



उत्पाद मैनुअल
आई एस 9051 : 2023 के अनुसार
धारा नियंत्रक — विशिष्टि (पहला पुनरीक्षण)

PRODUCT MANUAL
Rheostats — Specification (First Revision)
ACCORDING TO IS 9051 : 2023

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.

1.	मानक संख्या IS No.	:	IS 9051 : 2023
	शीर्षक Title	:	Rheostats — Specification (First Revision)
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines:		
a)	कच्चा माल Raw material	:	As per Cl. 6 and Cl. 7
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण	:	2 numbers

	Sample Quantity		
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request		As per the parameters defined in the Scope of Licence
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day:	:	All tests except Mechanical Endurance (Clause 11.6) and Vibration Test (Clause 11.7)
6.	लाइसेंस का दायरा /Scope of the Licence	:	
Licence is granted to use Standard Mark as per IS 9051 : 2023 with the following scope:			
	Name of the Product	Rheostats	
	Type of Rheostat	Open Type Rheostat/ Enclosed Rheostat	
	Mechanical Duty	Class 1 (10 Operations per hour)/ Class 2 (40 Operations per hour)/ Class 3 (6000 Operations per hour)	
	Method of Operation	Direct Hand Operation/ Remote Hand Operation/ Power Operation	
	Type of Enclosure (in case of enclosed Rheostats)	Protected (General Purpose)/ Drip Proof/ Dust and Damp Protecting/ Waterproof (Weather Resistant)/ Hose Proof/ Dust Proof/ Water Tight/ Flame Proof	
	Ratings	Total Resistance (Ω), Continuous Maximum Current (A), Rated Voltage (V), Frequency (Hz)	
	Insulating Material	Class Y/Class A/Class E/Class B/Class F/Class H	

ANNEX – A

समूहीकरण दिशानिर्देश **Grouping Guidelines**

- 1) Manufacturer shall declare the parameters defined in scope of licence for each variety of Rheostats manufactured by them.
- 2) In addition, the manufacturer shall also declare the following parameters of the Rheostat:
 - a) With/ without limit switch;
 - b) Suitable for vibration test: Yes/ No.
- 3) For grant of licence/ change in scope of licence, Rheostats with highest Total Resistance (Ω) with all other ratings remaining the same, shall be tested to cover all the Rheostats of the same type, same mechanical duty, same Type of Enclosure and made of same Insulating Material
- 4) However, following relaxation in testing may be given, subject to the condition that other parameters remain same:
 - a) If Rheostats of higher Mechanical Duty are tested then Rheostats with lower Mechanical Duties may be covered under scope of licence without any further testing;
 - b) If Rheostats with limit switch are tested then Rheostats without limit switch may be covered under scope of licence without any further testing;
 - c) If Rheostats with Insulation Class E are tested then Rheostats with Insulation Class A may be covered under scope of licence without any further testing. Further, if Rheostats with Insulation Class F are tested then Rheostats with Insulation Class B may be covered under scope of licence without any further testing;
 - d) If Rheostats suitable for Vibration Test are tested then Rheostats not-suitable for Vibration Test may be covered under scope of licence without any further testing;
 - e) Samples should be taken in a manner to cover all the various types of enclosures of enclosed rheostats offered by the manufacturer.
- 5) The Firm shall declare the varieties of Rheostats they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing capability and testing facilities of the Manufacturer.
- 6) During the operation of the Licence, BO shall ensure that all the models covered in the Licence are tested in rotation to the extent possible.

ANNEX – B

परीक्षण उपकरणों की सूची

List Of Test Equipment***(INDICATIVE LIST, FOR GUIDANCE ONLY)******Major test equipment required to test as per the Indian Standard***

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1.	High Voltage Test, CI 11.2	High Voltage Tester, Voltmeter, Ammeter
2.	Test for Ohmic Resistance, CI 11.3	Digital Multimeter, Ohmmeter, AC Source
3.	Test for Temperature-Rise, CI 11.4	AC Source, Thermocouples/Thermometer, Thin foil (thickness less than 0.03 mm)
4.	Main Current Heating Test, CI 11.5	AC Source, DC Source, Thermocouple/Thermometer
5.	Mechanical Endurance Test, CI 11.6	Automatic Power unit with Digital Display of time and number of operations
6.	Vibration Test (Optional), CI 11.7	The details of the test method and the severity shall be as decided between the manufacturer and the user.

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

ANNEX – C

निरीक्षण और परीक्षण की स्कीम

Scheme Of Inspection And Testing

1. QUALITY ASSURANCE PLAN:

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) 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 (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: **All Rheostats of same Type, same Rating, same Mechanical Duty, same Method of Operation, manufactured in a day from same set of raw materials shall constitute a control unit.**

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

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.

2. ENSURING COMPLIANCE THROUGH TESTING- Manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025.

2.1 TEST RECORDS- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. **MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each Rheostat provided always that the product so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per the IS 9051 : 2023.

3.2 Additional Marking requirements: Additionally, the following shall also be marked on product or package or both:

- a) “For BIS certification details please visit www.bis.gov.in”

4. **REJECTION** - The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the 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
(Recommended Levels of Control by BIS- For Guidance Only)

(1)				(2)		
Test Details				Levels of Control		
Cl. of IS 9051	Requirement	Test Methods		No. of Sample	Frequency	Remarks
		Clause	Reference			
7	Constructional Requirements	7	IS 9051	Each consignment of components received	Further testing is not required if supplied with BIS Standard Mark or with Test certificate, which ever applicable.	
10	Marking	10	IS 9051	Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained.		
6	Design	6	IS 9051			
11.2	High voltage test	11.2	IS 9051	One	Each Control Unit	
11.3	Test for ohmic resistance	11.3	IS 9051	One		
11.4	Test for temperature-rise	11.4	IS 9051	One		
11.5	Main current heating test	11.5	IS 9051	One		
11.5.1	Test on shunt coils	11.5.1	IS 9051	One		
11.6	Mechanical endurance test	11.6	IS 9051	One	Once every one year for each variety of Rheostat manufactured during the period	
11.7	Vibration test	11.7	IS 9051	One		