



उत्पाद मैनुअल

भा. मा. 2553 (भाग 2): 2019 के अनुसार

सड़क परिवहन के लिए सुरक्षा काँच के लिए

दस्तावेज़ संख्या-पी एम/आई एस 2553 (Part 2)/7/जनवरी 2026

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 दस्तावेज़ का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR SAFETY GLASS FOR ROAD TRANSPORT ACCORDING to IS 2553 (Part 2):2019

Document No.-PM/IS 2553 (Part 2)/7/ January 2026

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.

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1.	Product	:	IS 2553 (Part 2): 2019
	Title	:	Safety Glass for Road Transport
	No. of Amendments	:	Six
2.	Sampling Guidelines:		
a)	Raw material	:	---
b)	Grouping guidelines	:	Please refer ANNEX – <u>A</u>
c)	Sample Size	:	Please refer ANNEX – <u>B</u>
3.	List of Test Equipment	:	Please refer ANNEX – <u>C</u>
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – <u>D</u>
5.	Possible tests in a day	:	Please refer ANNEX – <u>E</u>
6.	Scope of the Licence:		Please refer ANNEX – <u>F</u>

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ANNEX A**Grouping Guidelines**

1. Safety glazing intended for installation in motor vehicles as per IS 2553 (Part 2) are classified as given below:

(a) Windscreens

- Laminated Glass (II)
 - Laminated Glass (II/P)
 - Treated Laminated glass (III)
 - Treated Laminated glass (III/P)
 - Glass Plastics (IV)
 - Toughened Glass (I)
 - Toughened Glass (I/P)
 - Uniformly Toughened Glass (VII)
- } (For agricultural tractors only)

(b) Panes and Roof Glazing

- Uniformly Toughened Glass (without marking P)
- Uniformly Toughened Glass (with marking P)
- Laminated Glass (XI)
- Laminated- glass panes with enhanced mechanical properties (XI/D)
- Laminated Glass (XI/P)
- Double Glazed Unit (VI)
 - Symmetrical, Asymmetrical
- Glass Plastics (XII)
- Rigid Plastics (VIII/A, VIII/B, VIII/C)
 - /L, /M
- Flexible Plastics (IX)

(For Panes, glazing with a light transmission of less than 70 % shall be marked with “V”).

2. For considering GoL/CSoL, the guidelines given below shall be followed:

- (a) Every variety of Safety Glass is required to be tested. Appropriate reduction in testing as per Table 7 of IS 2553-2: 2019 shall be applicable.
- (b) The manufacturer shall declare all the varieties which are intended to be covered in the scope of licence and submit the technical specification in accordance with Annex A of IS 2553 (Part 2) for each variety of Safety glass intended to be manufactured by him..
- (c) For inclusion of additional variety, every functional modification in technical specification in accordance with Annex A of IS 2553 (Part 2): 2019 shall be declared by manufacturer to BIS.
- (d) In case any reduction in testing as per Table 7 of IS 2553-2: 2019 is sought at the time of grant of licence or inclusion, the same shall be declared by the manufacturer to BIS and the testing lab carrying out the testing.

3. During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

Annex –B**Sample size****(Indicative sample size for common varieties)**

Sl. No.	Grade	Sampling Details
1	Laminated Glass (II)	Actual Size: 04 Nos. Cut Size 300 mm x 300 mm: 44 Nos. Cut Size 76 mm x 300 mm: 03 Nos. Cut Size 100 X 100 with 6.4 mm hole (in centre): 03 Nos. Cut Size 1100 mm x 500 mm: 08 Nos. OR Actual Size: 08 Nos. Cut Size 300 mm x 300 mm: 44 Nos. Cut Size 76 mm x 300 mm: 03 Nos. Cut Size 100 X 100 with 6.4 mm hole (in centre): 03 Nos. Head-form Test support fixture for windscreen
	Treated Laminated Glass (III)	Actual Size: 04 Nos. Cut Size 300 mm x 300 mm: 44 Nos. Cut Size 76 mm x 300 mm: 03 Nos. Cut Size 100 X 100 with 6.4 mm hole (in centre): 03 Nos. Cut Size 1100 mm x 500 mm: 09 Nos. OR Actual Size: 08 Nos. Cut Size 300 mm x 300 mm: 44 Nos. Cut Size 76 mm x 300 mm: 03 Nos. Cut Size 100 X 100 with 6.4 mm hole (in centre): 03 Nos. Head-form Test support fixture for windscreen
2	Uniformly Toughened Panes (Without P)	Actual Size = 08 Nos. Cut Size 300 x 300 = 06 Nos.
3	Laminated Glass (XI)	Actual Size = 01 No. 300 X 300 mm samples = 20 Nos. Cut Size 100 X 100 with 6.4 mm hole (in centre): 03 Nos. 76 X 300 mm samples = 03 Nos
4	Toughened Windscreen (I)	Actual Size: 06 Nos. Cut Size 300 mm x 300 mm: 03 Nos. Cut Size 1100 mm x 500 mm: 06 Nos. OR Actual Size: 10 Nos. Cut Size 300 mm x 300 mm: 03 Nos. Head-form Test support fixture for windscreen
5	Uniformly Toughened Windscreen (VII)	Actual Size = 08 Nos. Cut Size 300 x 300 = 06 Nos.
6	Double Glazed Unit (VI)	Actual Size = 12 Nos. Cut Size 300 x 300 = 03 Nos.

