# उत्पाद मैन्युअल
## प्रतिरोध बक्सों के लिए प्लग और चाबियों - विशिष्टि ( पहला पुनरीक्षण)
## आई एस 8143 : 2023 के अनुसार

# PRODUCT MANUAL
## Plugs and Keys for Resistance Boxes - Specification (First Revision)
## ACCORDINGTO IS 8143 : 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**<br>**IS No.** | : | IS 8143 : 2023 |
| | **शीर्षक**<br>**Title** | : | Plugs and Keys for Resistance Boxes - Specification (First Revision) |
| | **संशोधनों की संख्या**<br>**No. of amendments** | : | NIL |
| 2. | **नमूना दिशानिर्देश**<br>**Sampling Guidelines:** | | |
| a) | **कच्चा माल**<br>**Raw material** | : | As per Cl. 4 and Cl. 5.1 |
| b) | **समूहीकरण दिशानिर्देश**<br>**Grouping Guidelines** | : | Not applicable |
| c) | **नमूने का परिमाण** | : | 2 pieces of Resistance boxes along with plugs |

| | | | |
|---|---|---|---|
| | **Sample Quantity** | | and keys |
| 3. | **परीक्षण उपकरणों की सूची**<br>**List of Test Equipment** | : | Please refer ANNEX – A |
| 4. | **निरीक्षण और परीक्षण की स्कीम**<br>**Scheme of Inspection and Testing** | : | Please refer ANNEX – B |
| 5. | **एक दिन में संभावित परीक्षण**<br>**Possible tests in a day:** | : | All tests except Mechanical Endurance (Clause 7.7) |
| 6. | **लाइसेंस का दायरा /Scope of the Licence** | : | |
| | Licence is granted to use Standard Mark as per IS 8143 : 2023 with the following scope: | | |
| | Name of the Product | | Plugs and Keys for Resistance Boxes |

# ANNEX – A

## 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, Cl 7.5 | High Voltage Tester, Voltmeter, Ammeter |
| **2.** | Insulation Resistance Test Cl 7.4 | Mega Ohmmeter, DC Source ( Min. 500 V) |
| **3.** | Contact resistance test Cl 7.6 | Milliohms Meter, Frequency meter |
| **4.** | Mechanical Endurance Test Cl 7.7 | Endurance test penal ,Milli Ohm Meter(LC 0.001 ohm) |

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

# ANNEX – B

## निरीक्षण और परीक्षण की स्कीम

## 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. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the differenttests 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.

**1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:**

**1.3.1** For the guidance of manufacturers, the recommended definition of control unit is: **All Plugs and Keys for Resistance Boxes manufactured in a day from same set of raw materials under similar conditions shall constitute a control unit**. The manufacturer has the choice to define their own control unit/batch/lot and submit the same to the BIS.

**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 requirementsof the Indian Standard.

### 2. ENSURING COMPLIANCE THROUGH TESTING"

2.1 It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In housetesting 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.

2.2 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 subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 **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**.

2.3.1 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.

2.4 **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.

2.4.1 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.

**3. TEST RECORDS**- The manufacturers maintaining an in-house laboratory or utilizing commoncluster 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/empanelled laboratoryor 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.

**4. PACKING AND MARKING** –

4.1 The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each container of **Plugs and Keys for Resistance Boxes** provided always that the **Plugs and Keys for Resistance Box** so marked conforms to the requirements of the specification. In addition, packing and marking shall also be done as per Cl. 6.1 and Cl. 6.2 of **IS 8143 : 2023** respectively.

**5. Additional Marking Requirements:**

5.1 The material shall also be marked with the following additional requirement on packaging: "For BIS certification details please visit www.bis.gov.in";

**6. REJECTION -** All 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***
***(ONLY FOR GUIDANCE PURPOSE)***

| (1) | | | | (2) | (3) | | |
|---|---|---|---|---|---|---|---|
| **Test Details** | | | | **Test equipment requirement R: required (or) S: Sub-contracting permitted** | **Levels of Control** | | |
| **Cl. of IS 8143** | **Requirement** | **Test Methods** | | | **No. of Sample** | **Frequency** | **Remarks** |
| | | **Clause** | **Reference** | | | | |
| 4 | Material | 4.1 to 4.5 | IS 8143 | R | Each consignment of components received | Further testing is not required if supplied with BIS Standard Mark or with Test certificate, which ever applicable. | |
| 5 | Construction | 5.1 to 5.5 | IS 8143 | R | Firm should exercise adequate control so that whole production should meet the requirements. Records shall be maintained. | | |
| 6 | Packing and Marking | 7.2 | IS 8143 | R | | | |
| 7.4 | Insulation Resistance Test | 7.4 | IS 8143 | R | One | Each Control Unit | |
| 7.5 | High Voltage Test | 7.5 | IS 8143 | R | One | Each Control Unit | |
| 7.6 | Contact Resistance Test | 7.6 | IS 8143 | R | One | Each Control Unit | |
| 7.7 | Mechanical Endurance Test | 7.7 | IS 8143 | S | One | Whenever there is change in design, raw material or once every three years for each type of Plugs and Keys for Resistance Box manufactured during the period | |