

घरेलू प्रयोजनों के लिए ज़िग-ज़ैग सिलाई  
मशीन/हैड

भाग 4 टिकाऊपन की अपेक्षाएँ

( पहला पुनरीक्षण )

Household Zig-Zag Sewing  
Machine/Head

Part 4 Durability Requirements

( First Revision )

ICS 61.080

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## 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 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;
- c) ON-OFF test has been updated in [3.1](#); and
- d) 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.

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 7493 : 1989 'Sewing machines, household — Durability requirements (*first revision*)'.

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

- Part 1 General requirements
- Part 2 Accuracy requirements
- Part 3 Sewing 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 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.

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

**2 REFERENCE**

This standard given below contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated was 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:

<i>IS No.</i>	<i>Title</i>
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:

<i>Sl No.</i>	<i>Item</i>	<i>Measuring Condition</i>	<i>Measuring Direction</i>	<i>Indicator Position</i>	<i>Maximum Change in Assembly Clearance (mm)</i>
(1)	(2)	(3)	(4)	(5)	(6)
i)	Needle bar	Needle bar at lower most position	a) In the direction of motion	a) Top of needle bar	0.10
			b) At right angle to the direction of motion	b) Near the bottom of needle bar	0.06
ii)	Thread take-up lever	Thread take-up lever at top, intermediate and bottom positions	a) In the direction of motion	a) Around thread hole	0.20
			b) At right angle to the direction of motion	b) Around thread hole	0.20
iii)	Shuttle for oscillation mechanism	a) Tip of shuttle pin at top most/bottom most position of needle bar	a) Along the axis of shuttle pin	a) Tip of shuttle pin	0.03

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<i>Sl No.</i>	<i>Item</i>	<i>Measuring Condition</i>	<i>Measuring Direction</i>	<i>Indicator Position</i>	<i>Maximum Change in Assembly Clearance (mm)</i>
(1)	(2)	(3)	(4)	(5)	(6)
	For rotary hook mechanism	b) Difference between two indicator readings when needle bar is at its highest and lowest position	b) Along the axis of shuttle pin	b) Tip of shuttle pin	0.03
		With bobbin-case removed, play of bobbin case holder	a) In and out	a) On the center pin	0.02
			b) Up and down	b) Top of the holder	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

<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

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<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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