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**भारतीय मानक मसौदा**  
**घरेलू प्रयोजनों की सिलाई**  
**मशीनों के लिए सुई छड कडी — विशिष्टि**  
( आई एस 4340 का पहला पुनरीक्षण )

**DRAFT Indian Standard**  
**Needle Bar Links For Sewing Machines For**  
**Household Purposes — Specification**

*( First Revision of IS 4340)*

ICS 61.080

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**Sewing Machines**  
**Sectional Committee, MED 29**

**Last date for receipt of**  
**comments is 24 June 2022**

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**FOREWORD**

*(Adoption clauses to be added later)*

This standard was first published in 1967.

Major changes in this revision are as follows:

- a) The dimensions of the Type A needle bar link have been modified;
- b) The references have been updated;
- c) The marking clause has been revised; and
- d) The amendments issued till date have been incorporated.

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.

**DRAFT Indian Standard**

**NEEDLE BAR LINKS FOR  
SEWING MACHINES FOR HOUSEHOLD PURPOSES — SPECIFICATION**  
( *First Revision* )

**1 SCOPE**

**1.1** This standard covers the requirements for two types of needle bar links for sewing machines for household purposes.

**1.2** This standard does not deal with needle bar links used in industrial and special purpose sewing machines.

**2 REFERENCE**

The standards listed below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subjected to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

<i>IS No.</i>	<i>Title</i>
210 : 2009	Grey iron castings — Specification ( <i>fifth revision</i> )
1501 (Part 1) : 2020/ ISO 6507-1 : 2018	Metallic materials — Vickers hardness test Part 1 Test method ( <i>fifth revision</i> )
1570 (Part 2/Sec 1 ) : 1979	Schedules for wrought steels Part 2 Carbon steels (Unalloyed steels), Section 1 Wrought products (other than, wire) with specified chemical composition and related properties ( <i>first revision</i> )
IS 1500 (Part 1) : 2019/ ISO 6506-1 : 2014	Metallic materials — Brinell hardness test Part 1 Test method ( <i>fifth revision</i> )
IS 2500 (Part 1) : 2000/ ISO 2859-1 : 1999	Sampling procedures for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection ( <i>third revision</i> )
3073 : 1967	Assessment of surface roughness

**3 TERMINOLOGY**

For the purpose of this standard, the definitions given in IS 6903 shall apply.

**4 NOMENCLATURE**

For the purpose of this standard, the nomenclature as given in Fig. 1 shall apply.

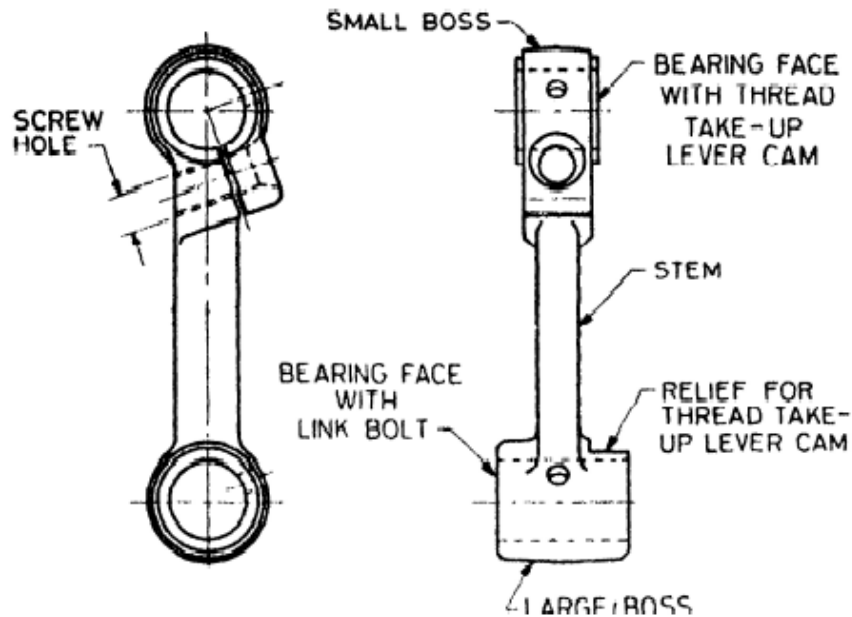


FIG. 1 NOMENCLATURE FOR NEEDLE BAR LINKS

## 5 MATERIAL

The needle bar links shall be forged from any suitable steel, such as C20 or C40 of IS 1570 (Part 2/ Sec 1) or they shall be manufactured from grey iron castings conforming to IS 210.

