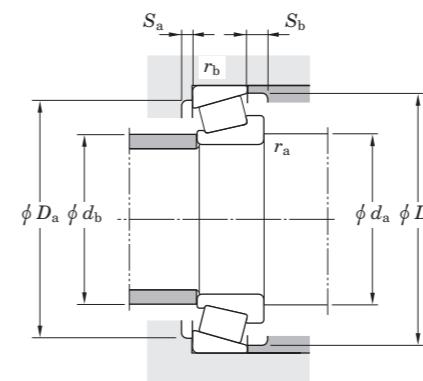
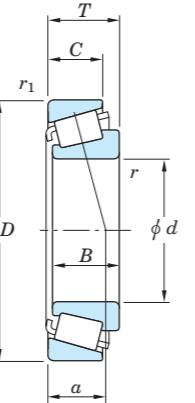
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K										
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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			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			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			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			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			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			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			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			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			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																											

TS type

d 90.000 ~ 98.425 mm

3.5433 ~ 3.8750 inch



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

Note) The Values of “ e ” “ Y_1 ” and “ Y_0 ” are given in the table below.

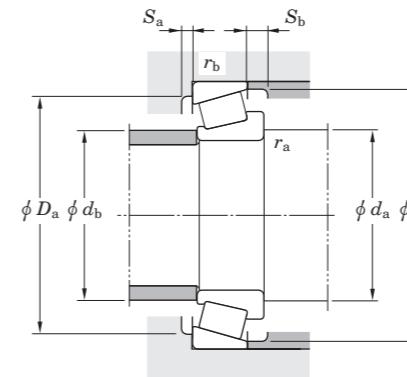
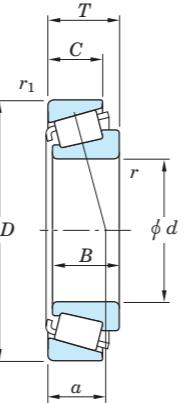
Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center	Mounting dimensions						Con- stant	Axial load factors	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor <i>K</i>								
<i>d</i> mm	<i>D</i> mm	<i>T</i> mm	<i>B</i> mm	<i>C</i> mm	<i>r</i> (min.) mm	<i>r</i> ₁ (min.) mm	<i>C</i> _r	<i>C</i> _{0r}	Inner ring (Cone)	Outer ring (Cup)	<i>a</i> mm	<i>d</i> _a mm	<i>d</i> _b mm	<i>D</i> _a mm	<i>D</i> _b mm	<i>e</i>	<i>Y</i> ₁	<i>Y</i> ₀	Radial	Axial														
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	124.0	4.88	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	152.0	5.98	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																									

Note 1) SP indicates the specially chamfered from.

TS type

d 99.975 ~ 107.950 mm

3.9360 ~ 4.2500 inch



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

Note) The Values of “ e ” “ Y_1 ” and “ Y_0 ” are given in the table below.

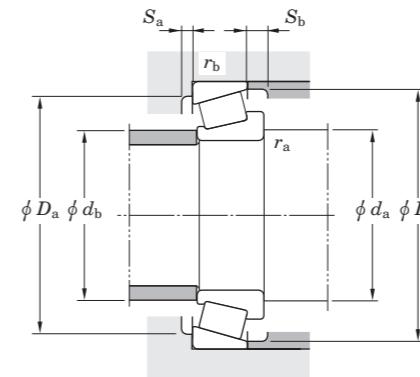
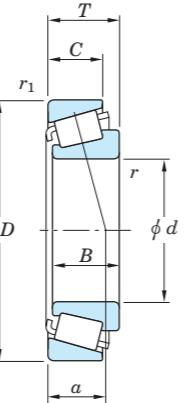
Boundary dimensions												Basic load ratings (kN)		Bearing No.		Load center	Mounting dimensions																	
d mm	D inch	T mm	B inch	C mm	r (min.) inch	r ₁ (min.) mm	r ₁ (min.) inch	C _r	C _{0r}	Inner ring (Cone)	Outer ring (Cup)	a mm	d _a mm	d _b inch	D _a mm	D _b inch	e	Y ₁	Y ₀	Radial	Axial	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor K											
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	150.0	5.91	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	150.0	5.91	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	152.0	5.98	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	156.0	6.14	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	15.87																										

Note 1) SP indicates the specially chamfered from.

