*भारतीय मानक*

**घरेलू प्रयोजनों के लिए जिग-जैग सिलाई मशीन/हैड**

**भाग 4 टिकाऊपन की अपेक्षाएँ**

( *पहला पुनरीक्षण* )

*Indian Standard*

**Household Zig-Zag Sewing Machine/Head**

**Part 4 Durability Requirements**

( *First Revision* )

ICS 61.080

BIS 2024

भारतीय मानक ब्यूरो

**B U R E A U O F I N D I A N S T A N D A R D S**

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**September 2024 Price Group**

Sewing Machines Sectional Committee, MED 29

FOREWORD

This Indian Standard (Part 4) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sewing Machine Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 2004. This standard is being revised to keep pace with the latest technological developments and international practices. Also, in this revision, the standard has been brought into the latest style and format of Indian Standards, and references of Indian Standards, wherever applicable have been updated. The following major modifications have been incorporated in this revision of the standard:

1. Title has been changed;
2. Scope has been amended to include electronically controlled zig-zag operation;
3. ON-Off test updated in **3.1**; and
4. Clause **4** has been amended to include durability requirements for rotary hook mechanism and a note has been added for durability requirements of electric/electronic parts of the sewing machines.

This standard has been formulated to facilitate standardization and with a view to establish quality and durability requirements of household zig-zag sewing machine/head, which includes machines with mechanical/electronically operated zig-zag operations.

In the preparation of this standard, assistance has been derived from IS 7493 : 1989 ‘Sewing machine, Household — Durability requirements (*first revision*)’.

The standard on household zig-zag sewing machine, which includes machines with mechanical/electronically operated zig-zag operations, is being brought in four parts, the other parts in the series are:

Part 1 General requirements

Part 2 Accuracy requirements

Part 3 Sewing requirements

This standard covers all types of zig-zag sewing machine/head, excluding embroidery sewing machines.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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.

*Indian Standard*

HOUSEHOLD ZIG-ZAG SEWING MACHINE/HEAD

**PART 4 DURABILITY REQUIREMENTS**

**1 SCOPE**

This standard (Part 4) covers the durability requirements for household zig-zag sewing machine/head, which includes machines with mechanical/electronically operated zig-zag operations.

NOTES — This standard covers all types of zig-zag sewing machine/head, excluding embroidery sewing machines.

**2 REFERENCES**

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

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| IS 15449 (Part 2) : 2004 | Household zig-zag sewing machine head: Part 2 Accuracy requirements |

**3 TEST CONDITIONS**

**3.1 ON–OFF Test**

The sewing machine shall be run on 7 s to 8 s ‘ON’ and 2 s to 3 s ‘OFF’ at the maximum speed limit of the product not exceeding 900 rev/min for 6 h at no load with maximum stitch length and forward feed.

**3.2** All moving parts if applicable, shall be lubricated with oil at the beginning and after every 2 h during the test.

**4 DURABILITY REQUIREMENTS**

The assembly clearances shall be measured before and after the test as per IS 15449 (Part 2), the change in clearance shall not exceed the values given below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *Sl No.* | *Item* | *Measuring Condition* | *Measuring Direction* | *Indicator Position* | *Maximum Change in Assembly Clearance*  (in mm) |
| (1) | (2) | (3) | (4) | (5) | (6) |
| i) | Needle bar | Needle bar at lower most position | a) In the direction of motion  b) At right angle to the direction of motion | a) Top of needle bar  b) Near the bottom of needle bar | 0.10  0.06 |
| ii) | Thread take-up lever | Thread take-up lever at top, intermediate and bottom positions | a) In the direction of motion  b) At right angle to the direction of motion | a) Around thread hole  b) Around thread hole | 0.20  0.20 |
| iii) | Shuttle for oscillation mechanism  For rotary hook mechanism | a) Tip of shuttle pin at top most/bottom most position of needle bar  b) Difference between two indicator readings when needle bar is at its highest and lowest position  With bobbin-case removed, play of bobbin case holder | a) Along the axis of shuttle pin  b) Along the axis of shuttle pin  a) In and out  b) Up and down | a) Tip of shuttle pin  b) Tip of shuttle pin  a) On the center pin  b) Top of the holder | 0.03  0.03  0.02  0.03 |
| iv) | Arm shaft | At different wheel position (turn wheel by hand). Axial push/pull to be given | Axial direction | Face of rim of wheel | 0.03 |
| v) | Feed section | At the highest position of feed dog above needle plate | In the direction of motion | Front edge of the feed dog | 0.15 |
|  | NOTE — The electric motor (whether built-in or attached externally to the sewing machine) and all electric/electronic parts of the sewing machines being tested should be able to withstand all the above listed durability tests. | | | | |