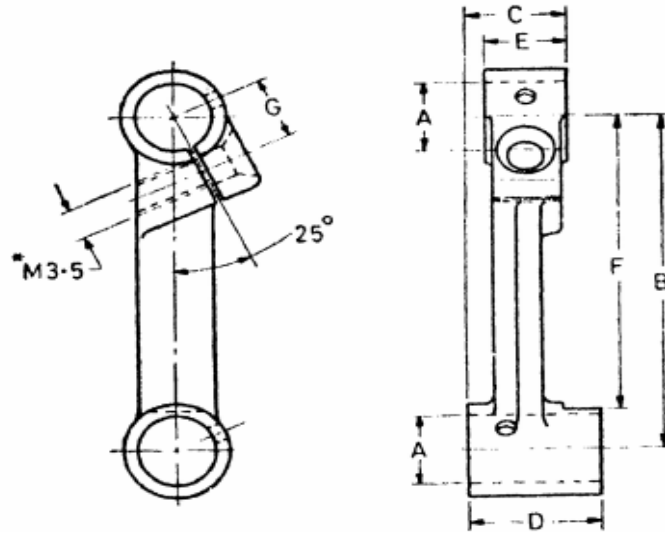
## 6 HARDNESS

**6.1** The bearing faces of needle bar links forged from steel shall be case-hardened to a depth of 0.6 mm to attain a hardness within the range of 600 to 700 HV [*see* 1501 (Part 1)/ ISO 6507-1]. The needle bar links manufactured from grey iron castings shall have a hardness of 190 to 210 HB [*see* IS 1500 (Part 1/ ISO 6506-1)].

**6.2** The stem of needle bar link forged from steel shall be kept soft with a maximum hardness value of 300 HV [*see* 1501 (Part 1)/ ISO 6507-1].

## 7 DIMENSIONS

The main dimensions of needle bar links shall be as given in Fig. 2 and Tables 1 and Fig. 3 and Table 2.



All dimensions in millimetres.

FIG. 2 NEEDLE BAR LINK, TYPE A

**Table 1 Dimensions for Needle Bar Link, Type A**  
(Clause 7)

Sl No.	Requirement	A	B	C	D	E	F	G
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	Max	7.948	39.45	10.60	14.10	8.10	34.45	7.2
ii)	Min	7.933	39.35	10.30	13.90	7.90	34.35	6.8

\*9/64" × 40 T P I threads may also be employed till the complete changeover to metric system is effective.

## 8 TOLERANCES

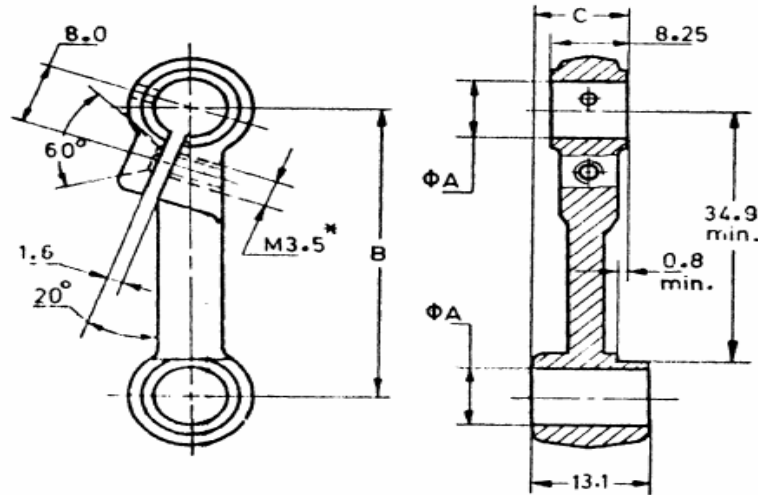
**8.1** The error in parallelism of the axes of the main holes of the needle bar link shall be within 0.2 mm per 100 mm.

**8.2** The error in parallelism of the bearing faces of the bosses of needle bar link shall be within 0.2 mm per 100 mm.

**8.3** The error in the squareness of the bearing faces of the bosses with respect to the main holes shall not exceed 0.2 mm per 100 mm.

## 9 WORKMANSHIP AND FINISH

**9.1** The main holes of needle bar link shall be precision ground to attain a minimum surface finish value of Ra 0.4 μm (see IS 3073).