TS type

d 109.538 ~ 123.825 mm

4.3125 ~ 4.8750 inch



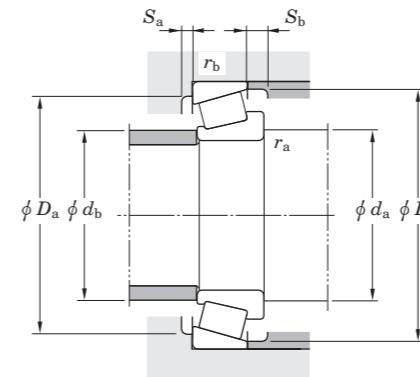
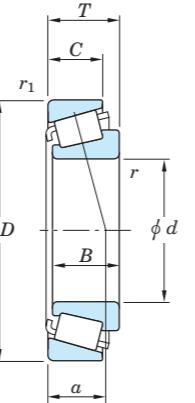
$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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) (500 rpm for 3 000 Hrs.)	Factor K										
<i>d</i> mm	<i>d</i> inch	<i>D</i> mm	<i>D</i> inch	<i>T</i> mm	<i>T</i> inch	<i>B</i> mm	<i>B</i> inch	<i>C</i> mm	<i>C</i> inch	<i>r</i> (min.) mm	<i>r</i> (min.) inch	<i>r</i> ₁ (min.) mm	<i>r</i> ₁ (min.) inch	<i>C_r</i>	<i>C_{0r}</i>	<i>a</i> mm	<i>d_a</i> mm	<i>d_a</i> inch	<i>d_b</i> mm	<i>d_b</i> inch	<i>D_a</i> mm	<i>D_a</i> inch	<i>D_b</i> mm	<i>D_b</i> inch										
109.538	4.3125	158.750	6.2500	23.020	0.9063	21.438	0.8440	15.875	0.6250	6.4	0.25	6.4	0.25	104	169		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	153.0	6.02	0.40	1.50	0.82	53.4	36.5	1.46
	4.3302	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	153.0	6.02	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	169.0	6.65	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	66.6																														

TS type

d 127.000 ~ 255.600 mm
5.0000 ~ 10.0630 inch



$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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

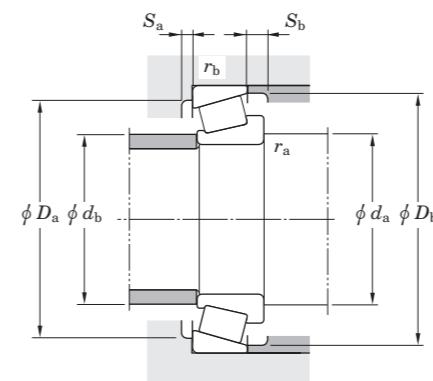
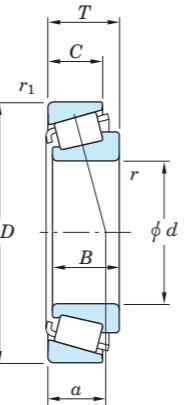
Note) The Values of "e" "Y₁" and "Y₀" are given in the table below.

