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NSK·RHP

NSK AND RHP BEARINGS – DESIGNATION SYSTEMS

NSK·RHP


# NSK AND RHP BEARINGS – DESIGNATION SYSTEMS

MOTION & CONTROL
NSK

# NSK and RHP Bearings – Designation Systems

# INTRODUCTION

NSK-RHP is part of the International NSK Group who are one of the world's leading manufacturers of rolling bearings, automotive components and mechatronic products.

The group has 36 manufacturing units around the world, employing over 24,000 people and is represented by sales offices, and authorised distributors almost everywhere.

Our manufacturing programme includes bearings from 1mm bore to 5 metres, covering virtually all conceivable application areas.

Designation Systems

1/NRDS/E/12.97

# NSK AND RHP BEARINGS – DESIGNATION SYSTEMS

The objective of this publication is to introduce and explain the designation systems used to identify NSK and RHP Bearings.

The contents cover basic designations for ball and roller bearing series and their prefixes and suffixes. In addition to assisting in bearing identification it helps to cross refer NSK and RHP types.

This publication is intended for use within the NSK-RHP organisation and can be used in conjunction with the publication, NSK and RHP-Prefixes and Suffixes 1/NRPS/E/12.97.


## *Designation Systems*

# Contents

*Index of standard designations listed for NSK and RHP products*

## NSK Product

| Manual Page No. | Bearing Series | For RHP ref. see page no. |
|---|---|---|
| 4 | Metric series Radial Ball Bearings | 19 |
| 5 | Inch series Radial Ball Bearings | 20 |
| 6 | Metric series Single Row Angular Contact Ball Bearings | 21 |
| 7 | Metric series Double Row Angular Contact Ball Bearings | 23 |
| 8 | Metric series Four Point Contact Ball Bearings | 24 |
| 9 | Metric series Cylindrical Roller Bearings | 26 |
| 10 | Metric series Tapered Roller Bearings | - |
| 11 | Inch series tapered roller bearings | - |
| 12 | Metric series Double Row Spherical Roller Bearings | 28 |
| 13 | Metric series Single and Double Direction Ball and Spherical Roller Thrust Bearings | 25 |
| 14 | Angular Contact Thrust Ball Bearings | - |
| 15 | Metric series Miniature Deep Groove Ball Bearings | - |
| 16 | Special Metric series Miniature Deep Groove Ball Bearings | - |
| 17 | Inch series Miniature Deep Groove Ball Bearings | - |

# RHP Product

NSK

# *Metric series radial ball bearings*

| 6 | 2 | 10 | | ZZ | K | C2 | X26 |
|---|---|---|---|---|---|---|---|

## 6 — TYPE

| | |
|---|---|
| 6 | Single row radial ball bearing |
| 16 | Single row radial ball bearing - narrow, extra light series |
| E | Single row radial ball bearing - separable Magneto type |
| EN | Single row radial ball bearing - separable Magneto type |
| L | Single row radial ball bearing - separable Magneto type |
| BO | Single row radial ball bearing - separable Magneto type |
| BL | Single row radial ball bearing - with filling slots and maximum load capacity |
| 1 | Double row radial ball bearing - self-aligning |
| 2 | Double row radial ball bearing - self-aligning; wide series |

## 2 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 8 | 18 | 2 | 02 |
| 9 | 19 | 3 | 03 |
| 0 | 10 | 4 | 04 |

## 10 — BORE CODE

| | |
|---|---|
| 4 - 4mm (Magneto type) | 00 - 10mm (except Magneto) |
| 5 - 5mm | 01 - 12mm (except Magneto) |
| 6 - 6mm | 02 - 15mm (except Magneto) |
| 7 - 7mm | 03 - 17mm (except Magneto) |
| 8 - 8mm | For bore code 04 upwards, the general rule is to multiply by 5 to obtain bore size in mm. |
| 9 - 9mm | The exceptions to this are bearings with bore diameter of 22mm, 28mm, 32mm and 500mm and above. |
| 10 - 10mm (Magneto type) | These are denoted by the type and ISO series (60, 62, 63), followed by / and the bore diameter in mm ie. 62/22, 63/32 etc. |
| 11 - 11mm (Magneto type) | |
| 12 - 12mm (Magneto type) | |
| 13 - 13mm (Magneto type) | |
| 14 - 14mm (Magneto type) | |
| 15 - 15mm (Magneto type) | |
| 16 - 16mm (Magneto type) | |
| 17 - 17mm (Magneto type) | |
| 18 - 18mm (Magneto type) | |
| 19 - 19mm (Magneto type) | |
| 20 - 20mm (Magneto type) | |

## CAGE TYPE CODE

Not usually included for pressed steel (J) type cage

For others see list of CAGE TYPE CODES on Appendix 1 – Page 32

## ZZ — SEALING ARRANGEMENT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## K — RING CONFIGURATION

| | |
|---|---|
| K | Tapered bore 1 : 12 |
| K30 | Tapered bore 1 : 30 |
| E | Notch or Lubricating groove in ring |

For other ring configurations see Appendix 2

## C2 — INTERNAL CLEARANCE

| | |
|---|---|
| C1 | Radial clearance less than C2 |
| C2 | Radial clearance less than Normal |
| CN | Normal grade of radial internal clearance - not marked |
| C3 | Radial internal clearance greater than Normal |
| C4 | Radial internal clearance greater than C3 |
| C5 | Radial internal clearance greater than C4 |
| CM | Standard clearance for quiet electric motors |
| CG* | Special radial internal clearance where * denotes mean figure in μm |

## X26 — SPECIAL SPECIFICATION

| | |
|---|---|
| X26 | Dimensionally stabilised for operating temperature of 150˚C max. |
| X28 | Dimensionally stabilised for operating temperature of 200˚C max. |
| X29 | Dimensionally stabilised for operating temperature of 250˚C max. |

# RLS 5 DDU C3

| | | |
|---|---|---|
| **RLS** | **TYPE** | RLS Light series single row radial ball bearing<br>RMS Medium series single row radial ball bearing |
| **5** | **BORE CODE** | Nominal bore size expressed in 1/8" units.<br>eg. Bore code 5 = 5 x 1/8" units = 5/8". |
| **DDU** | **SEALING ARRANGEMENT** | See list of STANDARD VARIANT CODES on Appendix 2 – Page 34 |
| **C3** | **INTERNAL CLEARANCE** | C1 Radial clearance less than C2<br>C2 Radial clearance less than Normal<br>CN Normal grade of radial internal clearance - not marked<br>C3 Radial internal clearance greater than Normal<br>C4 Radial internal clearance greater than C3<br>C5 Radial internal clearance greater than C4<br>CM Standard clearance for quiet electric motors<br>CG* Special radial internal clearance where * denotes mean figure in µm |

# 7 2 10 C T DU L X26

## 7 — TYPE

7 Single row angular contact ball bearing

## 2 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 9 | 19 | 2 | 02 |
| 0 | 10 | 3 | 03 |

## 10 — BORE CODE

00 - 10mm
01 - 12mm
02 - 15mm
03 - 17mm

04 upwards, multiply by 5 to obtain bore size in mm.

## C — CONTACT ANGLE

| | | | |
|---|---|---|---|
| C | 15˚ | A | 30˚ |
| A5 | 25˚ | B | 40˚ |

## T — CAGE TYPE CODE

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## DU — GROUPING

| | |
|---|---|
| DB | Matched Pair - Back to Back configuration |
| DF | Matched Pair - Face to Face configuration |
| DT | Matched Pair - Tandem configuration |
| DU | Matched Pair - Universal mounting |
| SU | Single Bearing - Universally faced - Can be used DB or DF with 2, 3, 4 etc. rows |
| G | Any combination of 2 bearings can be used. Both sides ground for matching. |

For other possible grouping arrangements see Appendix 3 – Page 35

## L — PRELOAD

| | |
|---|---|
| EL | Extra Light Preload |
| C7 or L | Light Preload |
| C8 or M | Medium Preload |
| C9 or H | Heavy Preload |
| CA* | Special Axial Clearance |
| CP* | Special Axial Preload |

## X26 — SPECIAL SPECIFICATION

| | |
|---|---|
| X26 | Dimensionally stabilised for operating temperature of 150˚C max. |
| X28 | Dimensionally stabilised for operating temperature of 200˚C max. |
| X29 | Dimensionally stabilised for operating temperature of 250˚C max. |

# 5 2 10 ZZ X26

## 5 — TYPE

5 Double row angular contact ball bearing - 25˚ Contact angle
3 Double row angular contact ball bearing - 32˚ Contact angle

## 2 — DIMENSION SERIES

| NSK | ISO |
|---|---|
| 2 | 02 |
| 3 | 03 |

## 10 — BORE CODE

00 - 10mm
01 - 12mm
02 - 15mm
03 - 17mm

04 upwards, multiply by 5 to obtain bore size in mm.

## CAGE TYPE CODE

Usually fitted with pressed steel cage with no suffix stated.
If suffix is quoted see Appendix 1 – Page 32

## ZZ — STANDARD VARIANT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## X26 — SPECIAL SPECIFICATION

X26 Dimensionally stabilised for operating temperature of 150˚C max.
X28 Dimensionally stabilised for operating temperature of 200˚C max.
X29 Dimensionally stabilised for operating temperature of 250˚C max.

# QJ 2 06 X26

| | | |
|---|---|---|
| **QJ** | **TYPE** | QJ Single row duplex ball bearing - with split inner ring |
| **2** | **DIMENSION SERIES** | NSK: 10, 2, 3 — ISO: 10, 02, 03 |
| **06** | **BORE CODE** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |
| | **CAGE TYPE CODE** | Usually fitted with pressed steel cage with no suffix stated.<br>If suffix is quoted see Appendix 1 – Page 32 |
| **X26** | **SPECIAL SPECIFICATION** | X26 Dimensionally stabilised for operating temperature of 150˚C max.<br>X28 Dimensionally stabilised for operating temperature of 200˚C max.<br>X29 Dimensionally stabilised for operating temperature of 250˚C max. |

# N 2 16 E T K C3 X26

## N — TYPE

| | |
|---|---|
| N | Single row cylindrical roller bearing - two ribs on inner ring |
| NU | Single row cylindrical roller bearing - two ribs on outer ring |
| NJ | Single row cylindrical roller bearing - two ribs on outer ring - one rib on inner |
| NF | Single row cylindrical roller bearing - two ribs on inner ring - one rib on outer |
| NH | Single row cylindrical roller bearing - as NJ type but with additional L shaped thrust collar |
| NUP | Single row cylindrical roller bearing - two ribs on outer ring - one rib + one loose rib on inner |
| NU2 | Single row cylindrical roller bearing - two ribs on outer ring - Extra wide series |
| NJ2 | Single row cylindrical roller bearing - two ribs on outer ring - one rib on inner - Extra wide series |
| NUP2 | Single row cylindrical roller bearing - two ribs on outer ring - one rib + one loose rib on inner - Extra wide series |
| NN | Double row cylindrical roller bearing - three ribs on inner ring - Extra wide series |
| NNU | Double row cylindrical roller bearing - three ribs on outer ring - Extra wide series |

## 2 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 19 | 19 | 3 | 03 |
| 10 | 10 | 4 | 04 |
| 2 | 02 | | |

## 16 — BORE CODE

00 - 10mm
01 - 12mm
02 - 15mm
03 - 17mm

04 upwards, multiply by 5 to obtain bore size in mm.

