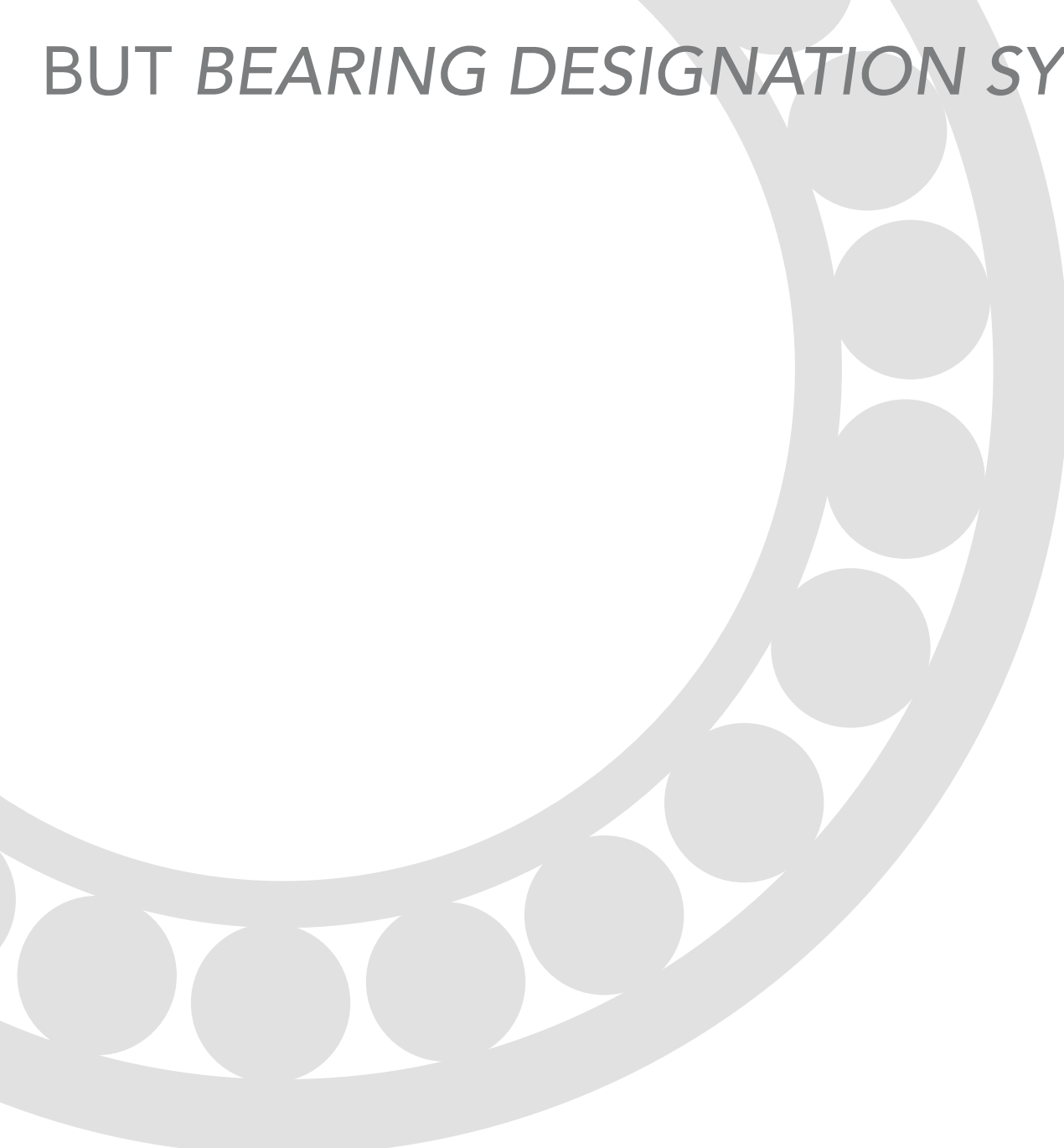


BUT BEARING DESIGNATION SYSTEM



BUT
BEARINGS UNIVERSAL TECH

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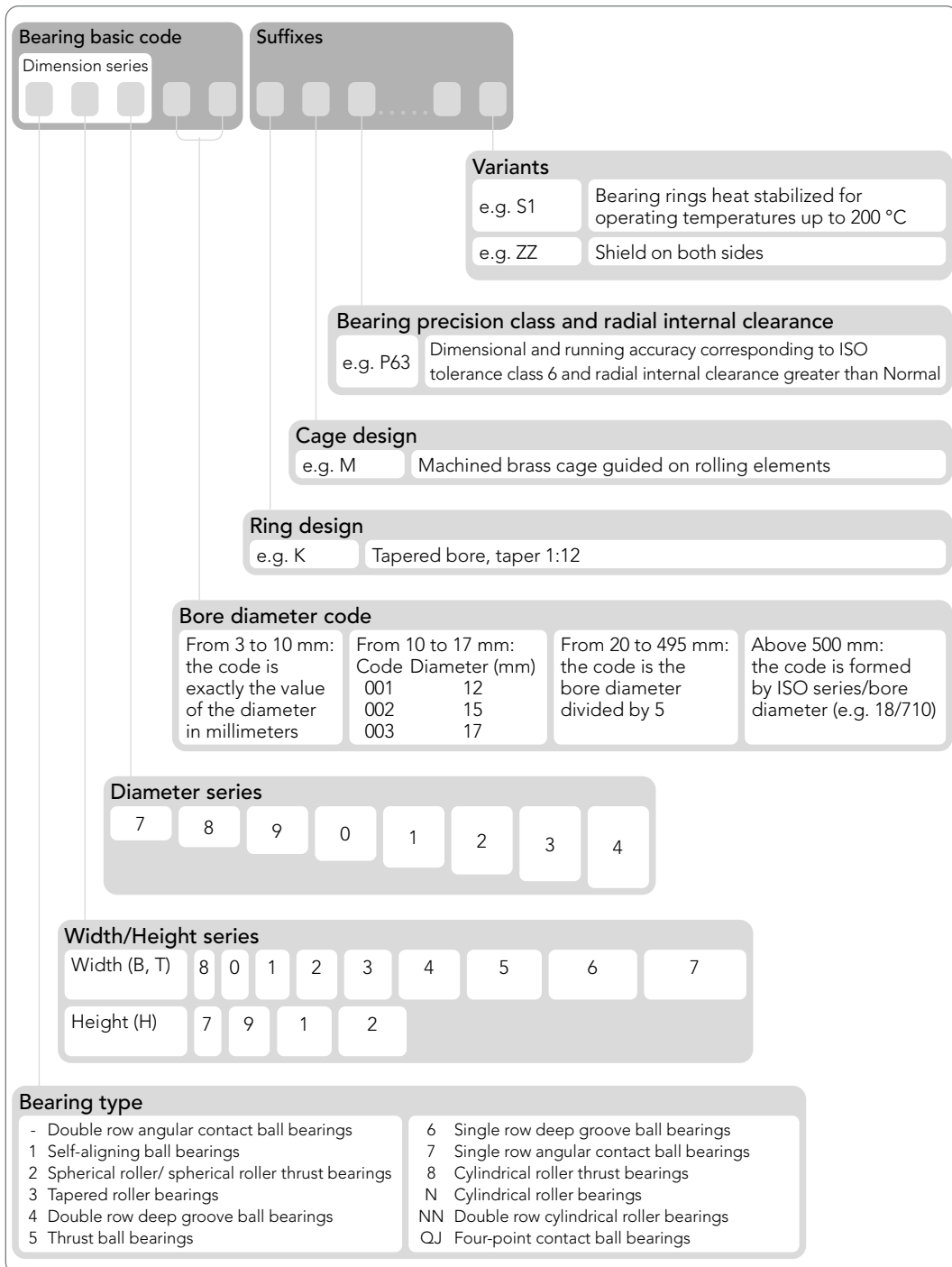
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Introduction	4
General prefixes and suffixes	6
Ball bearings	10
Deep groove ball bearings	10
Angular contact ball bearings	12
Single row angular contact ball bearings	12
Double row angular contact ball bearings	14
Four-point contact ball bearings	15
Cylindrical roller bearings	16
Single row cylindrical roller bearings	16
Single row full complement cylindrical roller bearings	17
Double row cylindrical roller bearings	18
Double row full complement cylindrical roller bearings	19
Multi row cylindrical roller bearings	20
Tapered roller bearings	22
Single row tapered roller bearings	22
Double row tapered roller bearings	28
Four-row tapered roller bearings	34
Spherical roller bearings	40
Toroidal roller bearings	42
Thrust ball bearings	43
Single direction thrust ball bearings	43
Cylindrical roller thrust bearings	44
Single direction cylindrical roller thrust bearings	44
Tapered roller thrust bearings	45
Single direction tapered roller thrust bearings	45
Spherical roller thrust bearings	46
Single direction spherical roller thrust bearings	46

