



www.bis.gov.in

उत्पाद मैनुअल

बेल्लित काँच उत्कीर्ण चित्रित अतिरिक्त स्पष्ट
उत्कीर्ण चित्रित तार युक्त उत्कीर्ण चित्रित काँच विशिष्ट
IS 5437 2024 के अनुसार

PRODUCT MANUAL FOR
Rolled Glass Patterned, Extra Clear Patterned,
Wired and Wired-Patterned Glass — Specification
ACCORDING TO IS 5437: 2024

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 5437 : 2024
	शीर्षक Title	:	Rolled Glass Patterned, Extra Clear Patterned, Wired and Wired-Patterned Glass
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement 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	:	कृपया Annex-A देखें Please ref Annex-A

c)	नमूने का परिमाण Sample Quantity	:	5 Nos of size 1 x 1mt. Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (incase of market surveillance, effort may be made to procure therequired quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex-C
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All the tests mentioned in the IS are possible to be carried out in a day. 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 readyreference 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 5437 2024 with the following scope:		
	Name of the product	Rolled Glass Patterned, Extra Clear Patterned, Wired and Wired-Patterned Glass	
	Type	Patterned Glass, and/or ; Extra Clear patterned glass, and/or ; Wired Glass, and/or ; Wired-patterned Glass	
	Nominal Thickness	As applicable	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

**ANNEX A
GROUPING GUIDELINES
FOR FIGURED, ROLLED AND WIRED GLASS
ACCORDING TO IS 5437:2024**

Rolled Glass Patterned, Extra Clear Patterned, Wired and Wired-Patterned Glass is categorized into following four types:

- a) Patterned Glass,
- b) Extra Clear patterned glass,
- c) Wired Glass,
- d) Wired-patterned Glass

The nominal thickness of the glass shall be as per Table 1 of IS 5437

For Grant of licence and Inclusion following Grouping Guideline shall be followed:

- a) For covering range of thickness as per Table 1, sample of the highest and lowest thicknesses from the table shall be tested.
- b) If the sample of Extra Clear patterned glass has been tested, then Patterned Glass may also be included in the scope of licence.
- c) If the sample of Wired-patterned Glass has been tested, then Wired Glass may also be included in the scope of licence

However, while considering grant of licence/inclusion of additional varieties, it will be ensured that the applicant/licensee has got the complete manufacturing and testing facilities for all the sizes and designs intended to be covered.

During operation of the licence, BO will ensure that all the varieties covered in the licence are tested in rotation. The above guidelines may be followed for Grant of Licence as well as inclusion of new variety.

ANNEX – B

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S No	Test used in with Clause Reference		Test Equipment
	Clause. No.	Test	
1.	5.1 5.1.1	Dimensional Nominal Thickness	micrometer or calipers, LC 0.01 mm
2.	5.1.2.1 and 5.1.2.2	Tolerances on final cut sizes; Squareness	Steel scale/ tape
3.	5.2.1, 5.2.2, 5.2.3, 6.1; 8.4	Spot Faults; Elongated spot Faults; Linear/extended faults, pattern faults (Patterned Glass); pattern faults (Extra clear patterned glass); Wire faults	arrangement as per A-1.1 and A-1.2 under Annex A of IS 5437, vernier caliper(LC 0.1mm),
4.	5.2.4 5.2.4.1	Warpage	Wooden plank, vernier caliper, thread
5.	7.2	Iron Content	<u>Spectrophotometric method:</u> Platinum Dish, Sand Bath, Beaker—250ml, Volumetric Flask — 250 ml, Pipette , Volumetric Flask, UV-VIS Spectrophotometer, Distilled Water, Nessler's Cylinder, Sodium acetate solution, Hydroxylamine hydrochloride, 1, 10 phenanthroline solution, ethanol, ferrous ammonium sulphate, hydrogen peroxide, perchloric acid, hydrochloric acid, hydrofluoric acid, Nitric acid <u>Classical method/Wet analysis</u> Platinum Dish, Sand Bath, Beaker—250ml, Volumetric Flask — 250 ml, Pipette, Nessler's Cylinder ferrous ammonium sulphate, hydrogen peroxide, sulphuric acid, volumetric flask, Citric acid, Thioglycolic acid, ammonia solution, perchloric acid, hydrochloric acid, hydrofluoric acid, Nitric acid, distilled water
6.	7.3	Antimony content	Platinum Dish, Volumetric Flask, Hot Sand Bath, Distilled Water, perchloric acid, hydrochloric acid, hydrofluoric acid, Nitric acid, beaker, stock solution, standard solution, Atomic absorption spectrophotometer.
7.	7.4	Hydrolytic resistance	Test water as per Cl 5.1 of IS 2303 Part 1 Sec 2, Hydrochloric acid, standard volumetric solution, methoy red, Acetone, purified water, Balance, Burettes, Pipettes, Conical flasks, Beakers, Boiling flasks, Weighing bottles, Desiccator, Hammer,

