*भारतीय मानक*

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

**भाग 3 सिलाई की अपेक्षाएँ**

( *पहला पुनरीक्षण* )

*Indian Standard*

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

**Part 3 Sewing 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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Sewing Machines Sectional Committee, MED 29

FOREWORD

This Indian Standard (Part 3) (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 revision has been brought out 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, 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; and
3. Table 1 has been amended and another note has been added.

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

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

In the preparation of this standard, assistance has been derived from IS 7492 : 1989 ‘Sewing machines, household — Sewing 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 4 Durability requirements

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 3 SEWING REQUIREMENTS**

**1 SCOPE**

This standard (Part 3) covers the sewing test conditions and sewing requirements for household zig-zag sewing machine/head, which includes machines with mechanical/electronically operated zig-zag operations.

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

**2 REFERENCES**

The standards given below contain 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 these standards:

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| IS 1720 : 1978 | Specification for cotton sewing threads (*first revision*) |
| IS 2181 : 1973 | Specification for sewing machine needles for household purposes (*first revision*) |

**3 TEST CONDITIONS**

The test shall be carried out in forward stitching under the conditions given in Table 1.

**4 SEWING REQUIREMENTS**

The tests given in Table 1 shall meet the following requirements:

1. There shall be no breakage of threads;
2. There shall be no skip stitches;
3. There shall be not more than one loop formation;
4. Squeezing of cloth shall not be more than 1.5 mm over 100 mm length in forward stitching;
5. At 6 SPI (stitches per inch), stitches obtained shall not be more than 7;
6. At 20 SPI (stitches per inch), stitches obtained shall not be less than 16 and not more than 24;
7. Machine shall be able to perform back tack and chain off at straight stitch;
8. Thread tensions, both upper and lower shall be satisfactory; and
9. Feed of cloth shall be satisfactory and there shall be no damage to the cloth and the thread.

**Table 1 Test Conditions**

(*Clause* 3)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sl No.** | **Item** | **Sewing Material**  | **Conditions**  | **Thread Type** | **Needle Size** | **Stitch Length Approximately** (in mm) | **Sewing Speed Approximately** **Stitch Per Minute** | **Sewing Length Approximately** (in mm) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| i) | Straight stitching  | Medium weight (Linen)  | Straight stitch, 2 layers, 6 SPI, 12 SPI and 20 SPI | 50 s/3 Cotton count, Mercerized | 14 | 4 and 1.25 | 200 to Maximumspeed of sewing machine | 300 |
| ii) | Hurdle stitching (sewing test on steps) | Heavy weight (Denim) | From 2 to 6 layers, 6 SPI and 8 SPI, 2 layers, straight stitch | 50 s/3 Cotton count, Mercerized | 16 | 4 and 3 | 400 to 600 | 300 |
| iii) | Straight stitching  | Light weight (Organza) | 12 SPI and 20 SPI, 2 layers, straight stitch  | 50 s/3 Cotton count, Mercerized | 11 | 2 and 1.25 | 200 to Maximumspeed of sewing machine | 300 |
| iv)  | Sewing test for straightness of stitch | Medium weight (Linen) | Straight stitch, 8 SPI, 2 layers  | 50 s/3 Cotton count, Mercerized | 14 | 3 | 400 to Maximumspeed of sewing machine | Stitching shall not deviate by more than 6.25 mm in 75 mm length  |
| v) | Zig-zag stitching  | Medium weight (Linen) | Zig-zag bight maximum 6 SPI and 12 SPI, 2 layers | 50 s/3 Cotton count, Mercerized | 14 | 4 and 2 | 200 to Maximumspeed of sewing machine | 225 |
| vi) | Zig-zag stitching (Satin stitch) | Medium weight (Linen) | Zig-zag width maximum SPI maximum possible (cloth should not be visible through stitches) 2 layers | 50 s/3 Cotton count, Mercerized | 14 | Satin | 200 to Maximumspeed of sewing machine | 225 |
| vii) | Twin needle stitching | Medium weight (Linen) | Zig-zag width maximum 12 SPI and Satin stitch, 2 layers | 50 s/3 Cotton count, Mercerized | 14 (Twin) | 3 and Satin | 200 to Maximumspeed of sewing machine | 225 |
| viii)  | Zig-zag stitching of different patterns  | Medium weight (Linen) | Zig-zag width maximum, 12 SPI and Satin stitch, 2 layers | 50 s/3 Cotton count, Mercerized | 14 | 2 and Satin  | 200 to Maximumspeed of sewing machine | 225 |
| NOTES**1** Thread type shall conform to IS 1720.**2** Needle size shall conform to IS 2181.**3** 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 sewing 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 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, Pune | 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)[Representing Director General (*Ex-officio*)] |

*Member Secretary*

Shri Shubham Tiwari

Scientist ‘C’/Deputy Director

 (Mechanical), BIS