Doc: PGD 13 (26185) WC
April 2025

भारतीय मानक मसौदा

शैल प्रकार की नीडल बियरिंग्स के लिए पहचान कोड

(IS 9619 *का पहला पुनरीक्षण*)

Draft Indian Standard

Identification Code for Shell Type Needle Bearings

(*First revision of* IS 9619)

ICS 21.100.20

Bearings Sectional Committee, PGD 13	Last date for Comment: **27 June 2025**

FOREWORD

This Indian Standard (First Revision) will be adopted by the Bureau of Indian Standards on the recommendation of the Bearings Sectional Committee and approval of the Production and General Engineering Division Council.

This standard was originally published in 1980. This revision has been brought out to align the standard with the latest technological developments and international practices.

The major changes in this revision are as follows:

a) Table 1, 2, 3 and 5 have been updated with new designs of bearing;
b) New identification code numbers have been added in clause **5.1.7** and **5.2.3**; and
c) Explanation of symbols has been added in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*).' The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

CONTENTS

Draft Indian Standard

IDENTIFICATION CODE FOR SHELL TYPE NEEDLE BEARINGS

(*First Revision*)

1 SCOPE

This standard covers identification code to describe each shell type needle bearing on the basis of dimensional and functional interchangeability and to facilitate the communication between the user and the manufacturer.

2 CLASSIFICATION

Shell type bearings shall be classified in three major groups:

Group I Radial Needle Bearings
Group II Needle Thrust Bearings
Group III Combined Needle Bearings

3 SYMBOLS

Symbols for various type of shell type needle bearings, inner ring, needle thrust bearing, combined bearings and thrust plates shall be as given in Table 1.

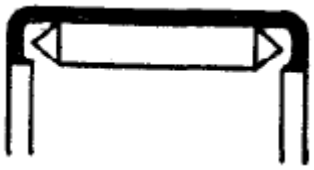
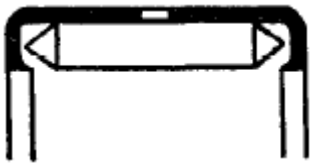
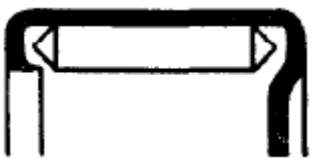
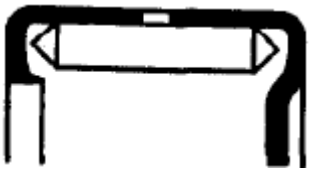
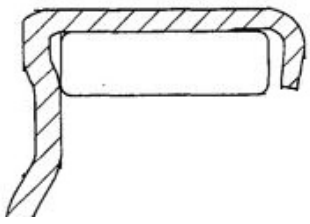
4 IDENTIFICATION CODE

4.1 Inner rings used with radial and combined needle bearings shall be identified as given in Annex A.

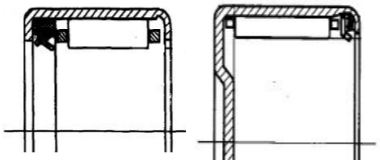
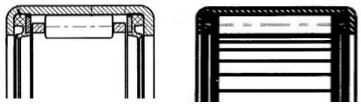
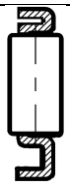
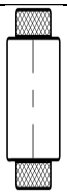
4.2 Thrust plates used with needle thrust and combined needle bearings shall be identified as given in Annex B.

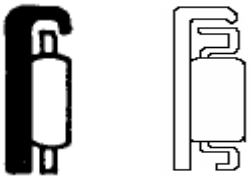
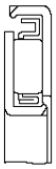
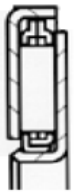
Table 1 Type Identification and Figures for Shell Type Needle Bearings, Inner Rings Thrust Plates

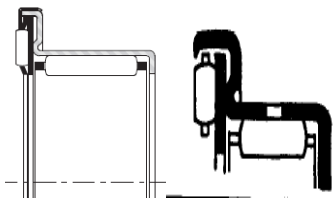
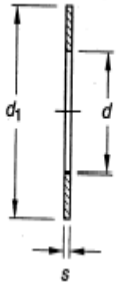
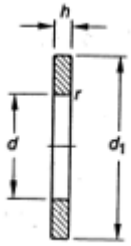
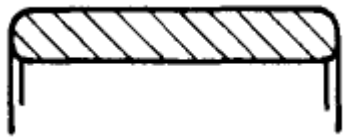
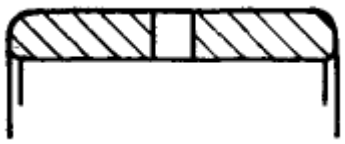
(*Clause* 3**)**