Introduction

Bearing designation purpose is to identify a bearing and consists of one or more groups of figures and/or letters. Rolling bearings of different manufacturers that have the same standardized code, in accordance with current international standards, are interchangeable. The interchangeability of individual parts of separable rolling bearings is not guaranteed. The complete designation of a standard bearing consist of a basic designation (bearing basic code) and often other designations can precede (prefixes) or follow (suffixes) the basic code.

Prefixes typically indicate specific bearing components; suffixes, on the contrary, are used to identify constructive, functional or dimensional elements, which give the bearing some different features from the standard ones. The prefixes and suffixes are mentioned in groups of figures and/or letters. BUT bearing designation system is presented schematically in the **Diagram** below.





General prefixes and suffixes

Prefix	
GS	Housing washer of cylindrical roller thrust bearings
K	Cylindrical roller and cage thrust assembly
L	Separable bearing ring, including possible loose lips of separable roller bearings. Also, separable bearing rings which consist of several parts
R	Bearing ring with rolling element and cage assembly of separable roller bearings or needle roller bearings
WS	Shaft washer of cylindrical roller thrust bearings

Suffix	Internal design
A...Z 1...n	Modification code to the bearing. Typically placed at the end of the part number, the meaning of these characters is not specifically fixed (e.g. modified internal design or configuration, special production protocol, application optimized version, filled with non-standard grease or other special feature). The actual modification to the original design is specific to the individual bearing and is provided on the related drawing. Combinations of letters and digits are also used (e.g. AC, A2). Sometimes, this type of suffix is preceded by an oblique stroke (e.g. /4)
E	Optimized internal design with reinforced execution
SP	Special or non-standard bearing
AOB	Application optimized bearing

Suffix	External design
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Set
DB	Two bearings matched for mounting back-to-back
DF	Two bearings matched for mounting face-to-face
DT	Two bearings matched for mounting in tandem
2x...	Pair of two bearings
3x...	Group of three bearings
SET 2x...	Set of two bearings with possible presence of spacers
SET 3x...	Set of three bearings with possible presence of spacers

Suffix	Materials and heat treatments
HB1	Bainite hardened outer and inner ring
HB2	Bainite hardened outer ring
HB3	Bainite hardened inner ring
HB4	Bainite hardened outer and inner ring and rolling elements
HB5	Bainite hardened rolling elements
HB6	Bainite hardened outer ring and rolling elements
HB7	Bainite hardened inner ring and rolling elements
HA1	Case hardened outer and inner ring
HA2	Case hardened outer ring
HA3	Case hardened inner ring
HA4	Case hardened outer and inner ring and rolling elements
HA5	Case hardened rolling elements
HA6	Case hardened outer ring and rolling elements
HA7	Case hardened inner ring and rolling elements

Suffix	Special surface treatments
AWT1	Anti-wear treated outer and inner ring
AWT2	Anti-wear treated outer ring
AWT3	Anti-wear treated inner ring
AWT4	Anti-wear treated outer and inner ring and rolling elements
AWT5	Anti-wear treated rolling elements
AWT6	Anti-wear treated outer ring and rolling elements
AWT7	Anti-wear treated inner ring and rolling elements
PT1	Phosphate treated outer and inner ring
PT2	Phosphate treated outer ring
PT3	Phosphate treated inner ring
PT4	Phosphate treated outer and inner ring and rolling elements
PT5	Phosphate treated rolling elements
PT6	Phosphate treated outer ring and rolling elements
PT7	Phosphate treated inner ring and rolling elements
ACT1	Anti-corrosion treated outer and inner ring
ACT2	Anti-corrosion treated outer ring
ACT3	Anti-corrosion treated inner ring

Suffix	Dimensional stabilizing
S0	Bearing rings heat stabilized for operating temperatures up to 150 °C (300 °F)
S1	Bearing rings heat stabilized for operating temperatures up to 200 °C (390 °F)
S2	Bearing rings heat stabilized for operating temperatures up to 250 °C (480 °F)
S3	Bearing rings heat stabilized for operating temperatures up to 300 °C (570 °F)