## E — DESIGN FEATURE

| | |
|---|---|
| E | Higher Radial Load Rating |

## T — CAGE CODES

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## K — RING CONFIGURATION

| | |
|---|---|
| K | Tapered bore 1 : 12 |
| K30 | Tapered bore 1 : 30 |
| E1 | Notch or Lubricating groove in ring |

## C3 — INTERNAL CLEARANCE

| | |
|---|---|
| C2 | Radial clearance less than Normal - marked '0' or 'C2' |
| CN | Normal grade of radial internal clearance - not marked |
| C3 | Radial internal clearance greater than Normal - marked '000' or 'C3' |
| C4 | Radial internal clearance greater than C3 - marked '0000' or 'C4' |
| C5 | Radial internal clearance greater than C4 - marked '00000' or 'C5' |

## X26 — SPECIAL SPECIFICATION

| | |
|---|---|
| X26 | Dimensionally stabilised for operating temperature of 150˚C max. |
| X28 | Dimensionally stabilised for operating temperature of 200˚C max. |
| X29 | Dimensionally stabilised for operating temperature of 250˚C max. |

**Designation Format** **HR 322 04 CJ**

| | | |
|---|---|---|
| **HR** | **DESIGN PREFIX** | Designed for high load carrying capacity |
| **322** | **BASIC NUMBER** | The first 3 digits represent the TYPE CODE and the DIMENSION SERIES. |
| **04** | **BORE CODE** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |
| **CJ** | **DESIGN FEATURE** | C Medium angle tapered roller bearing<br>D Steep angle tapered roller bearing<br>J Outer ring raceway diameter and angle comply with ISO/R355<br>X Dimension Series 20 and 29 - major dimensions comply with ISO/R355 |

**Designation Format** **T 7 F C 045**

| | | | |
|---|---|---|---|
| **T** | | T | Symbol Representing Tapered Roller Bearing |
| **7** | | 7 | Symbol Representing Contact Angle |
| **F** | | F | Symbol Representing ISO Diameter Series |
| **C** | | C | Symbol Representing ISO Width Series |
| **045** | | 045 | Symbol Representing Bearing Bore in mm. |

**Designation Format**

| LM | 1 | 17 | 49 | | / | LM | 1 | 17 | 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| cone | | | | | | cup | | | | |

## LM — DUTY

| | |
|---|---|
| LL | Lighter than Light |
| L | Light |
| LM | Light Medium |
| M | Medium |
| HM | Heavy Medium |
| H | Heavy |
| HH | Heavier than Heavy |

## 1 — INCLUDED ANGLE

| | |
|---|---|
| 1 < 24˚ | 6 > 30˚30' < 32˚30' |
| 2 > 24˚ < 25˚30' | 7 > 32˚30' < 36˚ |
| 3 > 25˚30' < 27˚ | 8 > 36˚ < 45˚ |
| 4 > 27˚ < 28˚30' | 9 > 45˚ |
| 5 > 28˚30' < 30˚30' | |

## 17 — BASIC SERIES

| Series | Basic range in inches |
|---|---|
| 00-19 | 0-1 |
| 20-99 | 1-2 |
| 000-029 | 1-2 |
| 039-129 | 2-3 |
| 130-189 | 3-4 |
| 190-239 | 4-5 |
| 240-289 | 5-6 |
| 290-339 | 6-7 |
| 340-389 | 7-8 |
| 390-429 | 8-9 |

## 49 — PART NUMBERS WITHIN BASIC SERIES

10-19 = Cup (Outer); 10 = minimum OD
30-49 = Cone (Inner); 49 = maximum bore

## — SPECIAL FEATURE

# 2 22 15 CA K E4 C2 S11 -VS

## 2 — TYPE

Type Code 2 - Spherical roller bearing

## 22 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 30 | 30 | 22 | 22 |
| 40 | 40 | 32 | 32 |
| 31 | 31 | 13 | 13 |
| 41 | 41 | 23 | 23 |
| 39 | 39 | | |

## 15 — BORE CODE

For bore code 04 upwards, the general rule is to multiply by 5 to obtain bore size in mm.

The exceptions to this are bearings with bore diameter of 500mm and above. These are denoted by the type and ISO series (230, 239), followed by / and the bore diameter (500mm, 630mm etc.) ie. 230/500, 239/630 etc.

## CA — DESIGN FEATURE OR CAGE

| | |
|---|---|
| C | Design with C type pressed steel cage |
| CA | Designed with machined brass cage |
| CAM | Designed with machined brass cage |
| CD | Designed with D type pressed steel cage |
| H | Designed for increased capacity - glass fibre reinforced nylon cage |
| T12 | Glass fibre reinforced cage |

## K — RING CONFIGURATION

| | |
|---|---|
| K | Tapered bore 1 : 12 |
| K30 | Tapered bore 1 : 30 |

## E4

| | |
|---|---|
| E4 | Outer ring with oil holes and groove (For H type over 180mm O.D. and other types over 150mm O.D. oil holes and grooves are standard) |

## C2 — INTERNAL CLEARANCE

| | |
|---|---|
| C1 | Radial clearance less than C2 |
| C2 | Radial clearance less than Normal |
| CN | Normal grade of radial internal clearance - not marked |
| C3 | Radial internal clearance greater than Normal |
| C4 | Radial internal clearance greater than C3 |
| C5 | Radial internal clearance greater than C4 |
| CG* | Special radial internal clearance where * denotes mean figure in μm |

## S11

| | |
|---|---|
| S11 | Dimensionally stabilised for operating temperature of 150˚/200˚C max. |

## -VS

| | |
|---|---|
| -VS | Special specification for vibratory equipment |

**512 07 X** — **BALL THRUST BEARINGS**

**293 20 H** — **SPHERICAL ROLLER THRUST BEARINGS**

| | | | |
|---|---|---|---|
| **512** | **TYPE** and **SERIES** (first 3 digits in basic number) | 511, 512, 513, 514 | Single direction ball thrust bearing - with flat seat |
| | | 532, 533, 534 | Single direction ball thrust bearing - with aligning seat |
| | | 532U, 533U, 534U | Single direction ball thrust bearing - with aligning seat washer |
| | | 522, 523, 524 | Double direction ball thrust bearing - with flat seat |
| | | 542, 543, 544 | Double direction ball thrust bearing - with aligning seat washer |
| | | 292, 293, 294 | Single direction spherical thrust roller bearing |
| **07** | **BORE CODE** (last 2 digits in basic number) | 00 - 10mm<br>00 - 12mm<br>02 - 15mm<br>03 - 17mm | For bore code 04 upwards, the general rule is to multiply by 5 to obtain bore size in mm. The exception is spherical roller thrust bearings with 500mm bore diameter which are designated 292/500, 293/500 and 294/500.<br>Note that for double direction thrust bearings this diameter is the bore diameter of the two outer washers. The bore diameter of the centre washer is smaller. |
| **M** | **CAGE** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 | |
| **X** | **DESIGN FEATURE** | X | Denotes Modified Boundary Dimensions to I.S.O. |
| | | U | Denotes with Aligning Seat Washer. |
| | | P5 | Denotes Precision Class 5 (ABEC 5). |

## INCH AND METRIC SERIES BEARINGS

In addition to the above there is also available a Cylindrical Roller Thrust Bearings series ranging from 35mm bore (Designation 35TMP14) to 320mm bore (Designation 320TMP12).

# *Metric series angular contact thrust ball bearings*

There are two types of bearing listed under this category.

**ANGULAR CONTACT THRUST BALL BEARINGS FOR BALL SCREWS**

Bearings in this category are specially designed to support Precision Ball Screws. The contact angle is 60˚ and they are usually used in sets of two or more bearings in a preload condition.

Bearings are fitted with moulded polyamide cages.

A typical designation for this series would be:-

**30TAC62B DF C10 PN7A**

For more details on this series refer to catalogue Pr. No. A124, Precision Rolling Bearings for Machine Tool Spindles and C912S, Super Precision Bearings - Equivalents Data.

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**DOUBLE DIRECTION ANGULAR CONTACT THRUST BALL BEARINGS**

Bearings in this category are specially designed high precision bearings for use in the main spindles of machine tools. Bearings in series 29 and 20 have the same bore and O.D. as the double row cylindrical roller bearings in series NN30 and NN49 respectively and are generally used in conjunction with these roller bearings.

Bearings are generally fitted with machined brass cages. Typical designations for this series would be:-

**100TAC20X PN7+L C6**

or

**140TAC20D PN7+L C6**

For more details on this series refer to catalogue Pr. No. A124, Precision Rolling Bearings for Machine Tool Spindles.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 60 | 1X | | W | | MC3 | P4 | L | UC3 | AF2 |
| F | 60 | 5 | h | J | ZZ | MC2 | P5 | | | B32 |

## F — BEARING TYPE

| | |
|---|---|
| No symbol | Standard type |
| F | Flanged O.D. type |

## 60 — BEARING SERIES

68, 69, 60, 62, 63

## 5 — BORE DIAMETER

| | |
|---|---|
| 1 ~ 9 | Bore diameter in mm. |
| 1X, 2X etc. | Bore diameter in mm. where X represents a part millimetre. i.e. 1.5mm. |

## h — MATERIAL CODE

| | |
|---|---|
| No symbol | Bearing steel (SUJ2) |
| h | Stainless steel (SUS440C) |

## J — CAGE TYPE CODE

| | |
|---|---|
| J | Ribbon cage |
| JL | Ribbon cage (Light Clinched) |
| W | Crown cage |
| T | Synthetic resin cage |

(Cage symbols are occasionally omitted)

## ZZ — SEALING ARRANGEMENT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## MC2 — INTERNAL CLEARANCE

| | |
|---|---|
| MC1 | Radial clearance less than MC2 |
| MC2 | Radial clearance less than MC3 |
| MC3 | Normal radial internal clearance |
| MC4 | Radial internal clearance greater than MC3 |
| MC5 | Radial internal clearance greater than MC4 |
| MC6 | Radial internal clearance greater than MC5 |

## P5 — TOLERANCE CLASS

| | | | |
|---|---|---|---|
| No symbol | JIS Class 0 | P5 | JIS Class 5 |
| P6 | JIS Class 6 | P4 | JIS Class 4 |

## TORQUE SPECIFICATION

| | |
|---|---|
| No symbol | No torque specification |
| L | Low torque |

## BORE or O.D. SORTING CODE

| | |
|---|---|
| UC1 | Bearings are sorted into two groups depending on bore tolerance |
| UC2 | Bearings are sorted into two groups depending on O.D. tolerance |
| UC3 | Bearings are sorted into four groups depending on bore and O.D. tolerances |