Type		Description	Figure	Symbol		
				Type	Optional Features	Supplementary Number
Group 1 - Shell Type Needle Bearing	Radial full complement retained needle bush	Both ends open		DL JL *		P
		Both end open, with oil hole		DL JL *	H	P
		One end closed		DL JLF *	F	P
		One end closed, with oil hole		DL JL *	FH	P
	Radial full complement Grease retained needle bush	Both end open		SL		P
		One end Closed		CN		P

* Indicates Inch series

	Radial, cage guided Needle Bush	Both ends open		DB JV*		P
		Both ends open, with oil hole		DB JV*	H	P
		One end Closed		DBF JVF*		P
		One end closed, with oil hole		DBF JVF*	H	P
	Needle Bush with seal at one side seal			DB	F	P E
	Needle Bush with seals at both sides			DB SL		P EE
Group II - Needle Thrust Bearing	Needle Thrust Cage Assembly	One Piece Cage – Cage having M Section Profile.		AXK		
		One pieces cage – Steel Cage having plain section		AXN		
		One pieces cage – Polyamide Cage Material		AR		

		Two Piece Cage		FNT NTA*		
	Unitized Thrust Bearings (Needle Thrust Bearings)	One piece cage assembly with one hardened steel plate at outer side.		AX AXKK		
		One piece cage assembly With One hardened steel plate at Inner side		AXKF		
		One piece cage with two hardened steel plate at both side		AXKKF		
		Two Piece cage with one hardened assembly at Outer side		FNTAK NTAK*		
		Two Piece cage with one hardened assembly at Inner side		FNTAF NTAF*		
		Two piece cage with two hardened steel plate at both side		FNTAKF NTAKF*		

Group III	Combined Bearing	Thin Shell without Thrust plate		RAX	H	
Thrust Plates		Thin Washers		CP AS TRA*		
		Thick Washers		LS GS WS		
Inner Rings		Normal		IM		
		With Oil hole		IM	C	

5 CODING SYSTEM

5.1 Radial Needle Bearings

5.1.1 Code number has been divided into two parts the basic number and the supplementary number

5.1.2 Basic number is further divided in two sections. Section I identification the type of bearing and optional features if any, by means of a group of letters. This is further followed by Section II defining boundary by a group of numerals (*see* Table 2).

Table 2 Schematic Arrangement of Complete Code Number for Shell Type Radial Needle Bearings
(*Clause* 5.1.2)

Basic Number					**Supplementary Number**
Section I		Section II			
Type	Optional Features	Boundary Dimensions			
AA	BB	(ID)		(Width)	CC
		#(ID)	#(OD)	#(Width)	

where
ID – Inner Diameter
OD – Outer Diameter

5.1.3 Supplementary number indicates the special bearing requirements by group of letters.

5.1.4 When a particular optional feature is not required, corresponding letter for that optional feature may be omitted while identifying the bearing.

5.1.5 Boundary dimensions for standard sizes shall normally be represented by two groups of numerals, first group indicating nominal shaft diameter and second group indicating nominal width of the bearing. In case of special sizes #, boundary dimensions shall be represented by three groups of numerals indicating nominal shaft diameter, housing diameter and width of the bearing respectively.

5.1.6 Symbol 'E' shall be used at the location of supplementary number while identifying a bearing having in-built oil seal. It indicates that the bearing carries oil seal at either of the ends in case of a bearing with both ends open and at open end in case of a bearing with one end closed. Symbol "EE" indicates that the bearing carries two oil seals at both ends.

5.1.7 To identify any other special requirement suitable letter symbols shall be added in supplementary number, such as 'P' shall be used to indicate a special housing tolerance choice being left to the manufacturer.