Suffix	Dimensional and running accuracy, clearance
ABEC1	Approximated to tolerance class P0
ABEC3	Approximated to tolerance class P6
ABEC5	Approximated to tolerance class P5
ST	Special tolerance
C1	Radial internal clearance smaller than C2
C2	Radial internal clearance smaller than Normal
CN	Normal radial internal clearance
C3	Radial internal clearance greater than Normal
C4	Radial internal clearance greater than C3
C5	Radial internal clearance greater than C4
C...S	Special radial internal clearance in a given range of the stated class
C...SL	Special radial internal clearance in the lower part of the stated class (e.g. C4SL = radial internal clearance in the lower part of C4)
C...ST	Special radial internal clearance in the upper part of the stated class (e.g. C4ST = radial internal clearance in the upper part of C4)
C...R	Radial internal clearance between upper part of previous class and lower part of the stated class (e.g. C4R = radial internal clearance between upper part of C3 and lower part of C4)
CS	Special radial internal clearance
P0	Dimensional and running accuracy to ISO tolerance class 0
P5	Dimensional and running accuracy to ISO tolerance class 5
P6	Dimensional and running accuracy to ISO tolerance class 6
P6S	Dimensional and running accuracy between P6 and P5
P51	P5 + C1
P52	P5 + C2
P53	P5 + C3
P54	P5 + C4
P55	P5 + C5
P61	P6 + C1
P62	P6 + C2
P63	P6 + C3
P64	P6 + C4
P65	P6 + C5
P62R	P6 + radial internal clearance between upper part of C1 and lower part of C2
P63R	P6 + radial internal clearance between upper part of normal and lower part of C3
P64R	P6 + radial internal clearance between upper part of C3 and lower part of C4
P65R	P6 + radial internal clearance between upper part of C4 and lower part of C5
SP	Special precision class

Suffix	Other
VL	Victory Line: combination of state-of-the-art bearing features to meet the ever-demanding requirements of modern machinery. It is a combination of factors connected to internal geometry, surface finish, cage design, steel cleanliness, advanced heat treatments, and optimization of rolling element/raceway contact. It is not necessarily stated in the bearing code

Examples of bearing decoding

6315 MC4S2	<ul style="list-style-type: none">• bearing type 6: deep groove ball bearing• dimension series 03: width series 0 and diameter series 3• bore diameter code 15: bore diameter $15 \times 5 = 75$ mm• cage type code M: machined brass cage guided on rolling elements• precision class: P0• radial internal clearance: C4• special suffix S2: rings heat stabilized for operating temperatures up to 250 °C
N 1964 KMP62ZB	<ul style="list-style-type: none">• bearing type N: single row cylindrical roller bearing• dimension series 19: width series 1 and diameter series 9• bore diameter code 64: bore diameter $64 \times 5 = 320$ mm• ring design K: tapered bore, taper 1:12• cage type code M: machined brass cage guided on rolling elements• precision class: P6• radial internal clearance: C2• special suffix ZB: optimized roller profile
24130 K30CAW33S1	<ul style="list-style-type: none">• bearing type 2: double row spherical roller bearing• dimension series 41: width series 4 and diameter series 1• bore diameter code 30: bore diameter $30 \times 5 = 150$ mm• ring design K30: tapered bore, taper 1:30• cage type code CA: one-piece double pronged machined brass cage• bearing with symmetrical roller and retaining ribs• special suffix W33: annular groove and three lubrication holes in the outer ring• special suffix S1: rings heat stabilized for operating temperatures up to 200 °C
293/600 EM	<ul style="list-style-type: none">• bearing type 2: spherical roller bearing (thrust)• dimension series 93: height series 9 and diameter series 3• bore diameter 600 mm• bearing design E: optimized internal design with reinforced execution• cage type code M: machined brass cage guided on shaft washer with or without retaining sleeve

Ball bearings

Deep groove ball bearings

Prefix	
F	Flanged outer ring
DGBB	Out of standard deep groove ball bearing followed by drawing number

Suffix	Internal design
HSA	Special execution for high-speed wire guide blocks

Suffix	Cage
J	Pressed steel cage
M	Machined brass cage guided on rolling elements
MA	Machined brass cage guided on outer ring
MAS	Machined brass cage guided on outer ring with lubrication grooves in the guiding surface
MB	Machined brass cage guided on inner ring
MBS	Machined brass cage guided on inner ring with lubrication grooves in the guiding surface
TN or ATN	Molded polyamide cage (PA66) guided on rolling elements
TN9	Molded glass fiber-reinforced polyamide cage (PA66-GF25) guided on rolling elements

Suffix	Accuracy, clearance, running
ABEC1	Approximated to tolerance class P0
ABEC3	Approximated to tolerance class P6
ABEC5	Approximated to tolerance class P5
ST	Special tolerance
CM	Special radial internal clearance for EMQ applications

Radial internal clearance of extra small and miniature ball bearings Units: μm

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

Remarks 1. The standard clearance is MC3.
2. To obtain the measured value, add the correction amount in the table below

CS	Special radial internal clearance
EMQ	Electric motor quality: bearing specifically designed for quiet running in electric motors
S12	Special selection for extremely low noise running
P66	Vibration peaks and noise level lower than normal

Suffix	External design
Z	Shield on one side
ZZ or 2Z	Shield on both sides
RS	Contact seal on one side
2RS	Contact seal on both sides
RSL	Light contact seal on one side
2RSL	Light contact seal on both sides
G/R3	Filled with exceptionally good low noise and long life grease usable over a wide range of temperatures
G/R4	Filled with good low noise and high temperature, high speed and long life grease
N	Snap ring groove in outer ring
NR	Snap ring groove in outer ring with suitable snap ring
N1	One locating slot in outer ring
N2	Two locating slots in outer ring



Angular contact ball bearings

Single row angular contact ball bearings

Prefix	
ACBB	Out of standard single row angular contact ball bearing followed by drawing number
ACBBF	Out of standard single row angular contact ball bearing with flanged outer ring followed by drawing number

Suffix	Internal design
A	Bearing with a 30° contact angle
AC	Bearing with a 25° contact angle
B	Bearing with a 40° contact angle

Suffix	Cage
M	Step-type or straight-type machined brass cage guided on balls
MB	Machined brass cage guided on inner ring
MBS	Machined brass cage guided on inner ring with lubrication grooves in the guiding surface
TN or ATN	Molded polyamide cage (PA66) guided on balls
TN9	Molded glass fiber-reinforced polyamide cage (PA66-GF25) guided on balls