## B32 — LUBRICANT CODE

| Oil | | Grease | |
|---|---|---|---|
| AF2 | Aeroshell Fluid 12 | B32 | Beacon 325 |
| A4D | Anderol L-401D | PS2 | Multemp PS2 |
| (Others available on request) | | (Others available on request) | |

| S | MR | 84 | W | ZZ | MC3 | P5 | | UC1 | B32 |
|---|---|---|---|---|---|---|---|---|---|
| | MF | 148 | J | | MC4 | | | | |

| | | |
|---|---|---|
| **S** | **MATERIAL CODE** | No symbol Bearing steel (SUJ2)<br>S Stainless steel (SUS440C) |
| **MR** | **BEARING TYPE** | MR Special metric series<br>MF Special metric series with flanged O.D. |
| **84** | **SIZE NUMBER** | Number indicates O.D. and bore size |
| **W** | **CAGE TYPE CODE** | J Ribbon cage<br>JL Ribbon cage (Light Clinched)<br>W Crown cage<br>T Synthetic resin cage<br>(Cage symbols are occasionally omitted) |
| **ZZ** | **SEALING ARRANGMENT** | See list of STANDARD VARIANT CODES on Appendix 2 – Page 34 |
| **MC3** | **INTERNAL CLEARANCE** | MC1 Radial clearance less than MC2<br>MC2 Radial clearance less than MC3<br>MC3 Normal radial internal clearance<br>MC4 Radial internal clearance greater than MC3<br>MC5 Radial internal clearance greater than MC4<br>MC6 Radial internal clearance greater than MC5 |
| **P5** | **TOLERANCE CLASS** | No symbol JIS Class 0 / P5 JIS Class 5<br>P6 JIS Class 6 / P4 JIS Class 4 |
| | **TORQUE SPECIFICATION** | No symbol No torque specification<br>L Low torque |
| **UC1** | **BORE or O.D. SORTING CODE** | UC1 Bearings are sorted into two groups depending on bore tolerance<br>UC2 Bearings are sorted into two groups depending on O.D. tolerance<br>UC3 Bearings are sorted into four groups depending on bore and O.D. tolerances |
| **B32** | **LUBRICANT CODE** | Oil: AF2 Aeroshell Fluid 12; A4D Anderol L-401D; (Others available on request)<br>Grease: B32 Beacon 325; PS2 Multemp PS2; (Others available on request) |

| S | FR | 133 | X3 | J | ZZS | MC4 | 7P | L | UC3 | AF2 |
|---|---|---|---|---|---|---|---|---|---|---|
| | R | 2 | | J | ZZ | MC3 | | | | B32 |

## S — MATERIAL CODE

| | |
|---|---|
| No symbol | Bearing steel (SUJ2) |
| S | Stainless steel (SUS440C) |

## FR — BEARING TYPE

| | |
|---|---|
| R | Inch series deep groove ball bearing |
| FR | Inch series deep groove ball bearing with flanged O.D. |
| RW | Inch series deep groove ball with extended inner ring |

## 133 — SIZE NUMBER

Number indicates O.D. and bore size

## X3

Special Design Symbol

## J — CAGE TYPE CODE

| | |
|---|---|
| J | Ribbon cage |
| JL | Ribbon cage (Light Clinched) |
| W | Crown cage |
| T | Synthetic resin cage |

(Cage symbols are occasionally omitted)

## ZZS — SEALING ARRANGEMENT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## MC4 — INTERNAL CLEARANCE

| | |
|---|---|
| MC1 | Radial clearance less than MC2 |
| MC2 | Radial clearance less than MC3 |
| MC3 | Normal radial internal clearance |
| MC4 | Radial internal clearance greater than MC3 |
| MC5 | Radial internal clearance greater than MC4 |
| MC6 | Radial internal clearance greater than MC5 |

## 7P — TOLERANCE CLASS

| | | | |
|---|---|---|---|
| No symbol | ABEC 1 | 5P | ABEC 5P |
| 3 | ABEC 3 | 7P | ABEC 7P |

## L — TORQUE SPECIFICATION

| | |
|---|---|
| No symbol | No torque specification |
| L | Low torque |

## UC3 — BORE or O.D. SORTING CODE

| | |
|---|---|
| UC1 | Bearings are sorted into two groups depending on bore tolerance |
| UC2 | Bearings are sorted into two groups depending on O.D. tolerance |
| UC3 | Bearings are sorted into four groups depending on bore and O.D. tolerances |

## AF2 — LUBRICANT CODE

| Oil | | Grease | |
|---|---|---|---|
| AF2 | Aeroshell Fluid 12 | B32 | Beacon 325 |
| A4D | Anderol L-401D | PS2 | Multemp PS2 |
| (Others available on request) | | (Others available on request) | |

RHP

# *Metric series radial ball bearings*

**6 2 10 K RS J C2 LOC P6 S***

## 6 — TYPE

| | |
|---|---|
| 6 | Single row radial ball bearing |
| 16 | Single row radial ball bearing - narrow, extra light series |
| 98 | Single row radial ball bearing - narrow light series |
| E | Magneto bearings (For NSK brand see Radial Ball Bearings – Page 4) |
| L | Magneto bearings (For NSK brand see Radial Ball Bearings – Page 4) |
| M | Single row radial ball bearing - with filling slots and maximum load capacity |
| 4 | Double row radial ball bearing |
| 1 | Double row radial ball bearing - self-aligning |
| 2 | Double row radial ball bearing - self-aligning; wide series |

## 2 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 18 | 18 | 2 | 02 |
| 19 | 19 | 3 | 03 |
| 0 | 10 | 4 | 04 |

## 10 — BORE CODE

| | |
|---|---|
| 3 - 3mm (Magneto type) | 00 - 10mm (except Magneto) |
| 4 - 4mm (Magneto type) | 01 - 12mm (except Magneto) |
| 5 - 5mm | 02 - 15mm (except Magneto) |
| 7 - 7mm | 03 - 17mm (except Magneto) |
| 6 - 6mm | |
| 7 - 7mm | For bore code 04 upwards, the general rule is to multiply by 5 to obtain bore size in mm. |
| 8 - 8mm | |
| 9 - 9mm | |
| 10 - 10mm (Magneto type) | |
| 12 - 12mm (Magneto type) | |
| 13 - 13mm (Magneto type) | |
| 15 - 15mm (Magneto type) | |
| 17 - 17mm (Magneto type) | |
| 20 - 20mm (Magneto type) | |

## K

| | |
|---|---|
| K | Tapered bore 1:12 |

## RS — SEALING ARRANGEMENT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## J — CAGE TYPE CODE

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## C2 — INTERNAL CLEARANCE

| | |
|---|---|
| C2 | Radial clearance less than Normal - marked '0' or 'C2' |
| CN | Normal grade of radial internal clearance - not marked |
| C3 | Radial internal clearance greater than Normal - marked '000' or 'C3' |
| C4 | Radial internal clearance greater than C3 marked '0000' or 'C4' |
| C5 | Radial internal clearance greater than C4 marked '00000' or 'C5' |
| R* | Special radial internal clearance (* denotes mean figure in µm) |

## LOC — SPECIAL FEATURE

| | |
|---|---|
| LOC | Location Bearing - reduced outside diameter |

## P6 — PRECISION GRADE

| | |
|---|---|
| ELEC | "Electric" standard |
| EP | Precision grade dedicated to Inch series bearings |
| EP1 | ABEC1 tolerances |
| P6E | Electric Motor Bearing tolerances (ISO Tolerance class 6) and special radial internal clearances |
| T | Motor Traction Specification (PDS Q28) |

## S* — HEAT STABILISED

Where * gives the Specification number

| Specification number | Operational temperature |
|---|---|
| 1 | Up to 200˚C max. |
| 2 | Up to 250˚C max. |
| 3 | Up to 300˚C max. |
| 4 | Up to 350˚C max. |

# LJ 4 K RS J C2 LOC EP

| | | | |
|---|---|---|---|
| **LJ** | **TYPE** | R | Small Radial ball journal (ABEC 1 & 3, also ISO classes 6, 4 & 2) |
| | | KLNJ | Small Radial ball journal (BS292 Part 2 Standard Limits) |
| | | LNJ | Small Radial ball journal - full type |
| | | XLJ | Extra light series radial ball journal |
| | | LJ | Light series single row radial ball bearing |
| | | LJBL | Light series single row radial ball bearings - max. capacity type with filling slot |
| | | MJ | Medium series single row radial ball bearing |
| | | MJBL | Medium series single row radial ball bearing - max. capacity type with filling slot |
| | | HJ | Heavy series single row radial ball bearing |
| | | HJBL | Heavy series radial ball journal bearing - max. capacity type with filling slot |
| **4** | **BORE CODE** | 4 | The bore code shall be numeric and comprise the nominal inch bore size as fractious and integers i.e. 1/2; 2; 3.1/2 |
| | | 4E | E was used to denote inch series bearings with 4 inches bore and over. Now, only used when there is no other distinguishing symbol within the bearing designation. |
| **K** | **TAPERED BORE** | K | Tapered bore 1:12 |
| **RS** | **SEALING ARRANGEMENT** | See list of STANDARD VARIANT CODES on Appendix 2 – Page 34 | |
| **J** | **CAGE TYPE CODE** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 | |
| **C2** | **INTERNAL CLEARANCE** | C2 | Radial clearance less than Normal - marked ‘0’ or ‘C2’ |
| | | CN | Normal grade of radial internal clearance - not marked |
| | | C3 | Radial internal clearance greater than Normal - marked ‘000’ or ’C3’ |
| | | C4 | Radial internal clearance greater than C3 marked ‘0000’ or ’C4’ |
| | | C5 | Radial internal clearance greater than C4 marked ‘00000’ or ’C5’ |
| | | R* | Special radial internal clearance (* denotes mean figure in μm) |
| **LOC** | **SPECIAL FEATURE** | LOC | Location Bearing - reduced outside diameter |
| **EP** | **PRECISION GRADE** | ELEC | “Electric” standard |
| | | EP | Precision grade dedicated to Inch series bearings |
| | | EP1 | ABEC1 tolerances |
| | | P6E | Electric Motor Bearing tolerances (ISO Tolerance class 6) and special radial internal clearances |
| | | T | Motor Traction Specification (PDS Q28) |

# 7 2 10 B E TN DU M P6

## 7 — TYPE

| | |
|---|---|
| 7 | Single row angular contact ball bearing |
| E | Magneto bearings (For NSK brand see Radial Ball Bearings – Page 4) |
| L | Magneto bearings (For NSK brand see Radial Ball Bearings – Page 4) |

