

घरेलू प्रयोजनों के लिए ज़िग-ज़ैग सिलाई  
मशीन/हैड

भाग 3 सिलाई की अपेक्षाएँ  
( पहला पुनरीक्षण )

Household Zig-Zag Sewing  
Machine/Head

Part 3 Sewing Requirements  
( First Revision )

ICS 61.080

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## 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:

- a) Title has been changed;
- b) Scope has been amended to include electronically controlled zig-zag operation; and
- c) 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:

<i>IS No.</i>	<i>Title</i>
IS 1720 : 1978	Specification for cotton sewing threads ( <i>first revision</i> )
IS 2181 : 1973	Specification for sewing machine needles for household purposes ( <i>first revision</i> )

**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:

- a) There shall be no breakage of threads;
- b) There shall be no skip stitches;
- c) There shall be not more than one loop formation;
- d) Squeezing of cloth shall not be more than 1.5 mm over 100 mm length in forward stitching;
- e) At 6 SPI (stitches per inch), stitches obtained shall not be more than 7;
- f) At 20 SPI (stitches per inch), stitches obtained shall not be less than 16 and not more than 24;
- g) Machine shall be able to perform back tack and chain off at straight stitch;
- h) Thread tensions, both upper and lower shall be satisfactory; and
- j) Feed of cloth shall be satisfactory and there shall be no damage to the cloth and the thread.

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**Table 1 Test Conditions***(Clauses 3 and 4)*

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 maximum speed 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 maximum speed 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 maximum speed 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 maximum speed 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 maximum speed 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 maximum speed of sewing machine	225

Table 1 (Concluded)

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)
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 maximum speed 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

<i>Organization</i>	<i>Representative (s)</i>
Research & Development Centre for Bicycle and Sewing Machines, Ludhiana	SHRI SANJEEV KATOCH ( <b>Chairperson</b> ) SHRI PAPINDER SINGH ( <i>Alternate I</i> ) SHRI VISHWAS MEHTA ( <i>Alternate II</i> ) SHRI MANPREET SINGH ( <i>Alternate III</i> )
Brother International (India) Private Limited, Mumbai	SHRI MATHEW YOHANNAN
C.R. Auluck & Sons Private Limited, Ludhiana	SHRI SUNIL AULUCK SHRI KULJEET SINGH ( <i>Alternate</i> )
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 ( <i>Alternate</i> )
Ludhiana Sewing Machine Association, Ludhiana	SHRI HARDEEP SINGH SHRI RAJVINDER ( <i>Alternate</i> )
Makhan Sewing Machines, Ludhiana	SHRI DALBIR SINGH DHIMAN
Mechanical Engineering Research and Development Organization (MERADO), Ludhiana	SHRI SYED SALMAN MOJIZ SHRI BHAGWANT SINGH LAL ( <i>Alternate</i> )
Narindera and Company, Ludhiana	SHRI S. BALDEV SINGH SHRI HARINDER JIT SINGH ( <i>Alternate</i> )
Navrang Manufacturing Corporation, Ludhiana	SHRI DINESH KAPILA SHRI SUDESH KAPILA ( <i>Alternate</i> )
Northern India Textile Research Association, Ghaziabad	SHRI VIKAS SHARMA SHRI VIVEK AGARWAL ( <i>Alternate</i> )
Novel Sewing Machine Technologies, Pune	SHRI BHARAT NARAYENDAS PARMAR SHRI ARJUN BHARAT PARMAR ( <i>Alternate</i> )
Office of Development Commissioner (MSME), New Delhi	SHRI SUVANKAR SANTRA MS MAITREYEE TALAPATRA ( <i>Alternate</i> )
ORAA International, Ludhiana	SHRI ASHISH GUPTA
Ranew Engineering (India) Private Limited, Ludhiana	SHRI SANJEEV KUMAR JAIN SHRI ABHILASH JAIN ( <i>Alternate</i> )
Rita Machines India Private Limited, Ludhiana	SHRI SUNIL KUMAR JAIN SHRI JAGDISH CHANDRA AULUCK ( <i>Alternate</i> )
Singer India Limited, New Delhi	SHRI PRASHANT AGGARWAL SHRI ATUL KUMAR SETH ( <i>Alternate</i> )
Swan Mechanical Works, Ludhiana	SHRI AMARJEET SINGH

<i>Organization</i>	<i>Representative (s)</i>
United Sewing Machines and Parts Manufacturing Association, Ludhiana	SHRI DALBIR SINGH DHIMAN
Usha International Limited, New Delhi	SHRI RUP LAL KANGLA SHRI PRANAY SRIWASTAV ( <i>Alternate</i> )
Uttam Sewing Machine Company (Private) Limited, Jalandhar	SHRI JAGDEEP RAI SHRI MANOHAR LAL ( <i>Alternate</i> )
Virindra Engineering Works, Ludhiana	SHRI AMARPREET SINGH PANESAR SHRI SWARN SINGH ( <i>Alternate</i> )
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 ( <i>Ex-officio</i> )]

*Member Secretary*  
SHRI SHUBHAM TIWARI  
SCIENTIST 'D'/JOINT DIRECTOR  
(MECHANICAL), BIS







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