Suffix	Accuracy, clearance, running
A... - ...	Special axial internal clearance. The two numbers immediately following the A give minimum and maximum axial internal clearance in μm
A...	Special axial internal clearance. The number immediately following the A gives mean axial internal clearance in μm
U	Bearing for universal paired mounting. When in back-to-back or face-to-face arrangement there will be axial internal clearance
GA	Bearing for paired mounting. When in back-to-back or face-to-face arrangement there will be a light preload
GB	Bearing for paired mounting. When in back-to-back or face-to-face arrangement there will be a moderate preload
GC	Bearing for paired mounting. When in back-to-back or face-to-face arrangement there will be a heavy preload
CA	Bearing for paired mounting. When in back-to-back or face-to-face arrangement the axial internal clearance will be smaller than normal (CB)
CB	Bearing for paired mounting. When in back-to-back or face-to-face arrangement the axial internal clearance will be normal
CC	Bearing for paired mounting. When in back-to-back or face-to-face arrangement the axial internal clearance will be greater than normal (CB)

Suffix	External design
Z	Shield on one side
ZZ or 2Z	Shield on both sides
N1	One locating slot in outer ring
N2	Two locating slots in outer ring

Suffix	Set
DB	Two bearings matched for mounting back-to-back
DF	Two bearings matched for mounting face-to-face
DT	Two bearings matched for mounting in tandem



Double row angular contact ball bearings

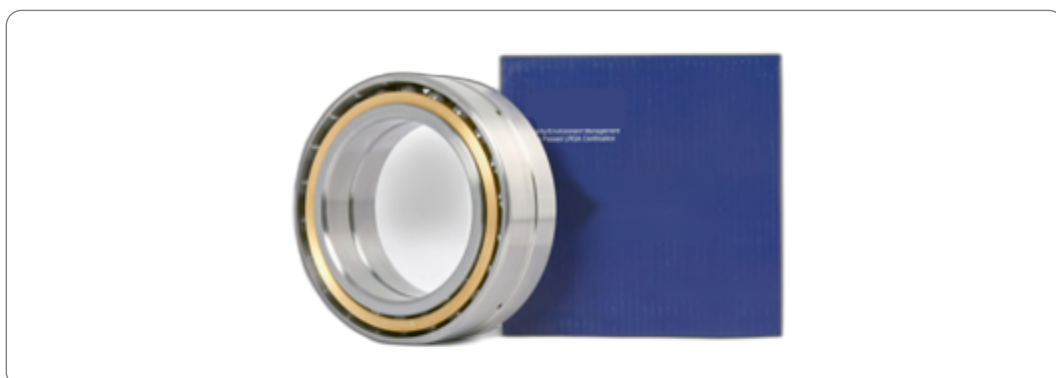
Suffix	Internal Design
D	Two-piece inner ring
A	No filling slots
SP	Special or non-standard bearing

Suffix	Cage
TN or ATN	Molded polyamide cage (PA66) guided on balls
TN9	Molded glass fiber-reinforced polyamide cage (PA66-GF25) guided on balls
M	Machined brass cage guided on balls

Suffix	Accuracy, clearance, running
ABEC1	Approximated to tolerance class P0
ABEC3	Approximated to tolerance class P6
ABEC5	Approximated to tolerance class P5

Suffix	External design
N	Snap ring groove in outer ring
N2	Two locating slots in outer ring
RS	Contact seal on one side
2RS	Contact seal on both sides
Z	Shield on one side
ZZ or 2Z	Shield on both sides

Suffix	Set
DF or X or DFX	Double row angular contact ball bearing in X arrangement
DB	Double row angular contact ball bearing in O arrangement



Four-point contact ball bearings

Suffix	Cage
MA	Machined brass cage guided on outer ring
MB	Machined brass cage guided on inner ring

Suffix	External design
N1	One locating slot in outer ring
N2	Two locating slots in outer ring



Cylindrical roller bearings

Single row cylindrical roller bearings

Prefix	
L	In a separable bearing: separate inner ring
R	In a separable bearing: outer ring with roller and cage assembly
SCRB	Out of standard split cylindrical roller bearing followed by drawing number

Suffix	Internal Design
E	Optimized internal design with reinforced execution
EC	Optimized internal design for increased load ratings
SP	Special or non-standard bearing
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Cage
MP1	One-piece solid HBSC1 brass cage guided on rollers
MP1A	One-piece solid HBSC1 brass cage guided on outer ring
MP1B	One-piece solid HBSC1 brass cage guided on inner ring
M	Machined brass cage guided on rollers
MA	Machined brass cage guided on outer ring
MAS	Machined brass cage guided on outer ring with lubrication grooves in the guiding surface
MB	Machined brass cage guided on inner ring
MBS	Machined brass cage guided on inner ring with lubrication grooves in the guiding surface
J	Pressed steel cage
TN or ATN	Molded polyamide cage (PA66) guided on rollers
TN9	Molded glass fiber-reinforced polyamide cage (PA66-GF25) guided on rollers
AVH	Machined brass cage with round or square integral rivets guided on outer ring (MA), inner ring (MB) or rollers (M)

Suffix	Accuracy, clearance, running
C2	Radial internal clearance less than CN
CN	Standard radial internal clearance
C3	Radial internal clearance greater than Normal (CN)
C4	Radial internal clearance greater than C3
C5	Radial internal clearance greater than C4
CS	Special radial internal clearance
P6	Dimensional and running accuracy as per ISO tolerances Class 6

Suffix	External design
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30
N	Snap ring groove in outer ring
N1	One locating slot in outer ring
N2	Two locating slots in outer ring

Single row full complement cylindrical roller bearings

Suffix	Internal Design
E	Optimized internal design with reinforced execution
EC	Optimized internal design for increased load ratings
SP	Special or non-standard bearing
V	Full complement of rolling elements (without cage)
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Accuracy, clearance, running
C2	Radial internal clearance less than CN
CN	Standard radial internal clearance
C3	Radial internal clearance greater than Normal (CN)
C4	Radial internal clearance greater than C3
C5	Radial internal clearance greater than C4
C5	Special radial internal clearance
P6	Dimensional and running accuracy as per ISO tolerances Class 6



Double row cylindrical roller bearings

Prefix	
L	In a separable bearing: separate inner ring
R	In a separable bearing: outer ring with roller and cage assembly
SCRB	Out of standard double row cylindrical roller bearing followed by drawing number
2CRB	Out of standard double row cylindrical roller bearing followed by drawing number

Suffix	Internal Design
OD	Special outer diameter. The number immediately following the OD gives the outer diameter in mm
B	Special bearing width. The number immediately following the B gives the width in mm
SP	Special or non-standard bearing
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Cage
M	Machined brass cage guided on rolling elements
MA	Machined brass cage guided on outer ring
MF	Machined steel cage
AVH	Machined brass cage with round or square integral rivets guided on outer ring (MA), inner ring (MB) or rollers (M)