## 2 — DIMENSION SERIES

| NSK | ISO | NSK | ISO |
|---|---|---|---|
| 9 | 19 | 3 | 03 |
| 0 | 10 | 4 | 04 |
| 2 | 02 | | |

## 10 — BORE CODE

| | |
|---|---|
| 3 - 3mm (Magneto type) | 00 - 10mm (except Magneto) |
| 4 - 4mm (Magneto type) | 01 - 12mm (except Magneto) |
| 5 - 5mm | 02 - 15mm (except Magneto) |
| 7 - 7mm | 03 - 17mm (except Magneto) |
| 6 - 6mm | |
| 7 - 7mm | For bore code 04 upwards, the general rule is to multiply by 5 to obtain bore size in mm. |
| 8 - 8mm | |
| 9 - 9mm | |
| 10 - 10mm (Magneto type) | |
| 12 - 12mm (Magneto type) | |
| 13 - 13mm (Magneto type) | |
| 15 - 15mm (Magneto type) | |
| 17 - 17mm (Magneto type) | |
| 20 - 20mm (Magneto type) | |

## B — CONTACT ANGLE

| New ref | Old ref | Angle | New ref | Old ref | Angle |
|---|---|---|---|---|---|
| C | X2 | 15˚ | A | X4 | 30˚ |
| ● | ● | 20˚ | B | X6 | 40˚ |
| E | X3 | 25˚ | | | |

## E — DESIGN FEATURE

| | |
|---|---|
| E | Higher Radial Load Rating |

## TN — CAGE TYPE CODE

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## DU — GROUPING (Most used)

| | |
|---|---|
| DB | Matched Pair - Back to Back configuration |
| DF | Matched Pair - Face to Face configuration |
| DT | Matched Pair - Tandem configuration |
| DU | Matched Pair - Universal mounting |
| SU | Single Bearing - Universally faced |

For other possible grouping arrangements see Appendix 3 – Page 35

## M — PRELOAD

| | |
|---|---|
| F | Flush Faced |
| L | Light Preload |
| M | Medium Preload |
| H | Heavy Preload |
| S | Standard Axial Clearance |
| U | Universally faced Single Bearing to give Standard Axial Clearance when mounted in pairs |
| UX | Universally faced single bearing to give an Axial Clearance less than Standard Axial Clearance when mounted in pairs. |
| A* | Special Axial Clearance (*Denotes mean figure in µm.) |
| P* | Special Axial Preload (*Denotes mean figure in µm.) |

## P6 — PRECISION GRADE

| | |
|---|---|
| ELEC | "Electric" standard |
| EP | Precision grade dedicated to Inch series bearings |
| EP1 | ABEC1 tolerances |
| P6E | Electric Motor Bearing tolerances (ISO Tolerance class 6) and special radial internal clearances. |

● Denotes standard feature, no indicator necessary

# LJT 4 X2 M DU L EP

| | | |
|---|---|---|
| **LJT** | **TYPE** | XLJT Single row angular contact ball bearing - Extra light series<br>LJT Single row angular contact ball bearing - Light series<br>MJT Single row angular contact ball bearing - Medium series |
| **4** | **BORE CODE** | 4 The bore code shall be numeric and comprise the nominal bore as fractions and integers i.e. 1/2; 3.1/2 etc.<br>4E E was used to denote inch series bearings with 4 inches bore and over. Now only used where there is no other distinguishing symbol within a bearing designation. |
| **X2** | **CONTACT ANGLE** | X2 15˚<br>● 20˚<br>X4 30˚ |
| **M** | **CAGE TYPE CODE** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 |
| **DU** | **GROUPING** (Most used) | DB Matched Pair - Back to Back configuration<br>DF Matched Pair - Face to Face configuration<br>DT Matched Pair - Tandem configuration<br>DU Matched Pair - Universal mounting |
| **L** | **PRELOAD** | L Light Preload<br>M Medium Preload<br>H Heavy Preload<br>S Standard Axial Clearance<br>U Universally faced Single Bearing to give Standard Axial Clearance when mounted in pairs<br>UX Universally faced single bearing to give an Axial Clearance less than Standard Axial Clearance when mounted in pairs.<br>A* Special Axial Clearance eg. DBA138 (*Denotes mean figure in µm.)<br>P* Special Axial Preload eg. DBP18 (*Denotes mean figure in µm.) |
| **EP** | **PRECISION GRADE** | ELEC “Electric” standard<br>EP Precision grade dedicated to Inch series bearings<br>EP1 ABEC1 tolerances<br>P6E Electric Motor Bearing tolerances (ISO Tolerance class 6) and special radial internal clearances. |

● Denotes standard feature, no indicator necessary

# 3 2 10 ZR J C2

## 3 — TYPE

| | |
|---|---|
| 3 | Double row angular contact ball bearing - filling slots - contact angles diverge - 32˚ |
| 3_B | Double row angular contact ball bearing - no filling slots - contact angles diverge - 25˚ |
| LDJK | Double row angular contact ball bearing - no filling slots - contact angles converge - 30˚ |
| MDJK | Double row angular contact ball bearing - no filling slots - contact angles converge - 30˚ |
| HDJK | Double row angular contact ball bearing - no filling slots - contact angles converge - 30˚ |
| LDJT | Double row angular contact ball bearing - with split outer ring - Light series - 30˚ |
| MDJT | Double row angular contact ball bearing - with split outer ring - Medium series - 30˚ |

## 2 — DIMENSION SERIES

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 10 | 10 | 3 | 03 |
| 2 | 02 | 4 | 04 |

## 10 — BORE CODE

00 - 10mm
01 - 12mm
02 - 15mm
03 - 17mm

04 upwards, multiply by 5 to obtain bore size in mm.

## ZR — STANDARD VARIANT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## J — CAGE TYPE CODE

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## C2 — INTERNAL CLEARANCE

| | |
|---|---|
| C2 | Radial clearance less than Normal - marked ‘0’ or ‘C2’ |
| CN | Normal grade of radial internal clearance - not marked |
| C3 | Radial internal clearance greater than Normal - marked ‘000’ or ’C3’ |
| C4 | Radial internal clearance greater than C3 marked ‘0000’ or ’C4’ |
| A* | Special radial internal clearance (* denotes mean figure in μm) |
| P* | Special axial preload. (* denotes mean figure in μm) |

## QJ 2 10 NR MB C3 LOC — METRIC SERIES BEARINGS

| | | |
|---|---|---|
| **QJ** | **TYPE** | QJ Single row duplex ball bearing - with split inner ring |
| **2** | **DIMENSION SERIES** | RHP 2, 3 — ISO 02, 03 |
| **10** | **BORE CODE** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |

## QJL 4 NR MB C3 LOC — INCH SERIES BEARINGS

| | | |
|---|---|---|
| **QJL** | **TYPE** | QJL Single row duplex ball bearing - with split inner ring - Light series<br>QJM Single row duplex ball bearing - with split inner ring - Medium series |
| **4** | **BORE CODE** | 4 The bore code shall be numeric and comprise the nominal bore as fractions and integers ie. 1/2; 2; 3.1/2 etc.<br>4E E was used to denote inch series bearings with 4 inches bore and over. Now only used when there is no other distinguishing symbol within a bearing designation. |

## INCH AND METRIC SERIES BEARINGS

| | | |
|---|---|---|
| **NR** | **STANDARD VARIANT** | See list of STANDARD VARIANT CODES on Appendix 2 – Page 34 |
| **MB** | **CAGE CODES** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 |
| **C3** | **INTERNAL CLEARANCE** | C3 Axial clearance greater than Normal - marked '000' or 'C3'<br>A* Special axial clearance (* denotes mean figure in μm) |
| **LOC** | **SPECIAL FEATURE** | LOC Location Bearing - reduced outside diameter |

## 512 07 J — METRIC SERIES BEARINGS

| | | |
|---|---|---|
| **512** | **TYPE AND SERIES** (first 3 digits in basic number) | 511 Extra light series single direction ball thrust bearing<br>512 Light series single direction ball thrust bearing<br>513 Medium series single direction ball thrust bearing |
| **07** | **BORE CODE** (last 2 digits in basic number) | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |

## LT 1.1/2 B E J — INCH SERIES BEARINGS

| | | |
|---|---|---|
| **LT** | **TYPE AND SERIES** | FT Inch series flat track single direction ball thrust bearing - flat seating<br>XLT Inch series - Extra Light - single direction ball thrust bearing<br>LT or LT-B Inch series - Light - single direction ball thrust bearing<br>MT Inch series - Medium - single direction ball thrust bearing |
| **1.1/2** | **BORE CODE** | The bore code shall be numeric and comprise the nominal bore as fractions and integers ie. 1/2; 2; 3.1/2 etc. |

## INCH AND METRIC SERIES BEARINGS

| | | |
|---|---|---|
| **B** | | Used only with LT series bearings up to 1.7/8 inch bore.<br>Refers to bearings with one large bore washer and one small bore washer. |
| **E** | | E Was used to denote inch series bearings with 4 inches bore and over. Now only used when there is no other distinguishing symbol within a bearing designation. |
| **J** | **CAGE TYPE CODE** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 |

# N 2 16 E K NR M P6 C2

## N — TYPE

| | |
|---|---|
| N | Single row cylindrical roller bearing - two ribs on inner ring |
| NU | Single row cylindrical roller bearing - two ribs on outer ring |
| NJ | Single row cylindrical roller bearing - two ribs on outer ring one rib on inner |
| NF | Single row cylindrical roller bearing - two ribs on inner ring one rib on outer |
| NUP | Single row cylindrical roller bearing - two ribs on outer ring one rib + one loose rib on inner |
| NP | Single row cylindrical roller bearing - two ribs on inner ring one rib + one loose rib on outer |
| NC | Single row cylindrical roller bearing - two ribs on each ring |
| NU2 | Single row cylindrical roller bearing - two ribs on outer ring - Extra wide series |
| NU3 | Double row cylindrical roller bearing - two ribs on outer ring |
| NJ3 | Double row cylindrical roller bearing - two ribs on outer ring one rib on inner |
| NUP3 | Double row cylindrical roller bearing - two ribs on outer ring one rib + one loose on inner |
| RNU | Outer, cage and rollers assembly only - two ribs on outer ring |
| RNF | Inner, cage and rollers assembly only - two ribs on inner ring |

## 2 — DIMENSION SERIES

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 10 | 10 | 3 | 03 |
| 2 | 02 | 4 | 04 |

## 16 — BORE CODE

00 - 10mm
01 - 12mm
02 - 15mm
03 - 17mm

04 upwards, multiply by 5 to obtain bore size in mm.

