



**आईएस 14569: 1999
के अनुसार
बिजली की मशीनों हेतु कम्यूटेटर
के लिये
उत्पाद मैनुअल**

**PRODUCT MANUAL FOR
COMMUTATORS FOR ELECTRICAL
MACHINES
ACCORDING TO IS 14569: 1999**

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 14569: 1999
	शीर्षक Title	:	Commutators for Electrical Machines
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Commutator Segments – IS 5885 Insulation material (built-up mica) – IS 2464
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	5 Pcs
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर	:	- Type of Commutator - Type of Insulation material

	Parameters to be Declared in Test Request		
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 Humidity test as per Cl. 12
6.	लाइसेंस का दायरा /Scope of the Licence:		
*License is granted to use Standard Mark as per IS 14569: 1999 with the following scope:			
Name of the product		Commutators for Electrical Machines	
Type of Construction		Moulded type (or) Revetted type (or) Built – in industrial type Others (to be declared by manufacturer)	
Type of Insulation Material		Mica / other alternative materials (to be declared by the manufacturer)	

ANNEX -A**Grouping Guidelines**

1. Commutators for Electrical Machines are classified based on the following:

Type of Construction	Moulded type (or) Revetted type (or) Built – in industrial type
Type of Insulation Material	Mica / other alternative materials (to be declared by the manufacturer)

2. For considering GoL / CSoL, sample of each type of construction and each type of insulation material shall be tested.
3. The Scope of License may be restricted based on the Manufacturing and testing capabilities of the manufacturer.
4. During the operation of License, it shall be ensured that all the varieties covered in the License are tested in rotation, to the extent possible

ANNEX- B
LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sr No	Tests used in with clause reference	Test equipment
1.	Dimensions and Tolerances as per Cl. 7	Spectrometer Vernier Caliper, Pins Dial guage 3D / Video measuring system
2.	Intersegment Short Circuit Test as per Cl. 11.1	HV Tester Ammeter
3.	High Voltage as per Cl. 11.2	HV tester Stopwatch, metallic foil/braid, brush Ammeter
4.	Insulation resistance test (for moulded commutator) as per Cl. 11.3.1	Megger
5.	Insulation resistance test (for built-up commutator) as per Cl. 11.3.2	Megger
6.	Humidity test as per Cl. 12	Humidity Chamber (with RH, Temp. and timer) Megger, Dry cloth, blotting paper
7.	Spin test	Spin Test mandrel Spin tester (Spin test machine incorporating Speed, Temp. and timer)

ANNEX C

Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Control 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 Control system 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 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.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: *Commutators having same type of construction and insulation materials manufactured in a day under similar process condition from the same consignment of raw materials* shall constitute a control unit.

1.3.2 As mentioned above, recommended levels of control are given in **Table 1 for guidance only**.

1.3.3 The tests as indicated in Table 1 and at the levels of control in column 3 of Table 1 or the Quality Assurance Plan as submitted by the manufacturer to BIS may be carried out on the whole production of the factory which is covered by this plan and records maintained in accordance with para 2.5.

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

2.2 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates where test equipment is required in house i.e “R” or whether it can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

2.3 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility is 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 (including foreign manufacturers) shall maintain an in-house laboratory,

which shall be suitably equipped (as given in column 2 of Table 1) and staffed, 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 test equipment.

2.4.1 Alternatively, in lieu of an in-house laboratory, these manufacturers can also utilize the provisions of Sharing of testing facilities as per the Annexure-X (Relaxation in test facilities) of the guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process)

2.5 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/empanelled laboratory or any other laboratory having valid accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING

3.1 The Standard Mark as given in the Schedule of the licence shall be marked legibly and indelibly on the packing of commutators provided always that the commutators so marked conforms to each requirement of the Standard. Commutators may also be marked with the Standard Mark.

3.2 Packing of the Commutator shall be done as per Cl. 8 of IS 14569: 1999.

3.3 Marking on the commutators shall be done as per Cl. 9 of IS 14569: 1999.

3.4 Additional Marking requirements: The following additional marking shall also be marked on the packaging of the commutators:

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

3.5 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

4. HYGIENIC CONDITIONS (if applicable) – NA.

5. REJECTION - 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					
6	Materials							
6.1	Commutator Segments	-	IS 5885	S	One	Each Consignment	No further testing is required, if accompanied with test certificate or ISI marked.	
6.2	Insulation material (built-up Mica)	-	IS 2464					
6.3	Steel Parts	6.3	IS 14569	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity				
5	Construction	5	IS 14569					
7	Dimensions	7.1 & 7.2	IS 14569					
11.1	Intersegment Short Circuit Test	11.1	IS 14569	R	Each Commutator			
11.2	High Voltage test	11.2	14569	R	One	Each Control Unit		
11.3	Insulation resistance test							
11.3.1	For moulded type commutator	11.3.1	14569	R	One	Each Control Unit		
11.3.2	For built-up commutator	11.3.2						
13	Spin test	13	14569	R	One	Each Control Unit		
12	Humidity test (for moulded type)	12	14569	S	One	Once in a year	Additional samples shall be tested whenever there is a change in materials, design or manufacturing process	