Suffix	Lubrication
G	Helical groove in inner ring bore (not necessarily stated)
ISR3	Annular groove and three lubrication holes in inner ring
W33	Annular groove and three lubrication holes in outer ring
W33X	Annular groove and more than three lubrication holes in outer ring
W77X	Annular groove and more than three plugged lubrication holes in outer ring
W	Lubrication grooves in the side faces of inner and outer rings (not necessarily stated)
WI	Lubrication grooves in the side face of inner ring (not necessarily stated)
WO	Lubrication grooves in the side face of outer ring (not necessarily stated)

Suffix	External design
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30

Double row full complement cylindrical roller bearings

Suffix	Internal Design
DA	Modified snap ring grooves in outer ring and two-piece inner ring held together by retaining ring
ADA	Wider snap ring grooves in outer ring and two-piece inner ring held together by retaining ring
OD	Special outer diameter. The number immediately following the OD gives the outer diameter in mm
B	Special bearing width. The number immediately following the B gives the width in mm
SP	Special or non-standard bearing
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Cage
V	Full complement of rolling elements (without cage)

Suffix	Lubrication
G	Helical groove in inner ring bore (not necessarily stated)
ISR3	Annular groove and three lubrication holes in inner ring
W33	Annular groove and three lubrication holes in outer ring
W33X	Annular groove and more than three lubrication holes in outer ring
W77X	Annular groove and more than three plugged lubrication holes in outer ring
W	Lubrication grooves in the side faces of inner and outer rings (not necessarily stated)
WI	Lubrication grooves in the side face of inner ring (not necessarily stated)
WO	Lubrication grooves in the side face of outer ring (not necessarily stated)

Suffix	External design
P	Contact seal on one side (3194 series)
PP	Contact seal on both sides (NNF 50 series)
LS	Contact seal on one side (NNF 50 series)
2LS	Contact seal on both sides (3194 series)
NR	Snap ring groove in outer ring with suitable snap ring



Multi row cylindrical roller bearings

Prefix

L	In a separable bearing: separate inner ring
R	In a separable bearing: outer ring with roller and cage assembly
4CRB	Out of standard four-row cylindrical roller bearing followed by drawing number
NNU 60	Out of standard four-row cylindrical roller bearing followed by dimension indication

Note: unless differently specified, by default the mating of L and its corresponding R always give a C4 internal radial clearance

Suffix

Main design

A	Two outer rings each with three integral ribs. One inner ring. Two double pronged machined brass cages guided on rolling elements
AF	As A, but with reinforced machined steel cage
B	As A, but with a spacer between the two outer rings
C or All	As A, but with inner ring split into two halves
CF	As C, but with reinforced machined steel cage
DII	Two outer rings each with an integral central rib and one loose flange ring; one spacer. One inner ring split into two halves. Two double pronged machined brass cages guided on rolling elements
EII	Two outer rings each with three integral ribs. One inner ring split into two halves. Four steel pin-type cages and pierced rollers
FII	Two outer rings each with an integral central rib and one loose flange ring; one spacer. One inner ring split into two halves. Four steel pin-type cages and pierced rollers
FIIEVO	As FII, but with four window type machine brass cages
GII or GXII	Two outer rings each with two integral ribs. One inner ring split into two halves. Two double row window type machined brass cages
GB or GBX	As GII, but with one inner ring in one piece (not split)
H	One outer ring with three loose guide rings and two loose flange rings. One inner ring. Two double pronged machined brass cages
I	Two outer rings each with integral central rib and two loose flange rings; one spacer. Two inner rings. Four pressed steel cages
L	One outer ring with five integral ribs. One inner ring. Four pronged machined brass cages guided on rolling elements
M	As C, but with one wider inner ring
N	As D, but with one wider inner ring
O	As F, but with one wider inner ring
P	As H, but with one wider inner ring
Q	As F, but with one wider inner ring with concentric shoulder
R	As F, but with two wider inner rings; one inner ring with concentric shoulder

Suffix

Internal design

ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code
SP	Special or non-standard bearing
W	One wider inner ring
WS	One wider inner ring with special concentric shoulder

Suffix	Cage
S	Steel cage

Suffix	Accuracy, clearance, running
HP	High precision running accuracy (better than P6)

Suffix	Lubrication
1	Annular groove and lubrication holes in spacer between outer rings
2	Annular groove and lubrication holes in outer rings
3	Annular groove and lubrication holes in spacer between outer rings and Annular groove and lubrication holes in outer rings
A	Helical groove in inner ring bore
B	Scallops in the side faces of inner and outer rings
C	Scallops in the side face of inner ring
D	Scallops in the side face of outer ring

Suffix	External design
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30



Tapered roller bearings

Single row tapered roller bearings

Suffix	Internal design
A	Standard contact angle
B	Steep contact angle
SP	Special or non-standard bearing
BT1B	Single row tapered roller bearing
C	Cone with boundary dimensions same as basic part number but modified inner geometry
E	Optimized inner geometry
DRW	Special or non-standard bearing
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Cage
J	Pressed steel cage

Suffix	Accuracy, clearance, running
CL0 or CLN	Dimensional and running accuracy to ISO tolerance class 0 or normal
CL2	Dimensional and running accuracy to ISO tolerance class 2
CL3	Dimensional and running accuracy to ISO tolerance class 3
CL4	Dimensional and running accuracy to ISO tolerance class 4

Suffix	External design
N1 or W	One locating slot in cup
N2 or W	Two locating slots in cup

Suffix	Set
DB	Two bearings matched for mounting back-to-back
DF	Two bearings matched for mounting face-to-face
DT	Two bearings matched for mounting in tandem
DB...	Two bearings matched for mounting back-to-back. The number immediately following the DB identifies the design of the spacers
DF...	Two bearings matched for mounting face-to-face. The number immediately following the DF identifies the design of the spacers

Suffix	Alternative designation
TS	Out of standard single row tapered roller bearing followed by drawing number

Part numbering

Several part-numbering systems have been developed in the last 70 years for tapered roller bearings. Inch size bearings are usually given individual part numbers for the cone and the cup, while ISO metric bearings are identified by means of a unique part number for the bearing assembly as a whole.