## E — DESIGN FEATURE

| | |
|---|---|
| E | Higher Radial Load Rating |
| EE | Higher Load Rating plus Improved internal design feature giving greater axial load carrying capability. Note: All standard products will be with interchangeable rings and P6 tolerances. |

## K — TAPERED BORE

| | |
|---|---|
| K | Tapered bore 1 : 12 |

## NR — STANDARD VARIANT

See list of STANDARD VARIANT CODES on Appendix 2 – Page 34

## M — CAGE CODES

See list of CAGE TYPE CODES on Appendix 1 – Page 32

## P6 — PRECISION GRADE

| | |
|---|---|
| P6 | ABEC 3 Tolerances or ISO Tolerance Class 6 (Used for some current production in conjunction with interchangeable rings) |
| X | Same as for P6 above but only used for bearings with outside diameter greater than 110mm. |
| T | Motor Traction Specification (PDS Q28) |

## C2 — INTERNAL CLEARANCE

| | |
|---|---|
| C2 | Radial clearance less than Normal - marked '0' or 'C2' |
| CN | Normal grade of radial internal clearance - not marked or marked 'CN' |
| C3 | Radial internal clearance greater than Normal - marked '000' or 'C3' |
| C4 | Radial internal clearance greater than C3 - marked '0000' or 'C4' |
| C5 | Radial internal clearance greater than C4 - marked '00000' or 'C5' |
| R* | Special radial internal clearance where * denotes mean figure in μm |

# LRJ 4 K NR M C2 EP

| | | |
|---|---|---|
| **LRJ** | **TYPE** | XLRJ; LRJ; MRJ<br>Single row cylindrical roller bearing - two ribs on inner ring<br>Extra light, Light & Medium series<br>LLRJ; MMRJ<br>Single row cylindrical roller bearing - two ribs on outer ring<br>Light & Medium series<br>MMRJA<br>Single row cylindrical roller bearing - two ribs on outer ring<br>one rib on inner - Medium series<br>XLRJA; LRJA; MRJA<br>Single row cylindrical roller bearing - two ribs on inner ring<br>one rib on outer - Extra light; Light & Medium series<br>MMRJB<br>Single row cylindrical roller bearing - two ribs on outer ring<br>one rib + one loose rib on inner - Medium series<br>XLLRJN; LLRJN; MMRJN<br>Single row cylindrical roller bearing - two ribs on each ring<br>Extra light; Light & Medium series |
| **4** | **BORE CODE** | 4 The bore code shall be numeric and comprise the nominal inch bore size as fractions and integers ie. 1/2; 2; 3.1/2<br>4E E was used to denote inch series bearings with 4 inches bore and over. Now only used when there is no other distinguishing symbol within a bearing designation. |
| **K** | **TAPERED BORE** | K Tapered bore 1 : 12 |
| **NR** | **STANDARD VARIANT** | See list of STANDARD VARIANT CODES on Appendix 2 – Page 34 |
| **M** | **CAGE CODES** | See list of CAGE TYPE CODES on Appendix 1 – Page 32 |
| **C2** | **INTERNAL CLEARANCE** | C2 Radial clearance less than Normal - marked '0' or 'C2'<br>CN Normal grade of radial internal clearance - not marked or marked 'CN'<br>C3 Radial internal clearance greater than Normal - marked '000' or 'C3'<br>C4 Radial internal clearance greater than C3 - marked '0000' or 'C4'<br>C5 Radial internal clearance greater than C4 - marked '00000' or 'C5'<br>R* Special radial internal clearance (* denotes mean figure in μm) |
| **EP** | **PRECISION GRADE** | ELEC "Electric" standard<br>EP Precision grade dedicated to Inch series bearings<br>EP1 ABEC1 tolerances<br>P6E Electric Motor Bearing tolerances (ISO Tolerance class 6) and special radial internal clearances<br>T Motor Traction Specification (PDS Q28) |

# *Metric series double row spherical roller bearings*

| 2 | 22 | 15 | E | X1 | K | M | W33 | C3 | U22 | R* |
|---|---|---|---|---|---|---|---|---|---|---|

## 2 — TYPE

Type Code 2 - Spherical roller bearing

## 22 — DIMENSION SERIES

Digits 2 and 3 represent the ISO DIMENSION SERIES as described below.

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 30 | 30 | 22 | 22 |
| 40 | 40 | 32 | 32 |
| 31 | 31 | 13 | 13 |
| 41 | 41 | 23 | 23 |

## 15 — BORE CODE

Digits 4 and 5 combined represent the BORE CODE.
The BORE CODE multiplied by 5 results in the bore size in mm.
eg. Bore Code = 15; Bore Diameter = 15 x 5 = 75mm.

## E — DESIGN FEATURE

E Higher Radial Load Rating

## X1 — DESIGN FEATURE

X1 Extended outer ring
X2 Extended inner ring

## K — TAPERED BORE

K Tapered bore 1 : 12

## M — CAGE CODES

For E-type bearings
No suffix - Two piece Polyamide cage - TN type
M - 1-piece rolling element centred machined brass cage
J - 2-piece rolling element centred pressed steel cage
For non-E-type bearings
J - 2-piece rolling pressed steel cage (1-piece pressed steel for 213 series)
M - 2-piece rolling element centred brass cage
M - 1-piece outer ring centred brass cage for 213 series
MB - 2-piece or 1-piece inner ring centred brass cage
MA - 2-piece outer ring centred brass cage

## W33 — LUBRICATION and O.D. SPECIALITY FEATURES

W33 Lubrication holes and grooves in outer ring
E5 Lubrication holes and grooves in inner ring
E7 E5 + W33

## C3 — INTERNAL CLEARANCE

C2 Radial clearance less than Normal - marked 'C2'
CN Normal grade of radial internal clearance - marked 'CN'
C3 Radial internal clearance greater than Normal - marked 'C3'
C4 Radial internal clearance greater than C3 - marked 'C4'
C5 Radial internal clearance greater than C4 - marked 'C5'
(Not used if R* or R*/* is included to denote a special internal clearance)

## U22 — QUALITY FEATURE

Special quality control specification

## R* — SPECIAL INTERNAL CLEARANCE

R* Special radial internal clearance (* denotes mean figure in µm)
Not used if C2; CN etc. specifies a catalogue clearances)

Note: R*/* may appear on bearings already in use where */* represent max. and min. values in µm.

Bearings with tapered bores can be supplied with adapter sleeve, locking nut and washer (designated H----).
Typical designations for bearing with adapter sleeve would be 22212K + H312 or 22312K + H312.

## *Designation Systems*

**2 23 26 E K VB C4**

| | | |
|---|---|---|
| **2** | **TYPE** | Type Code 2 - Spherical roller bearing |
| **23** | **DIMENSION SERIES** | Digits 2 and 3 represent the ISO DIMENSION SERIES as described below.<br>RHP / ISO<br>21 / 21<br>22 / 22<br>23 / 23 |
| **26** | **BORE CODE** | Digits 4 and 5 combined represent the BORE CODE.<br>The BORE CODE multiplied by 5 results in the bore size in mm.<br>eg. Bore Code = 26; Bore Diameter = 26 x 5 = 130mm. |
| **E** | **DESIGN FEATURE** | E Higher Radial Load Rating |
| **K** | **TAPERED BORE** | K Tapered bore 1 : 12 |
| **VB** | **CAPABILITY FEATURE** | VB Vibratory application specification which covers these features:<br>1-piece rolling element centred machined brass cage<br>Outer ring has lubricating holes with interconnecting groove on O.D. (as W33)<br>C4 Radial internal clearance greater than C3 and with reduced tolerance band<br>*Note: (C4 Radial internal clearance with reduced tolerance band supplied as standard) |
| **C4** | **INTERNAL CLEARANCE** | C4 Standard - see Note above*<br>If not Standard<br>CN Normal grade of radial internal clearance with reduced tolerance band<br>C3 Radial internal clearance greater than Normal and with reduced tolerance band |

**LSN 10 C2**

**BALL BEARING SERIES**
Available in Inch dimensions only

**RLSN 10 C2**

**ROLLER BEARING SERIES**
Available in Inch dimensions only

---

**LSN**

**BALL BEARING TYPE and SERIES**

| | |
|---|---|
| LSN | Light series externally aligning ball bearing with seating ring. |
| MSN | Medium series externally aligning ball bearing with seating ring. |
| LSW | Light series externally aligning ball bearing in wide aligning housing with end covers. |
| MSW | Medium series externally aligning ball bearing in wide aligning housing with end covers. |
| LTW | Light series externally aligning ball bearing in wide aligning housing with end covers and tapered bore adapter sleeve. |
| MTW | Medium series externally aligning ball bearing in wide aligning housing with end covers and tapered bore adapter sleeve. |

**RLSN**

**ROLLER BEARING TYPE and SERIES**

| | |
|---|---|
| RLSN | Light series externally aligning roller bearing with seating ring. Two ribs on each ring. |
| RLSN-E | Light series externally aligning roller bearing with seating ring. Two ribs on outer and parallel inner ring. |
| RMSN | Medium series externally aligning roller bearing with seating ring. Two ribs on each ring. |
| RMSN-E | Medium series externally aligning roller bearing with seating ring. Two ribs on outer and parallel inner ring. |
| RLSW | Light series externally aligning roller bearing in wide aligning housing with end covers. |
| RMSW | Medium series externally aligning roller bearing in wide aligning housing with end covers. |
| RLTW | Light series externally aligning roller bearing in wide aligning housing with end covers and tapered bore adapter sleeve. |
| RMTW | Medium series externally aligning roller bearing in wide aligning housing with end covers and tapered bore adapter sleeve. |

**10**

**BORE CODE**

The bore code is simply a numeric sequence which is given as integers and fractions ie. 7; 12.1/2; 21 etc.
The reference does not represent the bore size in either inch or metric size.

**C2**

**INTERNAL CLEARANCE**

| | |
|---|---|
| C2 | Radial clearance less than Normal - marked '0' or 'C2' |
| CN | Normal grade of radial internal clearance - not marked or marked 'CN' |
| C3 | Radial internal clearance greater than Normal - marked '000' or 'C3' |
| C4 | Radial internal clearance greater than C3 - marked '0000' or 'C4' |

Note:
The standard RIC for ball bearings with cylindrical bore is CN.
Ball bearings with tapered bore and all cylindrical roller bearings are supplied with C3 clearance.
The bearing clearance grade is only marked on the bearing outer ring when fits differ from the above standard fits.

**CAGE TYPE CODE**
(Not quoted)

Note:
The ball bearings are fitted with steel (J) cages up to 6" bore (Light series) and 5.1/2" bore size (Medium series).
Above these sizes the standard ball bearing cages are machined brass.
For all roller bearings the standard cages are machined brass (M or MB).