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial													
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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	1050			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	169.0	6.65	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	190.0	7.48	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																						

TS type

d 257.175~1 092.200 mm

10.1250 ~ 43.0000 inch

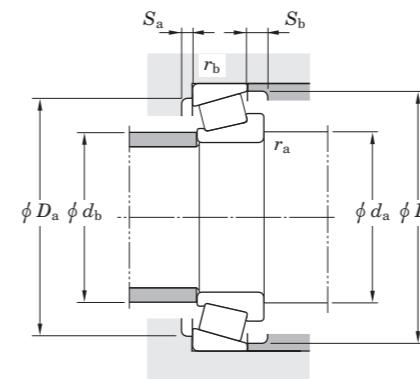
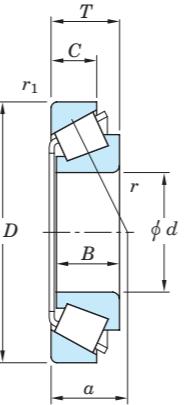


$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$	$F_a / F_r > e$		
X	Y	X	Y
1	0	0.4	Y_1

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

d mm inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center a mm inch	Mounting dimensions					Con- stant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K														
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r_1 (min.) mm inch	d_a mm inch	d_b mm inch	D_a mm inch	D_b 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																										

TSS type

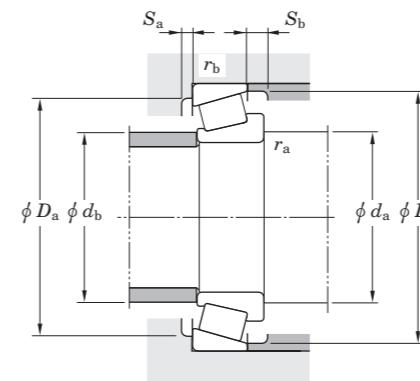
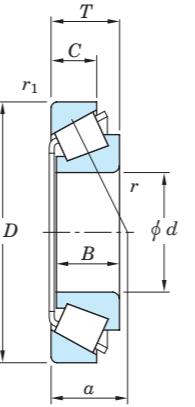
 $d \ 15.875 \sim (44.450) \text{ mm}$ $0.6250 \sim (1.7500) \text{ inch}$ 

$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	a mm	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor K												
d mm	d inch	D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch					d_a mm	d_a inch	d_b mm	d_b inch	D_a mm	D_a inch	D_b mm	D_b 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	68.0	2.68	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</td																																			

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

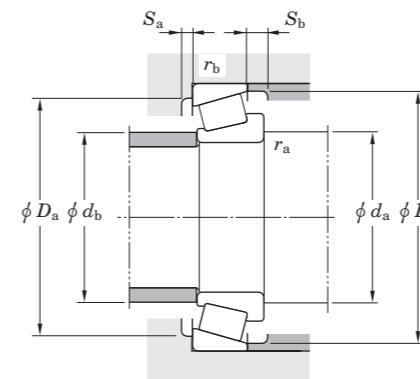
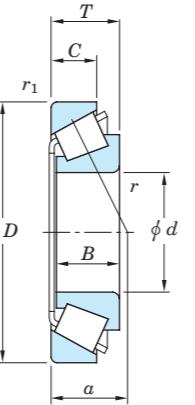


$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ or $P_0 = F_r$			
$F_a / F_r \leq e$		$F_a / F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

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

d mm	d inch	Boundary dimensions								Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial													
		D mm	D inch	T mm	T inch	B mm	B inch	C mm	C inch				a mm	a inch	d _a mm	d _a inch	d _b mm	d _b inch	D _a mm	D _a inch	D _b mm	D _b 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</																													

TSS type

 $d \ 69.850 \sim 342.900 \text{ mm}$ $2.7500 \sim 13.5000 \text{ inch}$ 

$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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.