Inch size

Original system

	Section 1	Section 2	Section 3
	Prefix	Numerical code	Suffix
Example	EE	107060/107105	C

Prefix	Component	Description
-	Cone and cup	-
A	Cone and cup	Part of the standard basic series number
EE	Cone	Large and small ribs close guided rollers. It was originally used to designate close guided rollers. Even if this designation is no longer in use, the prefix has been maintained on existing part numbers
NA	Cone	Non-adjustable. Two single cones with front faces contacting, mated with a double cup to form a double row bearing with internal clearances preset
J	Cone and cup	A J preceding the prefix or numerical code indicates a metric design bearing component
Prefix		



ABMA system

	Section 1	Section 2	Section 3	Section 4	Section 5
	Duty class	Angularity	Basic series	Component	Suffix
Example	HM	3	226	49	C

Prefix	Component
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
J	Metric size
-	Different prefixes or absence of prefixes indicates original inch part numbering system

Duty class

Cup angle		Code
over	incl.	
0	to 23° 59' 59,99"	1
24°	to 25° 29' 59,99"	2
25° 30'	to 26° 59' 59,99"	3
27°	to 28° 29' 59,99"	4
28° 30'	to 30° 29' 59,99"	5
30° 30'	to 32° 29' 59,99"	6
32° 30'	to 35° 59' 59,99"	7
36°	to 44° 59' 59,99"	8
45°	Up, but not thrust only	9
90°	Thrust only	0

Angularity

Series indication	Maximum bore range [mm]		Maximum bore range [inches]	
	over	incl.	over	incl.
0-9 incl.	Extremely small tapered roller bearings			
00-19 incl.	0	25,4	0	1
20-99 incl.	25,4	50,8	1	2
000-029 incl.				
039-129 incl.	50,8	76,2	2	3
130-189 incl.	76,2	101,6	3	4
190-239 incl.	101,6	127,0	4	5
240-289 incl.	127,0	152,4	5	6
290-339 incl.	152,4	177,8	6	7
340-389 incl.	177,8	203,2	7	8
390-429 incl.	203,2	228,6	8	9
430-469 incl.	228,6	254,0	9	10
470-509 incl.	254,0	279,4	10	11
510-549 incl.	279,4	304,8	11	12
550-579 incl.	304,8	330,2	12	13
580-609 incl.	330,2	355,6	13	14
610-639 incl.	355,6	381,0	14	15
640-659 incl.	381,0	406,4	15	16
660-679 incl.	406,4	431,8	16	17
680-699 incl.	431,8	457,2	17	18
695-709 incl.	457,2	482,6	18	19
710-724 incl.	482,6	508,0	19	20
725-739 incl.	508,0	534,4	20	21
740-754 incl.	534,4	558,8	21	22
755-769 incl.	558,8	584,2	22	23
770-784 incl.	584,2	609,6	23	24
785-799 incl.	609,6	635,0	24	25
800-829 incl.	635,0	762,0	25	30
830-859 incl.	762,0	889,0	30	35
860-879 incl.	889,0	1016,0	35	40
880-889 incl.	1016,0	1270,0	40	50
890-899 incl.	1270,0	1841,5	50	72,5
900-999 incl.	Extremely large tapered roller bearings			
Basic series				

Component	Component number
Cups	10-19 (maximum section)
Cones	30-49 (minimum section)
Component	

Metric size

First system

The J prefix placed at the beginning of an ABMA bearing code identifies metric dimensioned and toleranced cones and cups.

	Section 0	Section 1	Section 2	Section 3	Section 4	Section 5
	Prefix	Duty class	Angularity	Basic series	Component	Suffix
Example	J	HM	3	226	49	C

ISO 15 system

	Section 1	Section 2	Section 3	Section 4	Section 5
	Bearing type	Width series	Diameter series	Bore indication	Suffix
Example	3	2	2	18	C

ISO 355 system

	Section 1	Section 2	Section 3	Section 4	Section 5	Section 6
	Prefix (none or T)	Contact angle series (alpha)	Diameter series	Width series	Bore diameter	Suffix
Example	T	4	E	B	240	C

Designation of contact angle series (alpha)	Alpha	
	over	incl.
1	Reserved for future use	
2	10°	13° 52'
3	13° 52'	15° 59'
4	15° 59'	18° 55'
5	18° 55'	23°
6	23°	27°
7	27°	30°

Contact angle series

Designation of diameter series	D/d ^{0,77}	
	over	incl.
A	Reserved for future use	
B	3,4	3,8
C	3,8	4,4
D	4,4	4,7
E	4,7	5
F	5	5,6
G	5,6	7
Diameter series		

Designation of width series	T/(D-d) ^{0,95}	
	over	incl.
A	Reserved for future use	
B	0,5	0,68
C	0,68	0,8
D	0,8	0,88
E	0,88	1
Width series		

Optimized bearing system

The J prefix identifies metric dimensioned and toleranced cones and cups.

	Section 0	Section 1	Section 2	Section 3	Section 4
	Prefix	Duty class	Bore diameter	Component	Suffix
Example	J	P	130	49	A

Duty class	Application
C, D, F	General purpose
N	Combination of general purpose and pinion
P	High speed
S, T	Pinion
W	High axial loads
Duty class	

Double row tapered roller bearings

Suffix	Internal design
B	In TDI bearings, special double cone width. The number immediately following the B gives the double cone width in mm (decimals excluded)
C	In TDO bearings, special double cup width. The number immediately following the C gives the double cone width in mm (decimals excluded)
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code
SP	Special or non-standard bearing
BT2B	Double row tapered roller bearing

Suffix	Accuracy, clearance, running
HP	High precision (better than P6)

Suffix	External design
FF/1	FKM seal on both sides
FF	NBR seal on both sides





Part numbering

First system

	Section 1	Section 2	Section 3	Section 4	Section 5
	Configuration	Boundary dimensions	Execution	Material and heat treatment of bearing components	Special surface treatment
	TDO, TDI, TDONA, TDIS, TDISS, TDIT, TDOS, TDONASW, TDONASWE, TDONASWB	dxDxT/DxTxd	A1...An, AA, AB, AD, AC1, A1B etc. indicating major or minor revision based on: customer's request, application requirement, technology or design advancement, presence of special features. The meaning of such combination of characters and numbers may vary from bearing to bearing	HB1...HB7 HA1...HA7	PT1...PT7 AWT1...AWT7 ACT1...ACT3
Example	TDO	020503/519395	AA3	HA4	PT4
	One double cup, two single cones, and two one-piece window type pressed steel cages, one cone single spacer between cones	d,d: 02,95 inches = 74,93 mm D,D: 05,51 inches = 139,95 mm T,T: 03,93 inches = 99,82 mm	As basic TDO configuration, but with counterbored hole for locking pin and special Bench End Play (BEP)	Cones, cup and rollers in case hardening steel	Phosphate treated cones, cup and rollers