## *Designation Systems*

## Appendices

| NSK Suffix | RHP Suffix | Definition |
|---|---|---|
| C, CD | | Steel cage for Spherical Roller Bearings |
| CAM | | 1 - Piece Brass Cage for Spherical Roller Bearing |
| F | | 2 - Piece Machined Steel Cage |
| | F | 1 - Piece, or 2 - Piece Riveted, Rolling Element Centred Machined Steel Cage |
| | FA | 1 - Piece Outer Ring Centred Machined Steel Cage |
| | FAS | 1 - Piece Outer Ring Centred Machined Steel Cage with Lubrication Groove in Locating Surface |
| | FB | 1 - Piece Inner Ring Centred Machined Steel Cage |
| | FBS | 1 - Piece Inner Ring Centred Machined Steel Cage with Lubrication Groove in Locating Surface |
| | FNA | 2 - Piece Riveted Outer Ring Centred Machined Steel Cage |
| | FNB | 2 - Piece Riveted Inner ring Centred Machined Steel Cage |
| | FP | 1 - Piece Rolling Element Centred Machined Steel Cage |
| H | | Polyamide Cage for Spherical Roller Bearings |
| H | | Pressed Steel Cage for Spherical Thrust Roller Bearing |
| J | J | 1 - Piece, or 2 - Piece Riveted, Rolling Element Centred Pressed Steel Cage |
| | JB | 1 - Piece Inner Ring Centred Pressed Steel Cage |
| JC | | 2 - Piece Pressed Cage for Quiet Applications (Single Row Radial Ball Bearings) |
| | JC | 2 - Piece Rolling Element Centred Pressed Steel Cleated (Claw) Cage |
| | JH | 1 - Piece Rolling Element Centred Pressed Steel Snap-on Type Cage |
| | JN | Multi Piece Rolling Element Centred Pressed Steel Cage with Spacer Segments |
| | JP | 1 - Piece Rolling Element Centred Pressed Steel Window Type Cage |
| JW | JW | 2 - Piece Rolling Element Centred Pressed Steel Welded Cage |
| | L | Machined Light Alloy Cage |
| | LA | 1 - Piece Outer Ring Centred Machined Light Metal Alloy Cage |
| | LAS | 1 - Piece Outer Ring Centred Machined Light Metal Alloy Cage with Lubrication Groove in Locating Surface |
| | LB | 1 - Piece Inner Ring Centred Machined Light Metal Alloy Cage |
| | LAB | 1 - Piece Inner Ring Centred Machined Light Metal Alloy Cage with Lubrication Groove in Locating Surface |
| | LNA | 2 - Piece Riveted Outer Ring Centred Machined Light Metal Alloy Cage |
| | LNB | 2 - Piece Riveted Inner Ring Centred Machined Light Metal Alloy Cage |
| M | M | 1 - Piece, or 2 - Piece Riveted, Rolling Element Centred Machined Brass Cage |
| MA | | Rivetless Brass Cage with Bent Tabs (Single Row Radial Roller Bearings) |
| | MA | 1 - Piece Outer Ring Centred Machined Brass Cage |
| | MAS | 1 - Piece Outer Ring Centred Machined Brass Cage with Lubrication Groove in Locating Surface |
| MB | | Split Crown Type Machined Brass Cage (Double Row Roller Bearings) |
| | MB | 1 - Piece Inner Ring Centred Machined Brass Cage |
| | MBS | 1 - Piece Inner Ring Centred Machined Brass Cage with Lubrication Groove in Locating Surface |
| | MNA | 2 - Piece Riveted Outer Ring Centred Machined Brass Cage |
| | MNB | 2 - Piece Riveted Inner Ring Centred Machined Brass Cage |
| MR | | 2 - Piece Roller Guided Brass Cage (Single Row Roller Bearings) |
| T | T | Machined Laminated Phenolic Cage (Single Row Radial or A. C. Bearings) |
| T | T | Glass Fibre Reinforced Nylon Cage (Radial Roller Bearings) |
| | TA | 1 - Piece Outer Ring Centred Machined Laminated Phenolic Cage |
| | TNA | 2 - Piece Riveted Outer Ring Centred Machined Laminated Phenolic Cage |
| | TB | 1 - Piece Inner Ring Centred Machined Laminated Phenolic cage |
| | TNB | 1 - Piece, or 2 - Piece Riveted, Inner Ring Centred Machined Laminated Phenolic Cage |
| | TL | Self Lubricating Cage |
| | TN | 1 - Piece Moulded Polyamide Cage |
| | TNH | 1 - Piece Rolling Element Centred Snap-on Type Moulded Polyamide Cage |
| TNG | | Polyamide Cage for Double Row Conrad Type Bearing |
| TY | | Glass Fibre Reinforced Nylon Cage (Angular Contact Type Bearings) |
| T12 | | Glass Fibre Reinforced Nylon Cage (Ball Journal, Taper Roller and Spherical Roller Bearings) |
| V | V | No Cage (Full Complement) |
| | VB | 1 - Piece Rolling Element Centred Machined Brass Cage - Spherical Roller Bearing for Vibratory Equipment |
| | VH | No Cage - Full Complement of Rollers Self Retained |
| | VM | 2 - Piece Riveted Rolling Element Centred Machined Brass Cage |
| | VMP | 2 - Piece Rolling Element Centred Machined Brass Cage - Upset Cage Bar to Retain Cage Cap. High Complement Rolling Element |
| W | | One Piece Pressed Cage |
| WS | | Pressed Steel Cage for E Type High Capacity Roller Bearing |
| Y | | Pressed Brass Cage |
| | Y | 1 - Piece Rolling Element Centred Snap-on Type Pressed Brass Cage |
| | YC | 2 - Piece Rolling Element Centred Pressed Brass Cleated (Claw) Type Cage |

| **Omission of Cage Symbol** | O Indicates when the Cage Ref. may be omitted (NSK products only) | | | | | |
|---|---|---|---|---|---|---|
| **Cage Type** | | **J** | **JW** | **W** | **Y** | **M** |
| **Ball Bearing** | Single row radial | O | O | | | |
| | Single row angular contact | | | | | O |
| | Double row radial | | | O | | |
| | Double row angular contact | | | O | | |
| | Self aligning | | | O | | |
| | Thrust | | | O | | |
| | Magneto | | | | O | |
| **Roller Bearing** | Tapered | | | O | | |
| | Cylindrical<br>*But 02, 03, 04, 22 and 23 must carry “M” symbol | | | | | O* |

# *Standard Variant Codes (all bearings)*

| NSK Suffix | RHP Suffix | Variant |
|---|---|---|
| N | N | Snap ring groove |
| NX | | Special snap ring groove dimensions (i.e. NX1, NX2 etc for different special ring groove dimensions) |
| NR | NR | Snap ring groove and snap ring |
| Z | Z | Single shield |
| | ZR | Single shield - parallel O/dia. inner |
| ZZ | -2Z | Doubled shielded |
| ZS | | Single shield (Retained by circlip in outer ring - usually for miniature ball bearings) |
| ZZS | | Double shield (Retained by circlip in outer ring - usually for miniature ball bearings) |
| | -2ZR | Double shielded - parallel O/dia. inner |
| ZN | ZN | Single shield with snap ring groove on opposite side to shield |
| | ZRN | Single shield - parallel O/dia. inner ring - with snap ring groove on opposite side to shield |
| ZNR | ZNR | Single shield with snap ring groove and snap ring on opposite side to shield |
| | ZRNR | Single shield - parallel O/dia. inner ring - with snap ring groove and snap ring on opposite side to shield |
| NZ | ZNB | Single shield with snap ring groove on same side as shield |
| | ZRNB | Single shield - parallel O/dia. inner ring - snap ring groove on same side as shield |
| NRZ | ZNBR | Single shield - snap ring groove and snap ring on same side as shield |
| | ZRNBR | Single shield - parallel O/dia. inner ring - with snap ring groove and snap ring on same side as shield |
| RS/D/DU | RS | Single seal |
| | RSR | Single seal - parallel O/dia. inner ring |
| 2RS/DD/DDU | -2RS | Double sealed |
| DW | | Single light contact seal - small bore metric radial ball bearings |
| DDW | | Double light contact seal - small bore metric radial ball bearings |
| TS | | Single contact type Teflon seal - usually for miniature ball bearings |
| TTS | | Double contact type Teflon seal - usually for miniature ball bearings |
| V | | Single sealed with removable rubber non-contact type seal |
| VV | | Double sealed with removable rubber non-contact type seal |
| | -2RSR | Double sealed - parallel O/dia. inner ring |
| | RSN | Single seal with snap ring groove on opposite side to seal |
| | RSRN | Single seal - parallel O/dia. inner ring - with snap ring groove on opposite side to seal |
| | RSNR | Single seal with snap ring groove and snap ring on opposite side to seal |
| | RSRNR | Single seal - parallel O/dia. inner ring - with snap ring groove and snap ring on opposite side to seal |
| | RSNB | Single seal with snap ring groove on same side as seal |
| | RSRNB | Single seal - parallel O/dia. inner ring - with snap ring groove on same side as seal |
| | RSNBR | Single seal with snap ring groove and snap ring on same side as seal |
| | RSRNBR | Single seal - parallel O/dia. inner ring - with snap ring groove and snap ring on same side as seal |
| | RSZ | Single seal, single shield |
| | RSRZ | Single seal - parallel O/dia. inner ring - and single shield |
| | RSZN | Single seal, single shield with snap ring groove on same side as shield |
| | RSRZN | Single seal - parallel O/dia. inner ring - single shield with snap ring groove on same side as shield |
| | RSZNR | Single seal, single shield with snap ring groove and snap ring on same side as shield |
| | RSRZNR | Single seal - parallel O/dia. inner ring - single shield with snap ring groove and snap ring on same side as shield |
| | RSZNB | Single seal, single shield with snap ring groove on same side as seal |
| | RSRZNB | Single seal - parallel O/dia. inner ring - single shield with snap ring groove on same side as seal |
| | RSZNBR | Single seal, single shield with snap ring groove and snap ring on same side as seal |
| | RSRZNBR | Single seal - parallel O/dia. inner ring - single shield with snap ring groove and snap ring on same side as seal |

**DU* DDU V* VV* type seals (Where * represents a numeric suffix)**

| Suffix | Definition |
|---|---|
| 2 | DU type seal without air vent |
| 5 | DU and V type seals made from Buna N material |
| 7 | DU and V type Viton seal |
| 8 | DU and V type Polyacrylic seal |
| 9 | DU and V type seal made from Silicone rubber |
| 28 | DU type seal made from Acryl Ester rubber without air vents |

## *Designation Systems*

# *Mounting configurations for NSK and RHP single row angular contact ball bearings*

| NSK Suffix | RHP Suffix | Configuration |
|---|---|---|
| DB | DB | Matched pair - Back to Back configuration |
| DF | DF | Matched pair - Face to Face configuration |
| DT | DT | Matched pair - Tandem configuration |
| DBD | 2TB | Matched set of 3 - Tandem pair mounted Back to Back with a Single bearing |
| DFD | 2TF | Matched set of 3 - Tandem pair mounted Face to Face with a Single bearing |
| DTD | 3T | Matched set of 3 bearings mounted in Tandem configuration |
| DBB | QB | Matched set of 4 - Tandem pair mounted Back to Back with Tandem pair |
| DFF | QF | Matched set of 4 - Tandem pair mounted Face to Face with Tandem pair |
| DTT | 4T | Matched set of 4 bearings mounted in Tandem configuration |
| DBT | 3TB | Matched set of 4 - 3 bearings in Tandem mounted Back to Back with a Single bearing |
| DFT | 3TF | Matched set of 4 - 3 bearings in Tandem mounted Face to Face with a Single bearing |
| SU | SU | Single bearing Universally faced for use in multiple sets mounted in any configuration |
| DU | DU | Universally faced pair of identical bearings for use in DB, DF or DT configuration |
| G | U | Any combination of 2 bearings can be used. (Both sides are ground for matching) |
| DR | D | 2 bearings mounted side by side but with no face control |

