



उत्पाद मैनुअल

आई एस 13774 : 2021/ आई ई सी 60903: 2014 के अनुसार
चालू बिजली की लाइन पर कार्य करना –
विद्युतरोधी सामग्री के दस्तान के लिए

दस्तावेज संख्या – पी एम/आई एस 13774/ आई ई सी 60903/ 2/ फ़रवरी 2022

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR LIVE WORKING- GLOVES OF INSULATING MATERIAL ACCORDING to IS 13774 : 2021/ IEC 60903: 2014

Document No.- PM/ IS 13774/ IEC 60903/ 2/ February 2022

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.

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, ९, बहादुर शाह ज़फ़र मार्ग
Manak Bhawan, 9, Bahadur Shah Zafar Marg
नई दिल्ली- ११०००२
New Delhi – 110002



PRODUCT MANUAL FOR LIVE WORKING GLOVES OF INSULATING MATERIAL ACCORDING TO IS 13774:2021 / IEC 60903:2014

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 13774:2021 / IEC 60903:2014
	Title	:	Live Working- Gloves of Insulating Material.
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	-
b)	Grouping Guidelines	:	Please refer Annex A
c)	Sample Size	:	15 Pairs of Gloves. (Additional samples as per Annex C of IS 13774 may also be drawn depending on the type of glove.)
3.	List of Test Equipment	:	Please refer ANNEX B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX C
5.	Possible tests in a day :	:	Please refer ANNEX D
6.	Scope of the Licence :		
	Licence is granted to use the Standard Mark as per IS 13774:2021/IEC 60903:2014, with the following scope:		
	Name of the product	Live Working Gloves of Insulating Material.	
	Type	Insulating / Composite	
	Class	Class 00 / 0 / 1 / 2 / 3 / 4	
	Special Category (if any)	A / H / Z / R / C / F/ Combination of categories to be specified	
	Size	7/ 7.5/ 8/ 8.5/ 9/ 9.5/ 10/ 10.5/ 11/ 11.5/ 12 or any other size as per agreement between manufacturer and client	
	Standard Length	280 / 360 / 410 / 460 / 800 (Long) mm	
	Lining	Lined/ Unlined	

ANNEX A
Grouping Guidelines

1. The parameters as given below shall be considered for grouping of Live Working Gloves of Insulating Material as per IS 13774 / IEC 60903 for GoL/CSoL:
 - i. Type of glove- Insulating/ Composite
 - ii. Class- 00 / 0 / 1 / 2 / 3 / 4
 - iii. Special Category (if any)- A / H / Z / R / C / F
 - iv. Size- 7/ 7.5/ 8/ 8.5/ 9/ 9.5/ 10/ 10.5/ 11/ 11.5/ 12 or any other size as per agreement between manufacturer and client
 - v. Length- 280 / 360 / 410 / 460 / 800 (Long) mm
 - vi. Lined/Unlined gloves
2. The Firm shall declare the varieties of gloves they intend to cover in the Licence.
3. Gloves of different types (1.i) and lining (1. vi) shall be considered as separate groups.
4. Glove of each category and each combination of categories shall be tested separately.
5. Within a group, the following relaxations may be given:
 - i. To cover a range of classes of gloves(1.ii), gloves of highest, lowest and an interim class shall be tested.
 - ii. If gloves of greater length are tested (1.v), shorter gloves may also be covered without further testing.
 - iii. Gloves of any one size (1.iv) in a group shall be tested for covering all the sizes of gloves in that group.
6. The Scope of Licence may be restricted based on the Manufacturing capabilities (including Size designation of the moulds for Size and their height for Length of the Gloves) and Testing capabilities of the Manufacturer.
7. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX B**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

	Test Equipment	Test with Clause Ref. No. of IS 13774: 2021/ IEC 60903:2014
1	-	Workmanship & Finish as per Cl. 4.3.4
2	Stainless Steel Scale, Micrometer as per Cl 5.2.4, Vernier Callipers	Dimension as per Cl. 4.3.2, Thickness as per Cl. 4.3.3 Any Other Dimension (as applicable) as per Table F.1
3	Digital Tensile Testing Machine Dies, Vernier Callipers Puncture Test arrangement as per Fig. 5 Metallic Needle	Tensile Strength and Elongation at Break as per Cl. 5.5.2.1 Tension Set as per Cl. 5.5.4.1 Puncture Resistance as per Cl. 5.5.3.1
4	AC or DC source, High Voltage Testing Assembly with Milli-Ammeter, Voltmeter, Auto-transformer (for AC Dielectric tests only) Moisture Conditioning arrangement (except for routine tests) Test setup as per Fig. 6 Test setup as per Fig. 10	Dielectric Tests as per Cl. 5.6.1 Leakage Current Test (for Category F Long Gloves only) as per Cl. 5.9.5
5	Humidity Chamber Equipment at SI No. 3	Ageing Test as per Cl. 5.7
6	Deep Freezer/Freezing Chamber, PE Plates 100N (10kg) Load Stop Watch Equipment at SI No. 4 Test setup as per Fig. 8 Testing arrangement as per Cl. 5.8.2 & Fig. 9 (including PoP, Burner, Stop Watch & Suitable Gas viz. Methane or Natural Gas with appropriate regulator & meter for uniform supply in a draught free room)	Low Temperature Test as per Cl. 5.8.1 Flame Retardancy Test as per Cl. 5.8.2
7	32 deg B Sulphuric Acid Solution & Liquid 102 (as in Annex B) Hot Air Oven Humidity Chamber Lint free absorbent cloth Equipment at SI No. 3 & 4	Category A – Acid Resistance as per Cl. 5.9.1 Category H – Oil Resistance as per Cl. 5.9.2