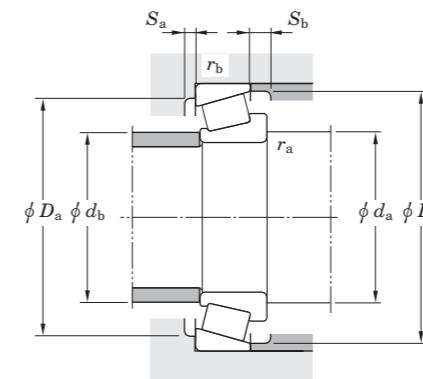
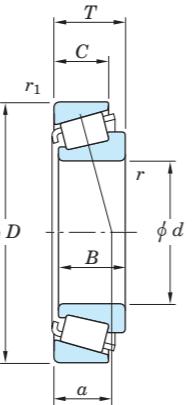
d mm inch	D mm inch	Boundary dimensions						Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone) Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.) Radial Axial	Factor K														
		T mm inch	B mm inch	C mm inch	r (min.) mm inch	r_1 (min.) mm inch	a				d_a mm inch	d_b mm inch	D_a mm inch	D_b 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																

TS type

Metric "J" series

d 38.000 ~ 200.000 mm

1.4961 ~ 7.8740 inch



$P = XF_r + YF_a$ $P_0 = 0.5 F_r + Y_0 F_a$ 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.

d mm inch	Boundary dimensions										Basic load ratings (kN) C_r C_{0r}	Bearing No.	Load center Inner ring (Cone)	Outer ring (Cup)	Mounting dimensions						Constant e	Axial load factors Y_1 Y_0	Reference rating (kN) (500 rpm for 3 000 Hrs.)	Factor Radial Axial K
	D mm inch	T mm inch	B mm inch	C mm inch	r (min.) mm inch	r ₁ (min.) mm inch	SP ¹⁾	SP ¹⁾	SP ¹⁾	SP ¹⁾					a mm inch	d _a mm inch	d _b mm inch	D _a mm inch	D _b 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	1.61 0.06	56.5 2.22	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	2.17 0.09	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	2.24 0.09	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	2.48 0.10	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	2.40 0.09	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	2.44 0.10	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	2.52 0.10	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	2.60 0.10	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	2.80 0.11	100.5 3.96	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	2.83 0.11	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	2.91 0.11	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	2.91 0.11	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	3.03 0.12	105.0 4.13	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	3.03 0.12	110.0 4.33	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	3.19 0.13	110.0 4.33	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	3.26 0.13	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	3.50 0.14	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	3.46 0.14	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	3.62 0.14	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	3.70 0.15	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	4																					

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Supplementary table 1 Shaft tolerances (deviation from nominal dimensions)