RHP

# *Metric series angular contact ball bearings*

| | 7 | 0 | 10 | | C | T | | DU | M | | P4 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

## CONSTRUCTION

| | |
|---|---|
| ● | Normal range |
| X | Small ball "EXCEL" range |
| ● | BETN range |
| F | Flanged type range |
| J | Double counterbore type |

## 7 — TYPE

| | |
|---|---|
| 7 | Single row angular contact ball bearing |

## 0 — DIMENSION SERIES

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 9 | 19 | 2 | 02 |
| 0 | 10 | 3 | 03 |

## 10 — BORE CODE

| | |
|---|---|
| 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm | 04 upwards, multiply by 5 to obtain bore size in mm. |

## CONSTRUCTION

| | |
|---|---|
| ● | Normal type |
| R | Reverse type |
| S | Ceramic ball type |

## C — CONTACT ANGLE

| | | | |
|---|---|---|---|
| C | 15˚ | A | 30˚ |
| ● | 20˚ | B | 40˚ |
| E | 25˚ | | |

## T — CAGE MATERIAL

| | | | |
|---|---|---|---|
| T/ET | Phenolic resin | TN/TNH/ETN | Polyamide |
| M | Brass | | |
| L | Aluminium | | |

## LOCATION

| | |
|---|---|
| ● | Outer ring guided Phenolic cages |
| A | Outer ring guided cages except Phenolic |
| B | Inner ring guided |

## DU — GROUPING

| | |
|---|---|
| SU | Single universal |
| DU, DB, DF, DT | Paired unit |
| 3U, 3T, 2TB, 2TF | Triple set |
| 3TB, 3TF | Quad set |
| QB, QF, QU | Quad set |

## M — PRELOAD

| | |
|---|---|
| S - Slack | M - Medium |
| F - Flush | H - Heavy |
| X - Extra light | G** - Special Preload |
| L - Light | A** - Special axial clearance |

## SPECIAL PRECISION

| | |
|---|---|
| K5 | Special Precision. Applies only to single bearings |

## P4 — PRECISION GRADE

| RHP | ISO Class | ABEC |
|---|---|---|
| P0 | Normal | 1 |
| P6 | 6 | 3 |
| P5 | 5 | 5 |
| P4 | 4 | 7 |
| P3 | Dimensional accuracy P4. Running accuracy P2 | |
| P2 | 2 | 9 |

## SPECIAL REQUIREMENTS

Refer to RHP for details

● Denotes standard feature, no indicator necessary

** Denotes mean figure in µm

| 6 | 0 | 10 | | | T | B | CN | P4 | |
|---|---|---|---|---|---|---|---|---|---|

## 6 — TYPE

| | |
|---|---|
| 6 | Single row radial ball bearing |

## 0 — DIMENSION SERIES

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 9 | 19 | 2 | 02 |
| 0 | 10 | 3 | 03 |

## 10 — BORE CODE

| | |
|---|---|
| 00 - 10mm | 04 upwards, multiply by 5 to obtain bore size in mm. |
| 01 - 12mm | |
| 02 - 15mm | |
| 03 - 17mm | |

## CONSTRUCTION

| | |
|---|---|
| ● | Normal type |
| S | Ceramic ball type |

## SEALING ARRANGEMENT

| | |
|---|---|
| Z | Single shield |
| -2Z | Double shield |
| RS | Single seal |
| -2RS | Double seal |

## T — CAGE MATERIAL

| | |
|---|---|
| T | Phenolic resin |
| M | Brass |
| L | Aluminium |
| TN/TNH | Polyamide |

## B — LOCATION

| | |
|---|---|
| A | Outer ring guided |
| B | Inner ring guided |
| BH | Inner ring guided |

## CN — INTERNAL CLEARANCE

| | |
|---|---|
| Standard R.I.C. | C1 |
| | CN |
| | C2 |
| | C3 |
| | C4 |
| Special R.I.C. | R** |
| Special Axial Clearance | A** |

## P4 — PRECISION GRADE

| RHP | ISO Class | ABEC |
|---|---|---|
| P0 | Normal | 1 |
| P6 | 6 | 3 |
| P5 | 5 | 5 |
| P4 | 4 | 7 |
| P3 | Dimensional accuracy P4. Running accuracy P2 | |
| P2 | 2 | 9 |

## SPECIAL REQUIREMENTS

Refer to RHP for details

● Denotes standard feature, no indicator necessary

** Denotes mean figure in µm

Note: For further details on availability consult RHP

# BSB 025 062 DU M P3

## BSB — TYPE

| | |
|---|---|
| BSB | Ballscrew support bearing |
| BSCU | Cartridge unit |
| BSPB | Pillow block unit |

## DIMENSION SERIES

| RHP | ISO |
|---|---|
| ● | Non ISO |
| 2 | 02 |
| 3 | 03 |

## 025 for Brgs, 25 for Units — BORE CODE

| RHP METRIC | RHP INCH |
|---|---|
| Size in mm. | Nom size in 100'ths of an inch<br>e.g. 150 = 1.1/2" |

## 062 — O.D. CODE

For BSB
For BSCU
For BSPB

| RHP METRIC | RHP INCH |
|---|---|
| Size in mm. (Except for I.S.O. Series)<br>Housing diameter in mm.<br>Base to bore centreline height in mm. | ● |

## DU — GROUPING

| | |
|---|---|
| SU | Single universal |
| DU, DB, DF, DT | Paired unit |
| 3U, 3T, 2TB, 2TF | Triple set |
| 3TB, 3TF | Quad set |
| QB, QF, QU | Quad set |

## M — PRELOAD

| RHP | LEVEL |
|---|---|
| L | Light - Metric series |
| M | Medium - Metric series |
| H | Heavy - Metric series |
| H | Standard Preload - Inch Series |
| G** | Special Preload |

## SPECIAL PRECISION

| | |
|---|---|
| K5 | Special Precision. Applies only to single bearings |

## P3 — PRECISION GRADE

Dimensional accuracy P4. Running accuracy P2.

● Denotes standard feature, no indicator necessary

** Denotes mean figure in µm

# N 10 16 M C1 P5

## N — TYPE

| | |
|---|---|
| | Single row cylindrical roller bearing |
| N | - two ribs on inner, plain outer |
| NU | - two ribs on outer, plain inner |

## 10 — DIMENSION SERIES

| RHP | ISO | RHP | ISO |
|---|---|---|---|
| 19 | 19 | 2 | 02 |
| 10 | 10 | 3 | 03 |

## 16 — BORE CODE

| | |
|---|---|
| 00 - 10mm | 04 upwards, multiply by 5 to obtain bore size in mm. |
| 01 - 12mm | |
| 02 - 15mm | |
| 03 - 17mm | |

## M — CAGE CODES

| | |
|---|---|
| M | Machined brass locate rolling elements |
| MA | Machined brass locate bore of outer ring |
| MB | Machined brass locate O.D. of inner ring |
| MNB | Machined brass - 2 piece riveted - located on O.D. of inner ring |
| J | Pressed steel located on rolling elements |

## C1 — INTERNAL CLEARANCE

| | |
|---|---|
| Standard R.I.C. | C1 |
| | CN |
| | C2 |
| | C3 |
| | C4 |
| Special R.I.C. | R** |

## P5 — PRECISION GRADE

| RHP | ISO Class | ABEC |
|---|---|---|
| P5 | 5 | 5 |

** Denotes mean figure in µm

Note: For further details on availability consult RHP

# NN 30 10 K TN SP W33 C1

| | | | |
|---|---|---|---|
| **NN** | **TYPE** | Double row roller bearing | |
| **30** | **DIMENSION SERIES** | RHP: 30 | ISO: 30 |
| **10** | **BORE CODE** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm | 04 upwards, multiply by 5 to obtain bore size in mm. |
| **K** | **CONSTRUCTION FEATURE** | Tapered bore | |
| **TN** | **CAGE MATERIAL AND LOCATION** | Carbon fibre reinforced polyamide - rolling element guided | |
| **SP** | **PRECISION GRADE** | SP<br>UP | Special precision<br>Ultra precision |
| **W33** | **CONSTRUCTION FEATURE** | Lubricating groove and 3 radial holes in outer ring | |
| **C1** | **INTERNAL CLEARANCE** | Standard R.I.C. | C1<br>C2 |

NSK

*Mounted bearing units*

# UC P 2 09 -26S

| | | |
|---|---|---|
| **UC** | **INSERT TYPE** | UC/UB - Set Screw Lock<br>EW/EN - Eccentric Collar Lock<br>UK - Taper Sleeve Lock |
| **P** | **HOUSING TYPE** | P/IP/PH/PA/EP/LP - Cast Iron Pillow Block Units<br>F/FC/FS/FL/FA/FK - Cast Iron Flanged Units<br>PF/PFL/PP - Pressed Steel Housing<br>T/C/RP/PPR/LF/EH/BF - Misc. |
| **2** | **DIAMETER SERIES** | 2 - Light Series<br>3 - Medium Series |
| **09** | **BORE CODE (METRIC)** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |
| | | NOTE - If metric bore then the information below is not applicable |

THE LETTER 'R' IS INCLUDED AFTER THE 'BORE CODE' WHEN THE UNITS ARE MADE IN THE RHP FACTORIES (eg. UCP209R-26S)

| | | |
|---|---|---|
| **-26S** | **SEPARATOR WITH IMPERIAL CODE** | Imperial Bore Diameter 1/2" to 4" inclusive denoted in 1/16" units<br>(e.g. Bore Code 26 = 26/16 = 1.625 = 1.5/8" Bore) |

# UC 2 08 -24S

| | | |
|---|---|---|
| **UC** | **INSERT TYPE** | UC/UB - Set Screw Lock<br>EW/EN - Eccentric Collar Lock<br>UK - Taper Sleeve Lock |
| **2** | **DIAMETER SERIES** | 2 - Light Series<br>3 - Medium Series |
| **08** | **BORE CODE (METRIC)** | 00 - 10mm<br>01 - 12mm<br>02 - 15mm<br>03 - 17mm<br>04 upwards, multiply by 5 to obtain bore size in mm. |
| | NOTE - If metric bore then the information below is not applicable | |
| | THE LETTER 'R' IS INCLUDED AFTER THE 'BORE CODE' WHEN THE UNITS ARE MADE IN THE RHP FACTORIES (eg. UCP208R-24S) | |
| **-24S** | **SEPARATOR WITH IMPERIAL CODE** | Imperial Bore Diameter 1/2" to 4" inclusive denoted in 1/16" units<br>(e.g. Bore Code 24 = 24/16 = 1.50 = 1.1/2" Bore) |

