



**PRODUCT MANUAL FOR
ELECTRIC SEROLOGICAL WATER-BATHS
ACCORDING TO IS 6593: 1972**

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 6593: 1972
	Title	:	Electric Serological Water-Baths
	No. of Amendments	:	3
2.	Sampling Guidelines:		
a)	Raw material	:	As per Clause 5 of IS 6593: 1972
b)	Grouping guidelines	:	Water Bath of any size/design/capacity with the highest Wattage intended to be covered shall be tested to include all varieties in the Scope of Licence.
c)	Sample Size	:	As per 10.1.1 of IS 6593:1972.
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:		
	Please refer ANNEX – C		
6.	Scope of the Licence:		
	Licence is granted to use Standard Mark as per IS 6593:1972 with the following scope:		
	Name of the product	Electric Serological Water-Baths	
	Input (W)		

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	Protection Against Electric Shock (Clause 7.1)	Accessibility test panel with jointed and unjointed test finger
2	Input (Clause 7.2)	a) Ammeter b) Voltmeter c) Wattmeter
3	Electrical Insulation (Clause 7.3)	a) HV Tester b) IR Meter c) Microammeter d) Stopwatch
4	Stability (Clause 7.4)	Inclined Test Apparatus
5	Mechanical Strength (Clause 7.5)	a) Finger Test Apparatus b) Spring Hammer
6	Supply Connections (Clause 7.6)	a) Cord Grip Test Apparatus b) Measuring Tape c) Micro Ohmmeter
7	Terminals (Clause 7.7)	Torque Screwdriver
8	Earthing (Clause 7.8)	a) Ammeter b) Earth Contact Resistance Testing Panel (ECR Measurement) c) Voltmeter
9	Screws and Connections (Clause 7.9)	Torque Wrench
10	Resistance to Rusting (Clause 7.10)	a) Ammonium Chloride b) Carbon Tetrachloride c) Humidity Chamber with Temperature and Humidity Controller d) Measuring Cylinder
11	General conditions (10.2.2, 10.2.3)	a) AC b) Thermometers

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

ANNEX B

Scheme of Inspection And Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirement of IS 6593: 1972.

4. CONTROL UNIT – All Water Baths manufactured in a week shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS – 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				
5	Material	5.1 to 5.4	IS 6593: 1972	S	One	Each consignment	Please see Note 1
6	Construction	6.1 to 6.11	IS 6593: 1972	R	Each Water Bath	--	--
7.1	Protection Against Electric Shock	8	IS 302-1: 2008	R	Each Water Bath	--	--
7.2	Input	10	IS 302-1: 2008	R	Each Water Bath	--	--
7.3	Electrical Insulation and Leakage current	13	IS 302-1: 2008	R	Each Water Bath	--	--
7.8	Earthing	27	IS 302-1: 2008	R	Each Water Bath	--	--
7.4	Stability	20	IS 302-1: 2008	R	One	Each control unit	In case of failure, all the water baths in the control unit shall be tested, and those not passing shall be rejected. From the subsequent control units, twice the number of samples shall be tested till samples from five consecutive control units pass. The original frequency may then be restored.
7.6	Supply Connections	25	IS 302-1: 2008	R	One		
7.7	Terminals	26	IS 302-1: 2008	R	One		
7.9	Screws and Connections	28	IS 302-1: 2008	R	One		

7.5	Mechanical Strength	21	IS 302-1: 2008	R	One	Every 5 th control unit	In case of failure, marking shall be stopped. A thorough investigation of the cause of failure shall be made and the defects rectified. The marking and frequency of testing shall be resumed only when 5 samples from improved lot show conformity to the requirements.
7.11	Protection Against Overflow of Water	7.11	IS 6593: 1972	R	One		
8.1	Heating-up Time	8.1	IS 6593: 1972	R	One		
8.2	Temperature Variation	8.2	IS 6593: 1972	R	One		
8.4	Temperature Drift	8.4	IS 6593: 1972	R	One		
8.3	Temperature Differential	8.3	IS 6593: 1972	R	Each Water Bath	--	--
7.10	Resistance to Rusting	31	IS 302-1: 2008	S	One	Each consignment	--
10.6	Visual examination and inspection	10.6	IS 6593: 1972	R	Each Water Bath	--	--
--	HV Test	A-2	IS 302-1: 2008	R	Each Water Bath	--	--

Note-1: Raw materials which are covered under mandatory certification of BIS shall be ISI marked and received along with manufacturers test certificate. For other materials, no further testing is required if received along with test certificate or ISI marked.

Note-2: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-3: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX C**Possible Tests in a day**

Clause	Tests
6	Construction
7.1	Protection Against Electric Shock
7.2	Input
7.3	Electrical Insulation
7.4	Stability
7.5	Mechanical Strength
7.6	Supply Connections
7.7	Terminals
7.8	Earthing
7.9	Screws and Connections