

**BUREAU OF INDIAN STANDARDS**

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*भारतीय मानक मसौदा*

**घरेलू सिलाई मशीनें खडी दोलायमान**

**शटल — विशिष्टि**

*( आई एस 4338 का दूसरा पुनरीक्षण )*

**DRAFT Indian Standard**

**Household Sewing Machines Vertical  
Oscillating Shuttle — Specification**

*( Second Revision of IS 4338 )*

ICS 61.080

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**Sewing Machines  
Sectional Committee, MED 29**

**Last date for receipt of  
comments is 12 Aug 2022**

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**FOREWORD**

*(Adoption clauses to be added later)*

This standard was first published in 1967 and revised in 1991.

Major changes in this revision are as follows:

- a) The groove width is modified;
- b) The groove diameter is added;
- c) The hardness is revised; and
- d) The run out dimension is added.

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**

**HOUSEHOLD SEWING MACHINES VERTICAL  
OSCILLATING SHUTTLE — SPECIFICATION**

( *Second Revision* )

**1 SCOPE**

This standard covers the requirements for vertical oscillating shuttle for sewing machines for household purposes.

**2 REFERENCES**

The standards listed below contains 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>
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 1586 (Part 1) : 2018/ ISO 6508-1 : 2016	Metallic materials — Rockwell 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> )
IS 4905 : 2015/ ISO 24153: 2009	Random sampling and randomization procedures ( <i>first revision</i> )

**3 NOMENCLATURE**

**3.1** The nomenclature shall be as shown in Fig. 1.

## **4 MATERIAL**

The shuttles shall be manufactured from any suitable case-hardened steel such as 15C4 of IS 1570 (Part 2/ Sec 1).

## **5 HARDNESS**

The rim, the heel, the hook point and pin head shall be case hardened to attain a hardness value of 40 to 45 HRC, *Min* [see IS 1586 (Part 1)/ ISO 6508-1].

## **6 DIMENSIONS AND TOLERANCES**

The dimensions and tolerances shall be as shown in Fig. 2.

## **7 WORKMANSHIP AND FINISH**

**7.1** The periphery of the shuttles shall be smooth and without any sharp edges. All thread passage points of the shuttle shall be finely polished to avoid damage or breakage of thread.

**7.2** The shuttles shall be free from defects such as rust, blemishes, pits, cracks, or stains.

## **8 MARKING**

The shuttles may be marked with the manufacturer's name or trademark.

### **8.1 BIS Certification Marking**

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

## **9 PACKING**

Each shuttle shall be given a suitable antirust coating and wrapped in polyethylene bags / sheets. The wrapped shuttles shall be securely packed in strong cartons in accordance with the best prevalent trade practices. Each package shall bear the manufacturer's name or trade-mark and description of contents.

## **10 SAMPLING**

Unless otherwise agreed to between the supplier and the purchaser the sampling plan as given in Annex A shall be followed. For further information, reference may be made to IS 4905 / ISO 24153.