All dimensions in millimetres.

FIG. 3 NEEDLE BAR LINK, TYPE B

**Table 2 Dimensions for Needle Bar Link, Type A**  
(Clause 7)

SI No.	Requirement	A	B	C
(1)	(2)	(3)	(4)	(5)
i)	Min	7.938	39.50	10.64
ii)	Max	7.951	39.65	10.85

\*4-B. A. Class – 2B medium fit threads may also be employed till the complete changeover to metric system is effective

**9.2** The bearing faces of the bosses of needle bar link shall be machined to a fine finish without any line mark.

**9.3** The components shall be chemically blackened or given any other adequate surface treatment to prevent rusting.

**9.4** The needle bar links shall be well finished without any crack, burr, rust, and black mark on any bearing diameter.

## 10 MARKING

**10.1** The needle bar links shall be marked with the manufacturer's name or trade-mark.

### 10.2 BIS Certification Mark

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

## **11 PACKING**

**11.1** Each needle bar link shall be given a suitable anti-rust coating or wrapped in vapour phase inhibitor paper (commonly known as VPI paper). The wrapped needle bar links shall be securely packed in cardboard cartons in accordance with the best prevalent trade practice. Each carton shall bear the manufacturer's name or trade-mark, the type and description of contents.

**11.1.1** The cartons may also be marked with the BIS Certification Mark.

## **12 SAMPLING**

Unless otherwise agreed to between the supplier and the purchaser sampling plan as given in Annex A shall be followed. For further information, reference may be made to IS 2500 (Part 1)/ ISO 2859-1.

**ANNEX A**

(Clause 12)

**SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY**

**A-1 SCALE OF SAMPLING**

**A-1.1 Lot**

In any consignment, all the needle bar links of the same type and manufactured from the same material under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

**A-1.2** For ascertaining the conformity of the lot to the requirements of the specification, tests shall be carried out for each lot separately. The number of needle bar links to be selected at random for this purpose shall be in accordance with column (2) and (3) of Table 3.

**Table 3 Scale of Sampling and Permissible Number of Defectives**  
(Clauses A-1.2, A-1.4, A-2.1, and A-2.2)

SI No.	No. of Needle Bar Links in the Lot <i>N</i>	For Dimensions, Tolerances and Workmanship and Finish		Sample Size for Hardness
(1)	(2)	Sample Size <i>n</i>	Permissible No. of Defectives*	(5)
i)	Up to 15	5	0	2
ii)	16 to 40	8	0	3
iii)	41 to 110	13	0	3
iv)	111 to 300	20	1	5
v)	301 to 500	32	1	6
vi)	501 to 800	50	2	8
vii)	801 to 1 300	80	3	10
viii)	1 301 and above	125	5	15

\*This ensures that lots containing one and a half percent or less defectives will be accepted most of the time.

**A-1.3** If the needle bar links are packed individually, in order to ensure the randomness of selection, random number tables shall be used. In case such tables are not available the following procedure may be adopted:

‘Starting from any needle bar link in the lot, count them in one order as 1, 2, 3,..... up to r and so on, where r is the integral part of  $N/n$  ( $N$  being the lot size and  $n$  the sample size). Each needle bar link thus counted shall be selected to constitute the sample.’



**A-1.4** If the needle bar links are packed in different cartons, a suitable number of cartons (not less than 20 percent of the total in the lot subject to a minimum of 2) shall be chosen at random. From each of the cartons so chosen, an approximately equal number of needle bar links shall be picked up from its different parts so as to obtain the required number of needle bar links specified in column (2) and (3) of Table 3.

## **A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY**

**A-2.1** The needle bar links selected according to **A-1.3** or **A-1.4** shall be examined for dimensions (*see 7*), tolerances (*see 8*), and workmanship and finish (*see 9*). If the number of needle bar links failing to meet one or more of the requirements mentioned above is less than or equal to the permissible number of defectives given in column (4) of Table 3, the lot shall be declared as conforming to the requirements of these characteristics.

**A-2.2** In the case of those lots which have been found satisfactory according to **A-2.1**, a number of needle bar links equal to the sample size indicated in column (5) of Table 3, shall be subjected to hardness test (*see 6*). Any needle bar link failing to meet the requirement for hardness shall be considered to be defective.

**A-2.2.1** If no defectives are found among the needle bar links subjected to the hardness test (*see A-2.2*), the lot shall be declared as conforming to the requirements of the specification, otherwise not.