Nominal shaft dia. (mm)		Deviation classes of shaft dia.																Nominal shaft dia. (mm)		Unit : μm (Refer.)												
over	up to	d 6	e 6	f 6	g 5	g 6	h 5	h 6	h 7	h 8	h 9	h 10	js 5	js 6	js 7	j 5	j 6	k 5	k 6	k 7	m 5	m 6	m 7	n 5	n 6	p 6	r 6	r 7	over	up to	Δ _{dmp} ¹⁾ of bearing (class 0)	
3	6	-30 -38	-20 -28	-10 -18	-4 -9	-4 -12	-0 -5	-0 -8	0 -12	0 -18	0 -30	0 -48	±2.5 -2	±4 -2	±6 -2	+3 -2	+6 -2	+6 +1	+9 +1	+13 +1	+9 +4	+12 +4	+16 +4	+13 +8	+16 +8	+20 +12	+23 +15	+27 +15	3	6	0 -8	
6	10	-40 -49	-25 -34	-13 -22	-5 -11	-5 -14	-0 -6	-0 -9	0 -15	0 -22	0 -36	0 -58	±3 -2	±4.5 -2	±7.5 -2	+4 -2	+7 -2	+7 +1	+10 +1	+16 +1	+12 +6	+15 +6	+21 +7	+16 +7	+19 +7	+24 +12	+28 +10	+34 +15	+34 +19	6	10	0 -8
10	18	-50 -61	-32 -43	-16 -27	-6 -14	-6 -17	-0 -8	0 -11	0 -18	0 -27	0 -43	0 -70	±4 -3	±5.5 -3	±9 -3	+5 -3	+8 -3	+9 +1	+12 +1	+19 +1	+15 +7	+18 +7	+25 +7	+20 +12	+23 +18	+29 +23	+34 +23	+41 +23	10	18	0 -8	
18	30	-65 -78	-40 -53	-20 -33	-7 -16	-7 -20	-0 -9	0 -13	0 -21	0 -33	0 -52	0 -84	±4.5 -4	±6.5 -4	±10.5 -4	+5 -4	+9 -4	+15 +2	+15 +2	+23 +2	+17 +8	+21 +8	+29 +8	+24 +15	+28 +15	+35 +22	+41 +28	+49 +28	18	30	0 -10	
30	50	-80 -96	-50 -66	-25 -41	-9 -25	-9 -11	0 -16	0 -25	0 -39	0 -62	0 -100	0 -100	±5.5 -5	±8 -5	±12.5 -5	+6 -5	+11 -5	+13 +2	+18 +2	+27 +2	+20 +9	+25 +9	+34 +9	+28 +17	+33 +17	+42 +26	+50 +34	+59 +34	30	50	0 -12	
50	80	-100 -119	-60 -79	-30 -49	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	0 -120	±6.5 -7	±9.5 -7	±15 -7	+6 -7	+12 -7	+15 +2	+21 +2	+32 +2	+24 +11	+30 +11	+41 +11	+33 +20	+39 +32	+51 +32	+60 +41	+71 +41	50	65	0 -15	
80	120	-120 -142	-72 -94	-36 -58	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	0 -140	±7.5 -9	±11 -9	±17.5 -9	+6 -9	+13 -9	+18 +3	+25 +3	+38 +3	+28 +13	+35 +13	+48 +13	+38 +23	+45 +23	+59 +37	+73 +76	+86 +89	+51 +54	80	100	0 -20
120	180	-145 -170	-85 -110	-43 -68	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	0 -160	±9 -11	±12.5 -11	±20 -11	+7 -11	+14 -11	+21 +3	+28 +3	+43 +3	+33 +15	+40 +15	+55 +15	+45 +27	+52 +27	+68 +43	+88 +90	+103 +105	+63 +65	120	140	0 -25
180	250	-170 -199	-100 -129	-50 -79	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	0 -185	±10 -13	±14.5 -13	±23 -13	+7 -13	+16 -13	+24 +4	+33 +4	+50 +4	+37 +17	+46 +17	+63 +17	+51 +31	+60 +31	+79 +50	+106 +109	+123 +126	+77 +80	180	200	0 -30
250	315	-190 -222	-110 -142	-56 -88	-17 -40	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	0 -210	±11.5 -16	±16 -16	±26 -16	+7 -16	+16 -16	+27 +4	+36 +4	+56 +4	+43 +20	+52 +20	+72 +20	+57 +34	+66 +34	+88 +56	+126 +90	+146 +105	+94 +65	250	280	0 -35
315	400	-210 -246	-125 -161	-62 -98	-18 -43	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	0 -230	±12.5 -18	±18 -18	±28.5 -18	+7 -18	±18 -18	+29 +4	+40 +4	+61 +4	+46 +21	+57 +21	+78 +21	+62 +37	+73 +37	+98 +62	+144 +150	+165 +171	+108 +114	315	355	0 -40
400	500	-230 -270	-135 -175	-68 -108	-20 -47	-20 -60	0 -27	0 -40	0 -63	0 -97	0 -155	0 -250	±13.5 -20	±20 -20	±31.5 -20	+7 -20	±20 -20	+32 +5	+45 +5	+68 +5	+50 +23	+63 +23	+86 +23	+67 +40	+80 +40	+108 +68	+166 +172	+189 +195	+126 +132	400	450	0 -45
500	630	-260 -304	-145 -189	-76 -120	-	-22 -66	-	0 -44	0 -70	0 -110	0 -175	0 -280	-	±22 -22	±35 -22	-	-	-	-	+44 0	+70 0	-	+70 +26	+96 +26	-	+88 +44	+122 +78	+194 +150	+220 +150	500	560	0 -50
630	800	-290 -340	-160 -210	-80 -130	-	-24 -74	-	0 -50	0 -80	0 -125	0 -200	0 -320	-	±25 -25	±40 -40	-	-	-	-	+50 0	+80 0	-	+80 +30	+110 +30	-	+100 +50	+138 +88	+225 +235	+255 +265	630	710	0 -75
800	1 000	-320 -376	-170 -226	-86 -142	-	-26 -82	-	0 -56	0 -90	0 -140	0 -230	0 -360	-	±28 -28	±45 -45	-	-	-	-	+56 0	+90 0	-	+90 +34	+124 +34	-	+112 +56	+156 +100	+266 +276	+300 +310	800	900	0 -100

