



PRODUCT MANUAL FOR HOUSEHOLD ZIG-ZAG SEWING MACHINE/ HEAD -GENERAL REQUIREMENTS ACCORDING TO IS 15449 (Part 1):2024

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	Product	:	IS 15449 (Part 1):2024
	Title	:	Household Zig-Zag Sewing Machine/ Head - General Requirements
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	Plugs and Sockets- as per IS 1293 Power cord- as per IS 694 or IS 9968-1 or IS 9968-2
b)	Grouping guidelines	:	Sewing Machine or Head, as applicable, of each Controlling mechanism Operating (Mechanically controlled /Electronically controlled) and of each Design (Single or Twin or Both Needle) shall be tested separately for Grant of Licence/Change in Scope of Licence .
c)	Sample Size	:	One
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence:		
	Licence is granted to use Standard Mark as per IS 15449 (Part 1):2024 with the following scope:		
	Name of the product	Household Zig-Zag Sewing Machine/ Head	
	Type	Single or Twin or Both Needle	
	Controlling mechanism	Mechanically controlled /Electronically controlled	

ANNEX-A**List of Test Equipment****Major test equipment required to test as per the Indian Standard**

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	General measurement, Construction, Cl.3	Vernier caliper, Micrometer, V Block
2	Painted, Powder coated parts 6.2	Test equipment as per different parts of IS 101, as specified in IS 13607
3	Plating requirements, Cl. 6.3	Elcometer or suitable testing arrangement for Coating thickness as per IS 1068 or IS 1573 Knife for adhesion test as per IS 1068 Salt spray chamber for Corrosion resistance test as per IS 9844 Arrangement for ductility test as per IS 1068 Arrangement for adhesion test as per IS 1573 Salt spray chamber as per IS 9844
4	Safety requirements for Machine/head containing electrical component, Cl. 8.4	Relevant testing equipment as per IEC 60335 (Part 2/Sec 28)
3	Accuracy requirements, Cl. 8.1	Surface plate, height gauge, puppy dial indicator, feeler gauge, slip gauges, Tachometer, Dial indicator,
4	Durability requirements, Cl. 8.3	Durability test ring (for durability test) or any suitable arrangement as per IS 15449-2 and IS 15449-4
5	Sewing requirement, Cl. 8.2	Needles, various types of threads and sewing material

The above list is indicative only and may not be treated as exhaustive.

ANNEX B**Scheme of Inspection and Testing****1. QUALITY ASSURANCE PLAN**

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit i.e. Batch and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4 below.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 **Control Unit:** For the guidance of manufacturers, the recommended definition of Control Unit is quantity of Sewing machine heads of same model and design manufactured in a day.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in-house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer, and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in-house as “R” or other tests which can be sub-contracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as “R” in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. LABELLING AND MARKING – As per the requirement of IS 15449 (Part 1): 2024. The Standard Mark, as given in the Schedule of the licence, shall be marked on each Sewing Machine/Head provided always that the product thus marked conforms to all the requirement of the specification. In addition, the licence no. CM/L-_____ and details of BIS website shall be marked at an appropriate place on product or package as follows: “For details of BIS certification please visit www.bis.gov.in”.

4. REJECTION - All the production which conforms to the Indian Standard and covered under scope of the licence shall be marked with Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
3	Sewing mechanism	3.1 to 3.9	IS 15449 (Part 1)	R	Each Machine		
5	Lubrication, if applicable	5	IS 15449 (Part 1)	R	Each Machine		
6	Workmanship and Finish	6.1, 6.3 to 6.9	IS 15449 (Part 1)	R	Each Machine		
6.2	Painted or Powder coated parts	6.2	IS 15449 (Part 1) IS 13067	S	One	Each Consignment	No further testing is required if supplied with a test certificate or is ISI Marked
6.3	Silk screening/pad printing/stickering	6.3	IS 15449 (Part 1)	R	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained		
6.4	Plating	6.4	IS 15449 (Part 1) IS 1068 IS 1573	S	One	Each Consignment	No further testing is required if supplied with a test certificate or is ISI Marked
8.1	Accuracy requirement		IS 15449 (Part 2)	R	Two	Each Control Unit	If any of the machines fail in any one or more than one requirement, then each machine of the control unit shall be checked for that characteristics in which failure has occurred and only those machines conforming to the characteristics shall be considered for marking.
8.2	Sewing requirements		IS 15449 (Part 3)	R	Two	Each control unit	In case of failure, double the number of machines shall be checked and only when no failure is observed, machines shall be marked.
8.3	Durability test		IS 15449 (Part 4)	R	Two	Each control unit	
8.4	Safety requirements for Machine/head containing electrical component						
	Marking	7	IEC 60335 (Part 2/Sec 28)	R	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained		
	protection against access to live parts;	8	IEC 60335 (Part 2/Sec 28)	S	One	Each Control Unit	

	power input and current	10	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	Testing shall be done in such a way that each model of Machine/Head manufactured in the period of six months shall be tested at least once in six months
	heating	11	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	
	leakage current and electric strength at operating temperature	13	IEC 60335 (Part 2/Sec 28)	R	Each Machine/head		
	moisture resistance	15	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	Testing shall be done in such a way that each model of Machine/Head manufactured in the period of six months shall be tested at least once in six months
	Leakage current and electric strength;	16	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	
	stability and mechanical hazards	20	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	
	mechanical strength	21	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	
	Construction	22	IEC 60335 (Part 2/Sec 28)	S	One	Once in six months	
	provision for earthing	27	IEC 60335 (Part 2/Sec 28)	R	One	Each Control Unit	
9	Accessories in service box	9	IS 15449 (Part 1)	-	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained		
11	Packaging requirements	11	IS 15449 (Part 1)	-			