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प्रारंभिक मसौदा

शैल प्रकार की नीडल बियरिंग्स के लिए पहचान कोड

[IS 9619 का पहला पुनरीक्षण]

Preliminary Draft

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: 16 October 2024

NATIONAL FOREWORD

(Formal clauses will be added later on)

This standard was first published in 1980. This revision has been taken up to incorporate feedback gained through experience and other developments taken at international level in this field.

This standard was originally published in 1980.

In this revision, the following changes have been made:

- a) Normative references (2) are updated;
- b) New type of ropes has been added;
- c) Designation system for ropes has been introduced; and
- d) Test methods has been updated.

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.

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Draft Indian Standard

IDENTIFICATION CODE FOR SHELL TYPE NEEDLE BEARINGS

(First Revision)

1. SCOPE

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.

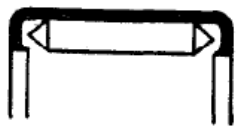
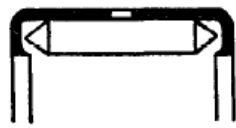
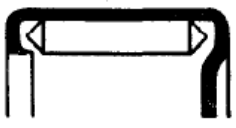
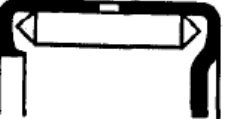

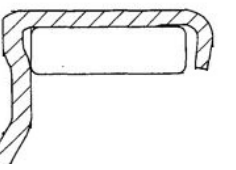
4 IDENTIFICATION CODE

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

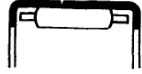

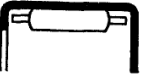

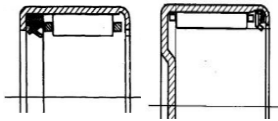



4.2 Thrust plates used with needle thrust and combined needle bearings shall be identified as given in Annex B.

Table 1 Type Identification and Figures for Shell Type Needle Bearings, Inner Rings Thrust Plates
(Clause 3)

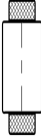

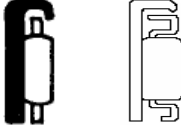




Commented [kg1]: New designations have been added to the table but have not been explained. The older designations have been explained in annexures the same shall the done for the new ones.

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

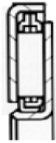
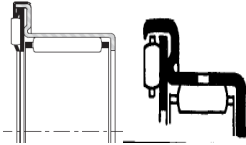
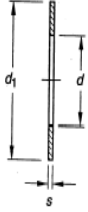
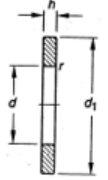

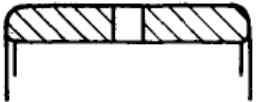
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Group II - Needle Thrust Bearing	Radial, cage guided Needle Bush	Both ends open		DB JV*		P
		Both ends open, with oil hole		DB JV*	H	P
		One end Closed		DBF JVF*		P
		One end closed, with oil hole		DBF JVF*	H	P
	Needle Bush with seal at one side seal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

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	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*		

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		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	

* Indicates Inch series

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)	

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)

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 diameter 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:

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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	

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

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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)

Section I	Section II		
Type	Boundary Dimensions		
	Optional		
AA	(ID)		(OD)
	(Thickness)	(ID)	(OD)

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