Example:

1. Needle bearing designated by a code number DL 15 12 conveys the following information:
   DL — Shell type radial needle bearing, full complement needles, both ends open
   15 — 15 mm nominal shaft diameter
   12 — 12 mm nominal width of bearing

2. Needle bearing designated by a code number JLF 12 12 conveys following information:
   JLF — Shell type radial needle bearing, full complement needles, one end closed, Inch Series
   12 — 12/16" Inch shaft diameter
   12 — 12/16" Inch width of bearing

3. Needle bearing designated by a code number DB 12 18 16 PEE conveys following information:
   - DB — Shell type radial needle bearing, cage guided needles, both ends open
   - 12 — 12 mm nominal shaft diameter
   - 18 — 18 mm nominal housing diameter
   - 16 — 16 mm nominal width of the bearing
   - P — Special housing tolerance
   - EE — Built in Oil Seals - Two Seals on Both side

4. Needle bearing designated by a code number SL 35 20 conveys following information:
   - SL — Shell type full complement Grease retained needle bearing Open Ends
   - 35 — 35 mm nominal shaft diameter
   - 20 — 20 mm nominal width of the bearing

5.2 Needle Thrust Bearings

5.2.1 The code number shall be divided into two sections. First section identifying the type of bearing by means of a group of letters. This is followed by Section II defining boundary dimensions by a group of numerals (*see* Table 3)

Table 3 Schematic Arrangement of Code Number for Shell Type Needle Thrust Bearings
(*Clause* 5.2.1)

Section I	Section II		
Type	Boundary Dimensions		
XXXXX	(ID)		(OD)
	(Thickness)	(ID)	(OD)

where
ID – Inner Diameter
OD – Outer Diameter

5.2.2 Letter symbol XXXXX shall be used in Section I to identify shell type needle thrust bearing.

5.2.3 Boundary dimensions for shell type needle thrust bearings shall be represented by two groups of numerals, first group indicating nominal shaft diameter and second group indicating nominal outside dimeter of the bearing/housing diameter.

Example:

1. Needle bearing designated by a code number AX 15 28 conveys following information:
   - AX — One piece cage assembly with one hardened steel plate at outer side.
   - 15 — 15 mm nominal shaft diameter
   - 28 — 28 mm nominal outside diameter of bearing/housing diameters
2. Needle bearing designated by a code number AXK 2 12 26 conveys following information:
   - AXK — Shell type needle thrust bearing
   - 2 — 2 mm nominal thickness

12 — 12 mm nominal Inner diameter
26 — 26 mm nominal Outer diameter

3. Needle bearing designated by NTA2031

NTA — Shell type needle thrust bearing, two piece cage, Inch series
20 — 20/16" Inch nominal Inner diameter
31 — 31/16" Inch nominal Inner diameter

4. Needle bearing designated by AXKKF6286

AXKKF — Shell type needle thrust bearing, One piece cage with two hardened steel plate at both side
62 — 62 MM nominal Inner diameter
86 — 86MM nominal Inner diameter

5.3 Combined Needle Bearings

5.3.1 The code number shall be divided into two parts, the basic number and the supplementary number.

5.3.2 The basic number shall further be divided into two sections. The first section identifying the type of bearing, optional feature if any and construction by means of a group of letters followed by a numeral. This shall further be followed by Section II defining boundary dimensions by a group of numerals (*see* Table 4).

Table 4 Schematic Arrangement of Code Number of Shell Type Combined Needle Bearings
(*Clause* 5.3.2)

Basic Number			Supplementary Number	
Section I			Section II	Special Requirements
Type	Optional Features	Construction	Boundary Dimensions	
AAA	AA	O	OO	AA

5.3.3 Supplementary number indicates the special bearing requirements by a group of letters.

5.3.4 When a particular optional feature is not required corresponding letter for that optional feature shall be omitted while identifying the bearing.

5.3.5 Symbol 'H' in 'optional feature' of Section I indicates the construction with oil hole. Also figure '7' in construction' of Section I indicates shell type construction.

5.3.6 Boundary dimensions shall be defined by a group of two numerals indicating the nominal shaft diameter.

5.3.7 In 'supplementary number' symbol 'P' shall indicate special housing tolerance whereas symbol E indicates bearing built-in oil seal.