Section 6	Section 7	Section 8	Section 9	Section 10
Roller features	Final bearing specification	K	$r_{1,2 \text{ min}}$ $r_{3,4 \text{ min}}$	Suffix
ZB	BT2B	The three figures immediately following the K indicates the K thrust value without a decimal mark	The four figures immediately following the three digits of the K value indicate the minimum values in mm of radii 1,2 and 3,4 without decimal marks	Different features from standard version
ZB	BT2B	K136	3506	VL
Optimized roller profile for improved load distribution	Double row tapered roller bearing	K: 1,36	$r_{1,2 \text{ min}}$: 3,5 mm $r_{3,4 \text{ min}}$: 0,6 mm	Victory Line

Second system

	Section 1	Section 2	Section 3	Section 4
	Configuration	Boundary dimensions	Execution	Material and heat treatment of bearing components
	TDO, TDI, TDONA, TDIS, TDISS, TDIT, TDOS, TDONASW, TDONASWE, TDONASWB	Up to six digits	A1...An, AA, AB, AD, AE1, A1B etc. indicating major or minor revision based on: customer's request, application requirement, technology or design advancement, presence of special features. Typically the meaning of such combination of alphabetical and numerical characters vary from bearing to bearing.	HB1...HB7 HA1...HA7
Example	TDI	331792	A9	HB1
	Double row tapered roller bearing with one double cone, two one-piece window type pressed steel cages with rollers, two single cups, and one cup spacer. X configuration	No dimension indication	As basic TDI configuration, but with lubrication grooves in side faces of double cone	Cone and cups in through hardening steel with bainitic treatment

Section 5	Section 6	Section 7	Section 8
Configuration	Boundary dimensions	Execution	Material and heat treatment of bearing components
PT1...PT7 AWT1...AWT7 ACT1...ACT3	ZB	BT2B	Different features from standard version
ACT1	ZB	BT2B	VL
Anticorrosion treated cone and cups	Optimized roller profile for improved load distribution	Double row tapered roller bearing	Victory Line

Four-row tapered roller bearings

Suffix	Internal design
B	In TQO bearings, special double cones width. The number immediately following the B gives the double cones width in mm
SP	Special or non-standard bearing
BT4B	Four-row tapered roller bearing
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Suffix	Accuracy, clearance, running
HP	High precision (better than P6)
ST	Special tolerance

Suffix	External design
AVSx	Anti-vortex system
AVSxC	Anti-vortex system with compact seals
1C	Compact seal and O-ring on both sides





Part numbering

First system

	Section 1	Section 2	Section 3	Section 4	Section 5
	Configuration	Boundary dimensions	Execution	Material and heat treatment of bearing components	Special surface treatment
	TQO, TQI, TQIT, TQOS, TQOE, TQITE, TQOT	dxDxT/DxTxd	A1...An, AA, AB, AD, AC1, A1B etc. indicating major or minor revision based on: customer's request; application requirement; echnology or design advancement; presence of special features. The meaning of such combination of characters and numbers may vary from bearing to bearing	HB1...HB7 HA1...HA7	PT1...PT7 AWT1...AWT7 ACT1...ACT3
Example	TQO	101510/506250	AA2	HA4	PT4
	Four-row tapered roller bearing with two double cones, four one-piece window type pressed steel cages with rollers, two single cups, one double cup, two cup spacers and one cone spacer. X configuration	d,d: 10,50 inches = 266,700 mm D,D: 15,50 inches = 393,700 mm T,T: 10,62 inches = 269,748 mm	As basic TQO configuration, but with special Bench End Play (BEP)	Case hardened bearing components	Phosphate treated cones, cup and rollers

Section 6	Section 7	Section 8	Section 9	Section 10
Roller features	Final bearing specification	K	$r_{1,2 \text{ min}}$ $r_{3,4 \text{ min}}$	Suffix
ZB	BT4B	The three figures immediately following the K indicates the K thrust value without a decimal mark	The four figures immediately following the three digits of the K value indicate the minimum values in mm of radii 1,2 and 3,4 without decimal marks	Different features from standard version
ZB	BT4B	K145	3364	VL
Optimized roller profile for improved load distribution	Four-row tapered roller bearing	K: 1,45	$r_{1,2 \text{ min}}$: 3,3 mm $r_{3,4 \text{ min}}$: 6,4 mm	Victory Line

Second system

	Section 1	Section 2	Section 3	Section 4
	Configuration	Drawing number	Execution	Material and heat treatment of bearing components
	TQO, TQI, TQIT, TQOS, TQOE, TQITE, TQOT	Up to six digits	A1...An, AA, AB, AD, AE1, A1B etc. indicating major or minor revision based on: customer's request, application requirement, technology or design advancement, presence of special features. Typically the meaning of such combination of alphabetical and numerical characters vary from bearing to bearing	HB1...HB7 HA1...HA7
Example	TQIT	101411	AA	HB4
	Four-row tapered roller bearing with tapered bore, with one double cone, four one-piece window type pressed steel cages with rollers, two double cups, one cup spacer and two single cones. O configuration	No dimension indication	As basic TDI configuration, but with lubrication grooves in side faces of double cone	Bainite hardened bearing components

Section 5	Section 6	Section 7	Section 8
Special surface treatment	Roller features	Final bearing specification	Suffix
PT1...PT7 AWT1...AWT7 ACT1...ACT3	ZB	BT4B	Different features from standard version
ACT1	ZB	BT4B	VL
Anticorrosion treated	Optimized roller profile for improved load distribution	Four-row tapered roller bearing	Victory Line

Spherical roller bearings

Suffix	Internal design
WOR	Wider outer ring. The value immediately following the WOR gives the width of the outer ring in mm
ROVS/ROVSX	Bearing for vibratory equipment
ID	Special inner diameter. The value immediately following the ID gives the inner diameter in mm
E	Optimized internal design for increased load ratings
SP	Special or non-standard bearing

Suffix	Cage and design
M	Machined brass cage guided on rollers
MA	Machined brass cage guided on outer ring
MB	Machined brass cage guided on inner ring
CA	Double pronged machined brass cage
CAF	Double pronged machined steel cage
CC	Pressed steel cage
CCE1	Pressed steel cage, floating slinger centred on outer ring
CCS	Pressed steel cage and axial lubrication grooves

Suffix	Accuracy, clearance, running
ST	Special tolerance

Suffix	Lubrication
W33	Annular groove and three lubrication holes in outer ring
W33X	Annular groove and more than three lubrication holes in outer ring
W513	W33 + six lubrication holes in inner ring
W513B	W33 + annular groove and six lubrication holes in inner ring
W513BX	W33X + annular groove and six lubrication holes in inner ring
W77	Annular groove and plugged lubrication holes in outer ring
W77X	Annular groove and more than three plugged lubrication holes in outer ring
W20	Three lubrication holes in the outer ring