RHP

# *Standard Self-Lube® bearing units (excluding taper lock)*

**J NP 45 DEC FS**

| | | |
|---|---|---|
| **J** | **PREFIX CHARACTER** | No Prefix - Standard Product<br>T - Triple Lip Seal<br>J - Reverse Outer Ring Assembly<br>(ie. Outer Ring Grease Groove same side as Locking End of Inner Ring) |
| **NP** | **HOUSING TYPE** | NP/SL/MP/CNP/SNP - Cast Iron Pillow Block Units<br>SF/MSF/MSFT/LFTC/FC/MFC - Cast Iron Flanged Units<br>ST/MST - Cast Iron Take Up Units<br>BT/SLC/MSC/SCHB/SCH - Misc. Units<br>SLFE/SLFT/SLFL/LPB/LPBR - Pressed Steel Housings |
| **45** | **NOMINAL BORE DIAMETER**<br>(Imperial & Metric) | Metric Bore Diameter 12 to 100 inclusive denoted in mm.<br>Imperial Bore Diameter 1/2" to 4" inclusive denoted in inches |
| **DEC** | **SHAFT LOCKING TYPE & INNER RING LENGTH INDICATOR** | No character - Set Screw Lock - Long Inner Ring<br>A - Set Screw Lock - Short inner ring<br>DEC - Eccentric collar lock with long inner ring<br>EC - Eccentric collar lock with short inner ring |
| **FS** | **SUFFIX CHARACTERS**<br>(Only the main ones listed) | J - METAL CAGE FITTED<br>MS44 - High temperature insert (+ 150˚ C max.) - D4M marked on box<br>MS33 - High temperature insert (-55˚ C min.) - D3M marked on box<br>FS - FLINGER SEALS FITTED<br>2Z - SHIELDS FITTED<br>L - Larger than normal unit fitted for the basic bore size<br>R - Smaller than normal unit fitted for the basic bore size<br>Note: A combination of suffix characters may apply (eg. 2ZFS) |

**NP 10 45 - 1.1/2 K**

| | | |
|---|---|---|
| **NP** | **HOUSING TYPE** | NP/MP - Cast Iron Pillow Block Units<br>MSF/MSFT - Cast Iron Flanged Units |
| **10** | **OUTER RING TYPE** | 10 - Light Series - Outer Ring Spherical O.D. |
| **45** | **BASIC GROUP INDICATOR** | 25 to 55 inclusive |
| **-** | **SEPARATING DIGIT** | Separates Basic Group from Taper Sleeve Bore Diameter |
| **1.1/2** | **NOMINAL BORE DIAMETER** (Imperial & Metric) | Metric Bore Diameter 20 to 50 inclusive denoted in mm.<br>Imperial Bore Diameter 3/4" to 2" inclusive denoted in inches |
| **K** | | K Tapered bore inner ring - sleeve fitted |

# NP 10 45 K

| | | |
|---|---|---|
| **NP** | **HOUSING TYPE** | NP/MP - Cast Iron Pillow Block Units<br>MSF/MSFT - Cast Iron Flanged Units |
| **10** | **OUTER RING TYPE** | 10 - Light Series - Outer Ring Spherical O.D. |
| **45** | **BASIC GROUP INDICATOR** | 25 to 55 inclusive |
| **K** | | K Tapered bore 1 : 12 |

# *Standard Self-Lube® bearing inserts (excluding taper lock)*

| T | 10 | 45 | - | 1.5/8 | DEC | G | J |
|---|---|---|---|---|---|---|---|

| | | |
|---|---|---|
| **T** | **PREFIX CHARACTER** | No Prefix - Standard Product<br>T - Triple Lip Seal<br>J - Reverse Outer Ring Assembly<br>(ie. Outer Ring Grease Groove same side as Locking End of Inner Ring) |
| **10** | **OUTER RING TYPE** | 10 to 16 inclusive (Even Numbers only)<br>Light Series - Outer Ring Spherical O.D.<br>11 to 17 inclusive (Odd Numbers only)<br>Light Series - Outer Ring Parallel O.D.<br>22 - Extra Light Type - Outer Ring Spherical O.D.<br>23 - Extra Light Type - Outer Ring Parallel O.D.<br>30 - Medium Series - Outer Ring Spherical O.D.<br>31 - Medium Series - Outer Ring Parallel O.D. |
| **45** | **BASIC GROUP INDICATOR** | 17 to 95 inclusive |
| **-** | **SEPARATING DIGIT** | Separates Basic Group from Insert Bore Diameter |
| **1.5/8** | **NOMINAL BORE DIAMETER** (Imperial & Metric) | Metric Bore Diameter 12 to 95 inclusive denoted in mm.<br>Imperial Bore Diameter 1/2" to 4 inclusive denoted in inches |
| **DEC** | **SHAFT LOCKING TYPE & INNER RING LENGTH INDICATOR** | No character - Set Screw Lock<br>DEC - Eccentric collar lock with long inner ring<br>EC - Eccentric collar lock with short inner ring |
| **G** | **LUBRICATION FACILITY** | No Suffix - Insert cannot be re-greased<br>G - Insert can be re-greased |
| **J** | **SUFFIX CHARACTERS** (Only the main ones listed) | J - Metal cage fitted<br>MS44 - High temperature insert (+ 150˚ C max.) - D4M marked on box<br>MS33 - High temperature insert (-55˚ C min.) - D3M marked on box<br>FS - Flinger seals fitted<br>2Z - Shields fitted<br>L - Larger than normal unit fitted for the basic bore size<br>R - Smaller than normal unit fitted for the basic bore size<br>Note: A combination of suffix characters may apply (eg. 2ZFS) |

**RHP**

# 10 25 - 20 K G

| | | |
|---|---|---|
| **10** | **OUTER RING TYPE** | 10 - Light Series - Outer Ring Spherical O.D.<br>11 - Light Series - Outer Ring Parallel O.D. |
| **25** | **BASIC GROUP INDICATOR** | 25 to 55 inclusive |
| **-** | **SEPARATING DIGIT** | Separates Basic Group from Taper Sleeve Bore Diameter |
| **20** | **NOMINAL BORE DIAMETER** (Imperial & Metric) | Metric Bore Diameter 20 to 50 inclusive denoted in mm.<br>Imperial Bore Diameter 3/4" to 2" inclusive denoted in inches |
| **K** | | K Tapered bore inner ring - sleeve fitted |
| **G** | **LUBRICATION FACILITY** | No Suffix - Insert cannot be re-greased<br>G - Insert can be re-greased |

# *Standard Taper Lock Self-Lube® bearing inserts - no taper sleeve fitted*

**10 25 K G**

| | | | |
|---|---|---|---|
| **10** | **OUTER RING TYPE** | 10 | - Light Series - Outer Ring Spherical O.D. |
| | | 11 | - Light Series - Outer Ring Parallel O.D. |
| **25** | **BASIC GROUP INDICATOR** | 25 to 55 inclusive | |
| **K** | | K | Tapered bore 1 : 12 |
| **G** | **LUBRICATION FACILITY** | | No Suffix - Insert cannot be re-greased |
| | | G | - Insert can be re-greased |

## *Designation Systems*

**25 P**

| | | |
|---|---|---|
| **25** | **BASIC GROUP INDICATOR** | 20 to 60 inclusive |
| **P** | | Identifies Protection |

# RHP *Standard Silver-Lube bearing units (Set Screw Lock Type)*

**P NP 25 CR**

| | | |
|---|---|---|
| **P** | **PREFIX CHARACTER** | P - Identifies Plastic Housing |
| **NP** | **HOUSING TYPE** | NP - Pillow Block Units<br>SF - Four Bolt Flanged Units<br>SFT - Two Bolt Flanged Units |
| **25** | **NOMINAL BORE DIAMETER** (Imperial & Metric) | Metric Bore Diameter 20 to 35 inclusive denoted in mm.<br>Imperial Bore Diameter 3/4" to 1.7/16" inclusive denoted in inches |
| **CR** | **SUFFIX CHARACTERS** | CR - Identifies Corrosion Resistant Bearing Insert fitted |

## RHP *Standard Silver-Lube bearing inserts (Set Screw Lock Type)*

| J | 10 | 25 | - | 25 | G | CR |
|---|---|---|---|---|---|---|

| | | |
|---|---|---|
| **J** | **PREFIX CHARACTER** | J - Reverse Outer Ring Assembly<br>(ie. Lubrication Hole same side as Locking End of Inner Ring) |
| **10** | **OUTER RING TYPE** | 10 - Light Series - Outer Ring Spherical O.D. |
| **25** | **BASIC GROUP INDICATOR** | 20 to 35 inclusive |
| **-** | **SEPARATING DIGIT** | Separates Basic Group from Nominal Bore Diameter |
| **25** | **NOMINAL BORE DIAMETER**<br>(Imperial & Metric) | Metric Bore Diameter 20 to 35 inclusive denoted in mm.<br>Imperial Bore Diameter 3/4" to 1.7/16" inclusive denoted in inches |
| **G** | **LUBRICATION FACILITY** | G - Insert can be re-greased |
| **CR** | **SUFFIX CHARACTERS** | CR - Identifies Corrosion Resistant Bearing Insert |

**P 25 P**

| | | |
|---|---|---|
| **P** | **PREFIX CHARACTER** | P - Identifies Plastic End Cover |
| **25** | **BASIC GROUP INDICATOR** | 20 to 35 inclusive |
| **P** | **SUFFIX CHARACTER** | P - Identifies Protection |

RHP

# *Disc Harrow bearings (Square and Round bore)*

**PD NF 1 40 - 1.1/2 G**

| | | |
|---|---|---|
| **PD** | **OUTER RING WIDTH** | PD - Wide Outer Ring<br>D - Narrow Outer Ring |
| **NF** | **OUTER RING O.D. FORM** | NF - Outer Ring Spherical O.D.<br>F - Outer Ring Parallel O.D. |
| **1** | **INNER RING WIDTH** | 1 - Narrow Inner Ring<br>2 - Wide Inner Ring |
| **40** | **BASIC GROUP INDICATOR** | 40 to 55 inclusive |
| **-** | **SEPARATING DIGIT** | Separates Basic Group from Bore Size<br>– For Round Bores<br>/ For Square Bores |
| **1.1/2** | **NOMINAL BORE SIZE** (Imperial & Metric) | Round Bores - (Imperial). 1.3/16" to 2.3/16" inclusive<br>Round Bores - (Metric). 40mm. 45mm. and 50mm.<br>Square Bores - (Imperial). 7/8" to 1.1/2" inclusive (Across Flats) denoted in 1/8" units (eg. 7/8" = 7)<br>Square Bores - (Metric). 30mm. and 40mm. (Across Flats) denoted as 9A and 12A Respectively |
| **G** | **LUBRICATION FACILITY** | No Suffix - Insert cannot be re-greased<br>G - Insert can be re-greased |

*Notes*

*Notes*