[Note] 1) Δ_{dmp} : single plane mean bore diameter deviation

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

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

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

Supplementary tables

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

[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 tables

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 = $(1.602\ 189\ 2 \pm 0.000\ 004\ 6) \times 10^{-19}$ 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]	$t\ ^\circ F = \frac{5}{9} (t - 32)\ ^\circ C$	$t\ ^\circ C = (\frac{9}{5} t + 32)\ ^\circ F$
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)] $\{1\text{ C} = 1\text{ A}\cdot\text{s}\}$	A·h	* $1\text{ A}\cdot\text{h} = 3.6\text{ kC}$	
Tension, electric potential	V [volt(s)] $\{1\text{ V} = 1\text{ W/A}\}$			
Capacitance	F [farad(s)] $\{1\text{ F} = 1\text{ C/V}\}$			
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)] $\left\{ \begin{array}{l} 1\text{ T} = 1\text{ N/(A}\cdot\text{m)} \\ = 1\text{ Wb/m}^2 \\ = 1\text{ V}\cdot\text{s/m}^2 \end{array} \right\}$	Gs [gauss(es)] γ [gamma(s)]	$1\text{ Gs} = 10^{-4}\text{ T}$ $1\text{ }\gamma = 10^{-9}\text{ T}$	$1\text{ T} = 10^4\text{ Gs}$ $1\text{ T} = 10^9\text{ }\gamma$
Magnetic flux	Wb [weber(s)] $\{1\text{ Wb} = 1\text{ V}\cdot\text{s}\}$	Mx [maxwell(s)]	$1\text{ Mx} = 10^{-8}\text{ Wb}$	$1\text{ Wb} = 10^8\text{ Mx}$
Self inductance	H [henry (-ries)] $\{1\text{ H} = 1\text{ Wb/A}\}$			
Resistance (to direct current)	Ω [ohm(s)] $\{1\text{ }\Omega = 1\text{ V/A}\}$			
Conductance (to direct current)	S [siemens] $\{1\text{ S} = 1\text{ A/V}\}$			
Active power	W $\left\{ \begin{array}{l} 1\text{ W} = 1\text{ J/s} \\ = 1\text{ A}\cdot\text{V} \end{array} \right\}$			

Supplementary tables

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	<i>Ξ</i>	ξ		
gamma	Γ	Γ	γ	omicron	O	<i>O</i>	\circ		
delta	Δ	Δ	δ	pi	Π	<i>Π</i>	π		
epsilon	E	<i>E</i>	ε	rho	P	<i>P</i>	ρ		
zeta	Z	<i>Z</i>	ζ	sigma	Σ	<i>Σ</i>	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	<i>Φ</i>	ϕ		
kappa	K	<i>K</i>	κ	chi	X	<i>X</i>	χ		
lambda	Λ	Λ	λ	psi	Ψ	<i>Ψ</i>	ψ		
mu	M	<i>M</i>	μ	omega	Ω	<i>Ω</i>	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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