			Mortar and pestle, permanent magnet, Sieves, Ball-mill, Sieving-machine. Ultrasonic cleaner, Drying oven, Autoclave or steam sterilizer, Warm plate
8.	7.5; 7.6	Light transmission; Solar Transmittance	Spectrophotometer with accessories as per D-1 of Annex D of IS 5437,
9.	8.; 8.2; 8.3	Wire mesh; Position of wire mesh; Broken wires	Micrometer, vernier caliper, Magnifying Glass
10.	8.5	Flame proofness	Gas fired Furnace having a removable wall provided with a window for glazing as per E 2.1 of Annex E of IS 5437, Rubber Hose as per E 2.2 and E 3.2 of Annex E of IS 5437, thermocouple

ANNEX C

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 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 : total quantity of the product (glass) of same type and nominal thickness produced in a day from the same batch of raw material under similar conditions

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 requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- 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.

2.1 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.

2.2 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.

2.2.1 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.

2.3 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.

2.3.1 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.

2.4 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 NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be 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 piece of glass provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 Additional Marking requirements: The material shall also be marked with the following additional requirement on each package

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

4. 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)

S.No.	(1)				(2)	(3)		
	Test Details				Test equipment requirement R: required (or) S: Sub contracting permitted	Recommended Levels of Control		
	Cl.	Requirement	Test Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
1.	5.1 Table 1	Dimensional Nominal thickness	5.1.1	IS 5437	R	Manufacturer shall ensure adequate inspection and in process control, to ensure product meets specified requirements, and maintain test records		
2.	5.1.2.1 Table 2	Tolerances on final cut sizes	5.1.2.1	-do-	R	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		
3.	5.1.2.2 Table 3	Squarness	5.1.2.2	-do-				
4.	5.2.1	Spot Faults	5.2.1 Annex A	-do-				
5.	5.2.2	Elongated spot faults	5.2.2 Annex A	-do-				
6.	5.2.3	Linear Extended faults	5.2.3 Annex A	-do-				
7.	5.2.4	Warpage	5.2.4	-do-				
8.	6.1	Pattern faults	6.1 Annex A	-do-				
9.	7.2	Iron content	7.2 Annex B	-do-	S	One	Each consignment of raw material	Optional requirement
10.	7.3	Antimony content	7.3 Annex C	-do-	S	-do-	-do-	
11.	7.4	Hydrolytic resistance	7.4	IS 2303 Part 1 Sec 2	R	-do-	Each control unit	
12.	7.5	Light Transmission	7.4 Annex D	IS 5437	R	-do-	-do-	
13.	7.6	Solar Direct transmittance	7.5 Annex D	-do-	R	-do-	-do-	

14	8.1	Wire mesh	8.1	-do-	R	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		
15	8.2	Position of wire mesh	8.2	-do-				
16	8.3	Broken Wires	8.3	-do-				
17	8.4	Wire faults	8.4 Annex A	-do-				
18	8.5	Flame proofness	8.5 Annex E	-do-	R	One	Each control unit	