Example:

1. Needle bearing designated by a code number RAX FH 7 25 conveys following information
   - RAX — Combined needle bearing
   - F — Closed at one end
   - H — With oil hole
   - 7 — Shell type construction
   - 25 — 25 mm nominal shaft diameter

2. Needle bearing designated by a code number RAX H 7 25 PE conveys following information:
   - RAX — Combined needle bearing
   - H — With oil hole
   - 7 — Shell type construction
   - 25 — 25 mm nominal shaft diameter
   - P — Special housing tolerance
   - E — Built-in oil seal

ANNEX A
(*Clause* 4.1)

IDENTIFICATION CODE FOR INNER RINGS USED WITH RADIAL AND COMINED SHELL TYPE NEEDLE BEARINGS

A-1 Schematic Arrangement — *see* Table 5.

Table 5 Schematic Arrangement of Code Number for Inner Rings Used with Radial and Combined Shell Type Needle Bearings
(*Clause* A-1)

Basic Number					Supplementary Number
Section I		Section II			
Type	Optional Feature	Boundary Dimensions			
AA	A	OO	OO	OO	AO

A-2 Letter symbol IM indicates type, namely inner ring for radial and combined needle bearing, in Section I of basic number.

A-3 Letter symbol C identifies the optional feature, namely oil hole in the inner ring. It may be omitted if such feature is not required.

A-4 Boundary dimensions of the inner ring are defined by three groups of numerals in Section II. They indicate nominal inside diameter. Outside diameter and width respectively.

A-5 Symbol R6 as supplementary number indicates convex inner track for the bearing. It may be omitted if not required.

Example:

Inner ring designated by code number 1M 11 15 12.4 R6 conveys following information:

1M — Inner ring for radial or combined shell type bearing
11 — 11 mm nominal inside diameter of inner ring
15 — 15 mm nominal outside diameter of inner ring
12.4 — 12.4 nominal width of inner ring
R6 — Φ 15 is convex

ANNEX B

(*Clause* 4.2)

IDENTIFICATION CODE FOR SEPARATE THRUST PLATE USED WITH SHELL TYPE NEEDLE THRUST AND COMBINED NEEDLE BEARINGS

B-1 Schematic Arrangement — *see* Table 6.

Table 6 Schematic Arrangement of Code Number for Separate Thrust Plate Used with Type Needle Thrust and Combined Needle Bearings
(*Clause* B-1)

<table>
<tr><td>Section I</td><td colspan="3">Section II</td></tr>
<tr><td rowspan="2">Type</td><td colspan="3">Boundary Dimensions</td></tr>
<tr><td colspan="3">Optional</td></tr>
<tr><td rowspan="2">AA</td><td colspan="2">(ID)</td><td>(OD)</td></tr>
<tr><td>(Thickness)</td><td>(ID)</td><td>(OD)</td></tr>
</table>

where
ID – Inner Diameter
OD – Outer Diameter

B-2 Letters in Section I indicate the type of plate namely the thrust plate used with shell type needle thrust and combined needle bearings. Whereas

CP	Thin thrust plate in thrust bearing assembly, thickness 0.8 mm unless otherwise specified
AS	Thin thrust plate in thrust bearing assembly, thickness 1 mm unless otherwise specified
TRA	Thin thrust plate, inch series.
LS	Thick washers
WS	Thick thrust plate shaft piloted
GS	Thick thrust plate housing piloted

B-3 Boundary dimensions are defined by two groups of numerals indicating nominal inside and outside diameter in case of thin plate (thickness 0.8 mm). In case of thick plate, boundary dimensions are determined by three groups of numerals indicating plate thickness, inside and outside diameter respectively.

Examples:

1. Separate thrust plate identified by code number AS 25 42 conveys following information:
   AS — Thrust plate
   15 — 15 mm nominal inside diameter of plate
   28 — 28 mm nominal outside diameter of plate

2. Separate thrust plate identified by code number CP 3 25 42 conveys following information:
   CP — Thrust plate

3 — 3 mm thickness of plate
25 — 25 mm nominal inside diameter of plate
42 — 42 mm nominal outside diameter of plate

3. Separate thrust plate identified by code number TRA 20 31 conveys following information:
   TRA — Thrust plate inch series
   20 — 20/16” Inch nominal inside diameter of plate
   31 — 31/16” Inch nominal outside diameter of plate