Suffix	Lubrication
G/R3	Filled with exceptionally good low noise profile and long life grease usable over a wide range of temperatures
G/R4	Filled with good low noise profile and high temperature, high speed and long life grease
C7A	Annular groove, seven lubrication holes and one blind counterbored hole in outer ring

Suffix	External design
2CZ	Bearing with NBR/FKM seal on both sides and filled with EP lithium base grease
2CS	Bearing with NBR/FKM seal on both sides and filled with EP lithium base grease (BS2 series)
ZZ or 2Z	Shield on both sides
K	Tapered bore, taper 1:12
K30	Tapered bore, taper
N1	One locating slot in outer ring
N2I	Two slots in inner ring
N4I	Four slots in inner ring

Prefix	Alternative designation
BS2	Spherical roller bearing followed by size indication
SRB	Out of standard spherical roller bearing followed by drawing number
SSRB	Out of standard split spherical roller bearing followed by drawing number



Toroidal roller bearings

Prefix	Basic designation
TORB	Toroidal roller bearing followed by size indication or drawing number
SB	Toroidal roller bearing followed by size indication or drawing number

Suffix	Cage
V	Full complement of rolling elements (without cage)
J	Pressed steel cage

Suffix	External design
2CS	NBR seal on both sides
FF	FKM seal on both sides
K	Tapered bore, taper 1:12
K30	Tapered bore, taper 1:30



Thrust ball bearings

Single direction thrust ball bearings

Prefix

TBB	Out of standard thrust ball bearing followed by drawing number
U	Sphered housing washer associated to related thrust ball bearing

Suffix

Internal design

SP	Special or non-standard bearing
----	---------------------------------

Suffix

Cage

M	Machined brass cage guided on balls
F or MF	Machined steel cage guided balls

Suffix

Accuracy, clearance, running

P6S	Dimensional and running accuracy between P6 and P5
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Cylindrical roller thrust bearings

Single direction cylindrical roller thrust bearings

Prefix	
T	Single direction cylindrical roller thrust bearing followed by size indication
AT	Self-aligning single direction cylindrical roller thrust bearing followed by size indication
GS	Housing washer
WS	Shaft washer
K	Cylindrical roller and cage thrust assembly
LS	Universal washer

Suffix	Internal design
SP	Special or non-standard bearing

Suffix	Cage
M	Machined brass cage guided on rollers
TN or ATN	Molded polyamide cage (PA66) guided on rollers
TN9	Molded glass fiber-reinforced polyamide cage (PA66-GF25) guided on rollers

Suffix	Accuracy, clearance, running
P6S	Dimensional and running accuracy between P6 and P5

Prefix	Alternative designation
TCRB	Out of standard single direction cylindrical roller thrust bearing followed by drawing number
TTCRB	Out of standard double direction cylindrical roller thrust bearing followed by drawing number
TCRBU	Out of standard single direction cylindrical roller thrust bearing with sphered housing washer followed by drawing number



Tapered roller thrust bearings

Single direction tapered roller thrust bearings

Suffix	Internal design
ZB	Optimized roller profile for improved load distribution. It is not necessarily stated in the bearing code

Prefix	Alternative designation
TK	Out of standard single direction tapered roller thrust bearing followed by drawing number
TKFL	Out of standard single direction tapered roller thrust bearing with flat shaft washer followed by drawing number
TTK	Out of standard double direction tapered roller thrust bearing followed by drawing number
TKSD	Out of standard screw-down bearing followed by drawing number



Spherical roller thrust bearings

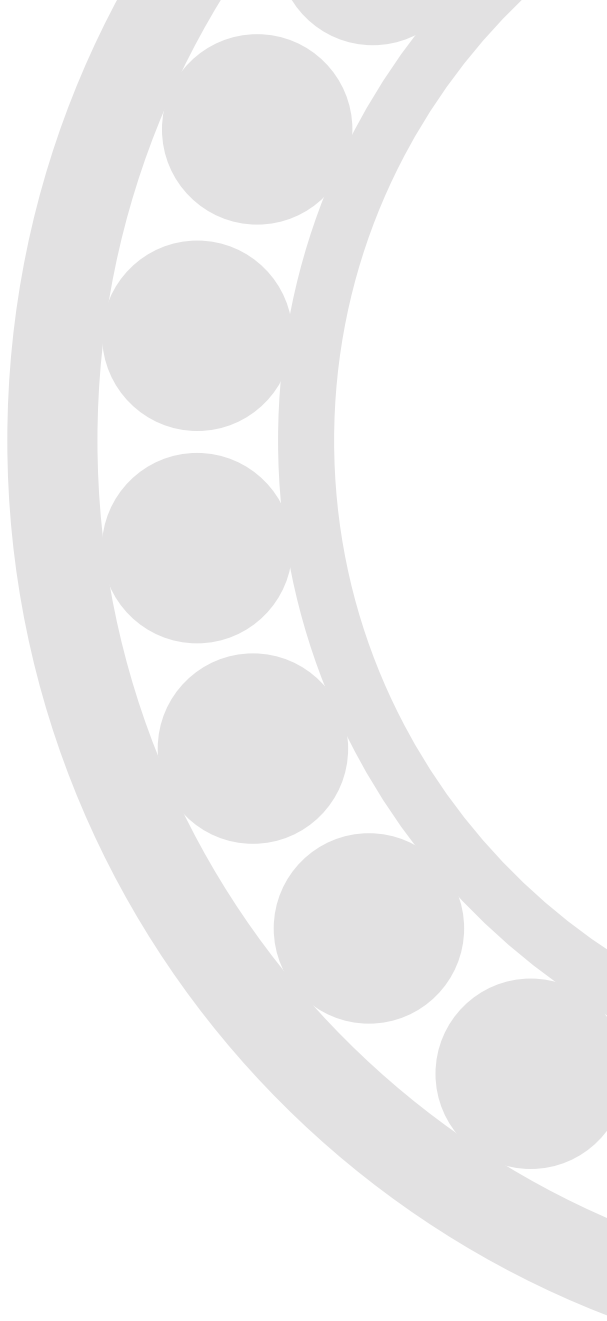
Single direction spherical roller thrust bearings

Suffix	Internal design
E	Optimized internal design with reinforced execution
EVO	Cage guided by a retaining sleeve (with holes) held in the shaft washer bore
SP	Special or non-standard bearing
AOB	Application optimized bearing

Suffix	Cage
M	Machined brass cage guided on shaft washer with or without retaining sleeve
F	Machined steel cage
J	Pressed steel cage

Suffix	External design
N1	One locating slot in housing washer
N2	Two locating slots in housing washer
EB	Lifting threaded holes for eye bolts in shaft washer





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