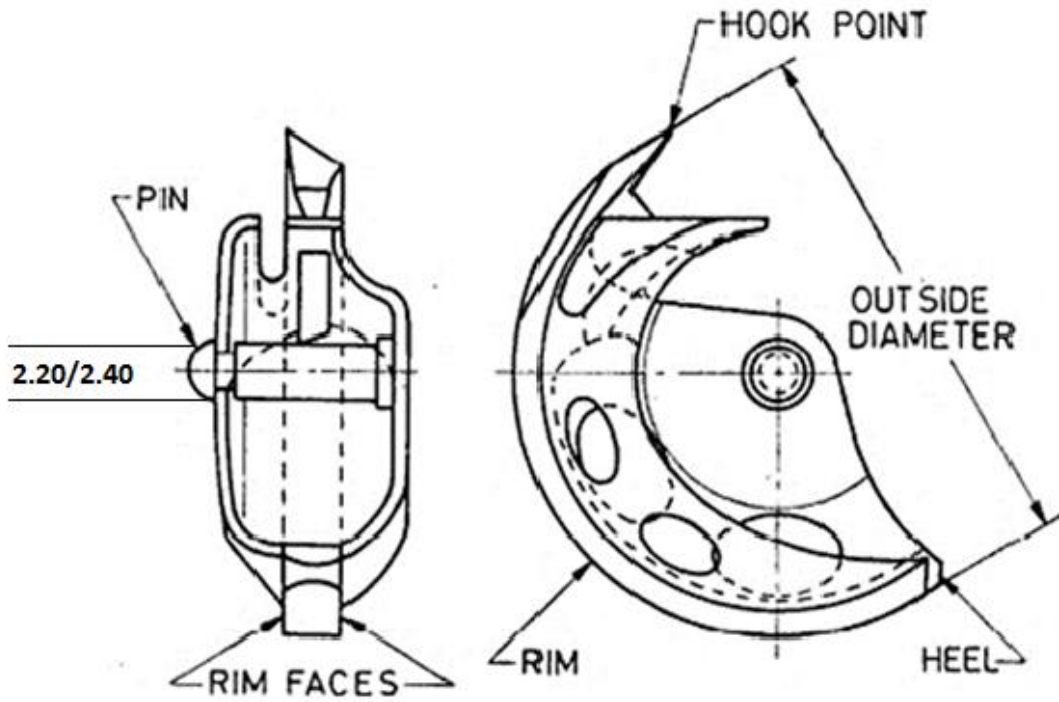


FIG. 1 NOMENCLAUTE FOR VERTICAL OSCILLATING SHUTTLE

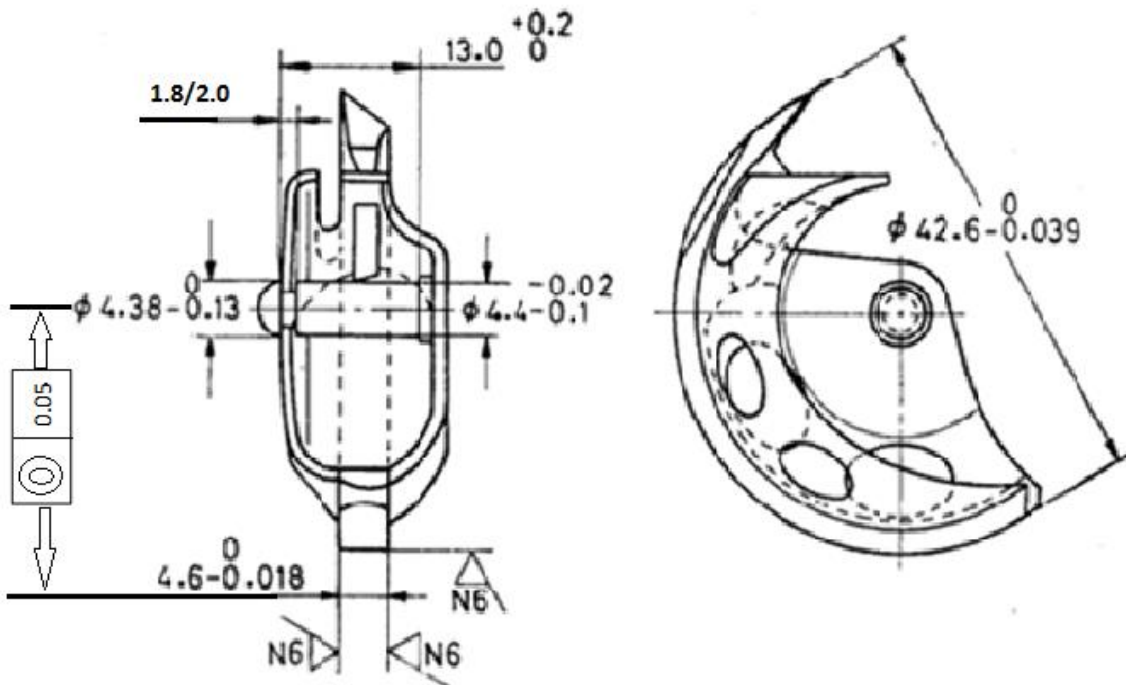


FIG. 2 DIMENSIONS FOR VERTICAL OSCILLATING SHUTTLE

## **ANNEX A**

*(Clause 10)*

### **SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY**

#### **A-1 SCALE OF SAMPLING**

##### **A-1.1 Lot**

In any consignment all the shuttles 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 specification, tests shall be carried out for each lot separately. The number of shuttles to be selected at random for this purpose shall be in accordance with column (2) and (3) of Table 1.

**A-1.3** If the shuttles are packed individually, in order to ensure the randomness of selection, IS 4905/ ISO 24153 shall be used.

**A-1.4** If the shuttles 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 shuttles shall be picked up from its different parts so as to obtain the required number of shuttles specified in column (3) of Table 1.

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

**A-2.1** The shuttles selected according to **A-1.2** and **A-1.3** or **A-1.4** shall be examined for dimensions and tolerances (*see 6*) and workmanship and finish (*see 7*). If the number of shuttles 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 1, the lot shall be declared as conforming to the requirements of the standard.

**A-2.2** In the case of those lots which have been found satisfactory according to **A-2.1**, a number of shuttles equal to the sample size indicated in column (5) of Table 1, shall be subjected to hardness test (*see 5*). Any shuttle failing to meet the requirements for hardness test shall be considered to be defective.

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

**Table 1 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 Shuttles <i>N</i>	For Dimensions, Tolerances and Workmanship and Finish		Sample Size for Hardness
		Sample Size <i>n</i>	Permissible No. of Defectives*	
(1)	(2)	(3)	(4)	(5)
i)	Up to 5	5	0	2
ii)	6 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 defective will be accepted most of the time