8	Ozone Chamber with Temperature Controller Humidity Chamber Equipment at SI No. 4	Category Z – Ozone Resistance as per Cl. 5.9.3
9	Cryogenic Freezer, PE Plates (200mm x 200mm x 5mm) 100N (10kg) Load Equipment at SI No. 4	Category C – Extremely Low Temperature Resistance as per Cl. 5.9.4
10	Lint free cloth, Isopropanol	Marking as per Cl 5.3.2
11	Testing Assembly as per Cl. 5.10.1 and Fig. 11 Weighing Balance	Abrasion Resistance as per Cl. 5.10.1
12	Testing Assembly as per Cl. 5.10.2 and Fig. 12 Mass of 0.5 kg or Force of 5 N Conductive Rubber Support (80 +/- 3 IRHD) Cycle Counter Cotton Canvas reference piece (as per Annex G)	Cutting Resistance as per Cl. 5.10.2
13	Tensile Testing systems equipped with low inertia force measurement Testing Assembly as per Cl. 5.10.3 and test piece as per Fig. 13, 14	Tear Resistance as per Cl. 5.10.3

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

ANNEX C

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 and implement 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 Cl. 4.6 of IS 13774:2021/IEC 60903:2014.

4. CONTROL UNIT – All gloves of the same type, class, length, category and lining made out of the same batch of raw materials under similar conditions, manufactured in a day 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	Referenc e				
4.3.1	Composition	4.3.1	IS 13774	-	Each Glove		
4.3.2	Dimensions	4.3.2, 5.2.3	IS 13774	R	Each Glove		
4.3.3, 5.2.4	Thickness	5.2.4	IS 13774	R	Three	Each Control Unit	In case of failure, each glove of the control unit shall be tested
4.3.4	Workmanship & Finish	4.3.4, 5.2.5	IS 13774	R	Each Glove		
4.6	Marking	5.3.1, 4.6	IS 13774	R	Each Glove		
5.3.2	Durability of marking	5.3.2	IS 13774	R	One	Each Control Unit	
4.7	Packaging	5.4, 4.7	IS 13774	-	One	Each Pair	
4.8	Instructions for use	5.4, 4.8	IS 13774	-	One	Each package	
5.5.2.1	Tensile Strength & Elongation at Break (type test)	5.5.2.1	IS 13774	R	Three	Each Control Unit	
5.5.2.2	Tensile Strength & Elongation at Break (Sampling test)	5.5.2.2	IS 13774	-	As per sampling plan given in Table 4 of IS 13774		Necessary documentation for components to be maintained by manufacturer
5.5.3.1	Resistance to Puncture (type test)	5.5.3.1	IS 13774	R	Three	Each Control Unit	
5.5.3.1	Resistance to Puncture (Sampling test)	5.5.3.1	IS 13774	-	As per sampling plan given in Table 4 of IS 13774		Necessary documentation for components to be maintained by manufacturer
5.5.4.1	Tension Set (type test)	5.5.4.1	IS 13774	R	Three	Each Control Unit	
5.5.4.2	Tension Set (Sampling test)	5.5.4.2	IS 13774	-	As per sampling plan given in Table 4 of IS 13774		Necessary documentation for components to be maintained by manufacturer
5.6.1	Dielectric Type Test	5.6.1	IS 13774	R	Three	Every 15 th	

						Control Unit	
5.6.2	Dielectric Sampling test	5.6.2	IS 13774	R	As per sampling plan given in Table 4 of IS 13774		
5.6.2	Dielectric Routine Test	4.3.3, 5.6.2	IS 13774	R	Each Glove		Test applicable for gloves not subjected to Dielectric type and Dielectric sampling test
5.7	Ageing Test	5.7	IS 13774	R	Four	Every 30 th Control Unit	-
5.8.1	Low Temperature Test	5.8.1	IS 13774	S	Three	Every 30 th Control Unit	
5.8.2	Flame Retardancy Test	5.8.2	IS 13774	S	One	Every 30 th Control Unit	
5.9.1	Special Properties – Category A – Acid Resistance	5.9.1	IS 13774	S	Three	Every 30 th Control Unit	
5.9.2	Special Properties – Category H – Oil Resistance	5.9.2	IS 13774	S	Three	Every 30 th Control Unit	
5.9.3	Special Properties – Category Z – Ozone Resistance	5.9.3	IS 13774	S	Two	Every 30 th Control Unit	
-	Special Properties – Category R – Acid, Oil & Ozone Resistance	5.9.1, 5.9.2, 5.9.3	IS 13774	S	Eight	Every 30 th Control Unit	
5.9.4	Special Properties – Category C – Extremely Low Temperature Resistance	5.9.4	IS 13774	S	Three	Every 30 th Control Unit	Applicable for Composite Gloves only.
5.9.5	Special Properties – Category F – Leakage Current Resistance	5.9.5	IS 13774	R	Three	Each Control Unit	
5.10.1	Abrasion Resistance	5.10.1	IS 13774	R	Five	Each Control Unit	
5.10.2	Cutting Resistance	5.10.2	IS 13774	R	Two	Each Control Unit	
5.10.3	Tear Resistance	5.10.3	IS 13774	R	Four	Each Control Unit	

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: 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 D

Possible tests in a day

- i. Visual Inspection, Dimension, thickness, workmanship and finish
- ii. Tensile Strength & Elongation at Break
- iii. Puncture Resistance
- iv. Tension Set
- v. Routine Dielectric Tests (without Moisture Conditioning)
- vi. Low Temperature Thermal Test
- vii. Abrasion Resistance, Cutting Resistance and Tear Resistance of Composite Gloves only (as applicable)
- viii. Leakage Current Test of Category F Long Gloves only (as applicable)