**ANNEX A**

(*Foreword*)

**COMMITTEE COMPOSITION**

Sewing Machines Sectional Committee, MED 29

|  |  |
| --- | --- |
| *Organization* | *Representative (s)* |
| Research & Development Centre For Bicycle and Sewing Machines, Ludhiana | Shri Sanjeev Katoch (***Chairperson***)  Shri Papinder Singh (*Alternate* I)  Shri Vishwas Mehta (*Alternate* II)  Shri Manpreet Singh (*Alternate* III) |
| Brother International (India) Private Limited, Mumbai | Shri Mathew Yohannan |
| C.R. Auluck & Sons Private Limited, Ludhiana | Shri Sunil Auluck  Shri Kuljeet Singh (*Alternate*) |
| Directorate General of Quality Assurance, New Delhi | Shri Shri R.V. Jain |
| G.D. Rupal Industries, Ludhiana | Shri Gurmukh Singh |
| Gee Tech Hooks, Ludhiana | Shri Manjeet Singh |
| Geminy Industrial Enterprises Private Limited, Ludhiana | Shri Vinay Dua  Shri B.C. Pandey (*Alternate*) |
| Ludhiana Sewing Machine Association, Ludhiana | Shri Hardeep Singh  Shri Rajvinder (*Alternate*) |
| Makhan Sewing Machines, Ludhiana | Shri Dalbir Singh Dhiman |
| Mechanical Engineering Research and Development Organization (MERADO) , Ludhiana | Shri Syed Salman Mojiz  Shri Bhagwant Singh Lal (*Alternate*) |
| Narindera and Company, Ludhiana | Shri S. Baldev Singh  Shri Harinder Jit Singh (*Alternate*) |
| Navrang Manufacturing Corporation, Ludhiana | Shri Dinesh Kapila  Shri Sudesh Kapila (*Alternate*) |
| Northern India Textile Research Association, Ghaziabad | Shri Vikas Sharma  Shri Vivek Agarwal (*Alternate*) |
| Novel Sewing Machine Technologies | Shri Bharat Narayendas Parmar  Shri Arjun Bharat Parmar (*Alternate*) |
| ORAA International, Ludhiana | Shri Ashish Gupta |
| Office of Development Commissioner (MSME), New Delhi | Shri Suvankar Santra  Ms. Maitreyee Talapatra (*Alternate*) |
| Ranew Engineering (India) Private Limited, Ludhiana | Shri Sanjeev Kumar Jain  Shri Abhilash Jain (*Alternate*) |
| Rita Machines India Private Limited, Ludhiana | Shri Sunil Kumar Jain  Shri Jagdish Chandra Auluck (*Alternate*) |
| Singer India Limited, New Delhi | Shri Prashant Aggarwal  Shri Atul Kumar Seth (*Alternate*) |
| Swan Mechanical Works, Ludhiana | Shri Amarjeet Singh |
| United Sewing Machines and Parts Manufacturing Association, Ludhiana | Shri Dalbir Singh Dhiman |
| Usha International Limited, New Delhi | Shri Rup Lal Kangla  Shri Pranay Sriwastav (*Alternate*) |
| Uttam Sewing Machine Company (Private) Limited, Jalandhar | Shri Jagdeep Rai  Shri Manohar Lal (*Alternate*) |
| Virindra Engineering Works, Ludhiana | Shri Amarpreet Singh Panesar  Shri Swarn Singh (*Alternate*) |
| Voluntary Organisation in Interest of Consumer Education (VOICE), New Delhi | Shri M. A. U. Khan |
| BIS Directorate General | Shri K. Venkateswara Rao, scientist ‘F’/Senior Director and Head (Mechanical Department)  [Representing Director General (*Ex-officio*)] |

*Member Secretary*

Shri Shubham Tiwari

Scientist ‘C’/Deputy Director

(Mechanical Department), BIS