उत्पाद मैनुअल
लाइन-संचालित तीन-फेज़ a.c. मोटर्स) IE कोड (दक्षता वर्ग और निष्पादन आईएस 12615: 2026 के अनुसर

PRODUCT MANUAL
Line Operated Three Phase a.c. Motors (IE Code) Efficiency Classes and Performance according to IS 12615: 2026

यह उत्पाद नियमावली सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-I के अंतर्गत प्रमाणन के संचालन में एकरूपता और पारदर्शिता सुनिश्चित करने के लिए संदर्भ सामग्री के रूप में उपयोग की जाएगी। बीआईएस प्रमाणन प्राप्त करने के इच्छुक भावी आवेदक भी इस दस्तावेज़ का उपयोग कर सकते हैं।

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 12615: 2026
	शीर्षक / Title	:	Line Operated Three Phase a.c. Motors (IE Code) Efficiency Classes and Performance
	संशोधनों की संख्या **No. of amendments**	:	Nil
2.	**नमूनाकरण दिशानिर्देश / Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	Nil *Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.*
b)	**समूहीकरण दिशानिर्देश** **Grouping Guidelines**	:	Please refer **ANNEX – A**
c)	**नमूने का परिमाण / Sample Quantity**	:	One motor
d)	**परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर / Parameters to be Declared in Test Request**		a) Dimensions incl. Type of mounting b) Insulation Class In addition to parameters as per scope of licence *Note: Apart from the above, any other requirements/ parameters may also be declared as per the standard, as applicable.*
3.	**परीक्षण उपकरण की सूची** **List of Test Equipment**	:	Please refer **ANNEX – B**
4.	**निरीक्षण एवं परीक्षण योजना** **Scheme of Inspection and Testing**	:	Please refer **ANNEX – C**

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5.	**एक दिन में संभावित परीक्षण** **Possible tests in a day**	:	All Routine Tests and Type Tests as per IS 12615:2026. *Note: This section is for the guidance of BIS Certification Officers/ Technical Auditors of BIS Authorized Outside Surveillance Agencies(OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/ auditor.*
6.	**लाइसेंस का दायरा / Scope of the Licence:**		
"Licence is granted to use Standard Mark as per **IS 12615: 2026** with the following scope:			
Line Operated Three Phase a.c. motors, up to and including ….V, …Hz, … Duty, 2/4/6/8 Poles, Efficiency Class IE 2 /IE 3 /IE 4, Rated Outputs……"			

ANNEX -A
Grouping Guidelines

1. The following parameters are taken into consideration for the purpose of grouping of motors:

    i. Number of Poles: 2,4,6,8
    ii. Efficiency Class: IE2, IE3, IE4
    iii. Rated Voltage: up to 1000 V
    iv. Rated Output: 0.12 kW to 1000 kW

2. For considering Grant of Licence (GoL) / Change in Scope of Licence (CSoL) of a range of motors with same efficiency class, Motors with lowest and highest rated output shall be tested. If the range consists of more than 10 different motor ratings, one intermediate rating of motor shall also be tested.

3. The following relaxation may be given when motors are drawn for testing as per S.No.2 above, for all the requirements:

    i. If higher efficiency class is tested, lower efficiency classes can also be covered without further testing.
    ii. By testing motors of any one rated voltage, motors with other rated voltages can also be covered without further testing.
    iii. Atleast one motor for each pole type shall be tested to cover a particular pole type in the scope of the licence.

4. The Firm shall declare the varieties of various Line Operated Three Phase a.c. Motors they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing capabilities and Testing arrangements of the Manufacturer.

5. During the operation of the Licence, BO shall ensure all the varieties covered in the Licence are tested in rotation to the extent possible.

ANNEX- B

List of Test Equipments

(Indicative List, For Guidance Only)

Sl. No.	Test Equipment	Tests used in with Clause Reference
1	Resistance Meter	Cl. 16.1.2
2	Tachometer	Cl. 16.1.3, Cl. 16.1.4
3	HV Test Meter	Cl. 16.1.5
4	Megger (Insulation tester)	Cl. 16.1.1
5	Test Bench Torque measuring device (inline torque meter or a reaction torque sensor)	Cl. 16.2.3
6	Weighing Load cell	Cl. 16.2.3
7	Ammeter, Voltmeter and Wattmeter, or a suitable Digital Power Panel, Multimeter, Contact type Digital Tachometer	Cl. 16.1.3, Cl. 16.1.4
8	Micrometer & Vernier Caliper & Stand Vernier	Cl. 16.2.1
9	Stop Watch	Cl. 16.2.3, Cl.16.1.5

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

ANNEX C
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 sub-contracting/ 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: *Motors of the same rating and design manufactured in a day 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.

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

2. ENSURING COMPLIANCE THROUGH TESTING

The 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. PACKING AND MARKING

The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each Motor and also on its packaging (wherever applicable) provided always that the material so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per Cl. 18 of IS 12615: 2026.

3.2 **Additional Marking requirements**: The motors shall also be marked with the following additional requirement on each packaging:

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.	**Requirement**	**Test Methods**		**No. of**	**Frequency**	**Remarks**
		Clause	**Reference**	**Sample**		
8	Earthing	11.1	IS/IEC 60034-1	Each Motor		
9	Terminal Marking	–	IS/IEC 60034-8	Each Motor		
16.1.1	Insulation Resistance Test	16.1.1	IS 12615:2026	Each Motor		
		–	IS/IEC 60034-27-4			
16.1.2	Measurement of Resistance of Windings of Stator	8.6	IS/IEC 60034-1	Each Motor		
		5.7	IS/IEC 60034-2-1			
16.1.3	No Load Test	9.1	IS/IEC 60034-1	Each Motor		
		_	IS/IEC 60034-2-1			
16.1.4	Locked Rotor Readings of Voltage, Current and Power Input at a suitable reduced voltage	16.1.4	IS 12615:2026	Each Motor		
16.1.5	High Voltage Test	9.2	IS/IEC 60034-1	Each Motor		
16.2.1	Dimensions	16.2.1	IS 12615:2026	One Motor	Motors of each type & design manufactured at the first instance or whenever there is a change in dimension.	If any motor fails, all the motors produced subsequently shall be tested till three consecutive samples pass. For every failure, appropriate steps shall be taken to rectify the defect in subsequent motors and record of the same maintained.
			IS 1231, IS 2223, IS 2254, IS 8223			
16.2.4	Temperature Rise Test	8	IS/IEC 60034-1	One Motor	Motors of each type & design, manufactured in three months.	
16.2.3	Full Load Test to determine Efficiency, Power Factor and Slip	_	IS/IEC 60034-2-1	One Motor		
12.1	Momentary Excess Torque	12.1	IS 12615:2026	One Motor		
16.2.2	Locked Rotor Test	16.2.2	IS 12615:2026	One Motor		_
Annex C	**Customer Specific Tests**					
C-1	Vibration Severity of Motor	_	IS 12075	As per the mutual agreement between the manufacturer & the purchaser		
C-2	Noise Levels of Motor	_	IS 12065			
C-3	Degree of Protection by Enclosure	_	IS/IEC 60034-5			
C-4	Over Speed Test	9.7	IS/IEC 60034-1			
C-5	Temperature rise at Limiting Values of Voltage & Frequency variation	8	IS/IEC 60034-1			
C-6	Momentary Overload Test	C-6	IS 12615:2026			