**Above sample size is for guidance only. Actual numbers and dimensions of samples required to be drawn, as applicable for the variety of glazing, shall be drawn to ensure complete testing as per IS 2553-2: 2019.*

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

S.no.	Tests used in with Clause Reference		Test Equipment
	Cl. No.	Test	
1)	5.1.1	Light Transmittance Test	Light source consisting of an incandescent lamp with its filament contained within a parallel piped measuring 1.5 mm × 1.5 mm × 3 mm as per Cl. 6.11
2)	5.1.2	Test of Resistance to abrasion	Abrading Instrument as mentioned in Fig 4 of IS 2553 (Part 2):2019, Abrasive wheels, Haze meter, Light Source consisting of Incandescent lamp, Linen Cloth, Distilled water as per Cl. 6.6
3)	5.2.1	Resistance to Temperature Changes	Temperature controller bath as per Cl. 6.10
4)	5.2.2	Resistance to fire	Combustion Chamber, Sample holder and fume Cupboard as per Cl. 6.14
5)	5.2.3	Resistance to chemicals	Chemicals and solutions as mentioned in Cl. 6.15
6)	5.3.1	Resistance to Radiation	Test apparatus for radiation resistance, Radiation source consisting of a medium pressure mercury vapour arc lamp or any similar source as per Cl. 6.8
7)	5.3.2	Resistance to High Temperature	Chamber for maintaining high temperature as per Cl. 6.7
8)	5.3.3	Resistance to humidity	Humidity Chamber as per Cl. 6.9
9)	5.4.1	Optical Distortion Test	Optical Distortion Tester Consisting projector, rasters and supporting stand as per Cl. 6.12
10)	5.4.2	Secondary image separation test	Apparatus for image separation test as mentioned in Cl. 6.13
11)	5.4.3 5.5.3.2, 5.5.2.2, 5.6.1, 5.8.3	Head-form test	Head form Supporting Fixture

12)	5.4.4, 5.5.2.3	2.260 g Ball test	Solid Hardened Steel ball, set up as per Cl. 6.4
13)	5.4.5, 5.5.1.2, 5.5.2.1, 5.6.2, 5.7.1	227 g Ball test	Hardened Steel ball fixture, set up as per Cl. 6.3
14)	5.5.1.1, 5.8.2	Fragmentation test	Spring Loaded Centre punch or hammer, Adhesive tape, set up as per Cl. 6.3
15)	5.6.3 5.7.2	Flexibility and Fold	Thermometer, Hygrometer
16)	5.6.4, 5.7.4	Weathering	Long-arc xenon lamp as per Cl. 6.18
17)	5.6.5	Cross-cut	Cutting tool with 6 blades set, Magnifying glass
18)	6.2.4	Fragmentation test for treated laminated glass windscreens	Hammer, adhesive tape as per Cl. 6.2.4

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

ANNEX D
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 subcontracting/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 the Quantity of the safety glass of the same variety [variety as defined in Scope of licence] manufactured by the same method and under similar conditions in a day.

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.

2. ENSURING COMPLIANCE THROUGH TESTING- 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 packing and marking shall be done as per the provisions of the Indian Standard i.e IS 2553 (Part 2):2019. The Standard Mark, as given in the Schedule of the licence, shall be marked on each piece of safety glass provided always that the safety glass thus marked conforms to all the requirement of the specification.

3.1 Additional Marking requirements: Additionally, the following shall also be marked on product or package :

- 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

(1)				(2)		
Test Details				Levels of Control		
Cl.	Requirement	Test Method		No. of Sample	Frequency	Remarks
		Clause	Reference			
3.7	Thickness measurement	3.7	IS 2553 (Part 2)	One	Each Control Unit	
4.1	Marking	4.1	IS 2553 (Part 2)	Each glass		
5.1	Requirements applicable to all glazing					
5.1.1	Light transmittance test	6.11, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in two years for each type	--
5.2	Additional Requirements applicable to All Glazing faced with plastic					
5.1.2	Resistance to abrasion	6.6, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in six months for each type	--
5.2.1	Resistance to Temperature Changes	6.10, Table 1, Table 1A	IS 2553 (Part 2)	Two	Once in six months for each type	--
5.2.2	Resistance to fire	6.14, Table 1, Table 1A	IS 2553 (Part 2)	Five	Once in six months for each type	--
5.2.3	Resistance to chemicals	6.15, Table 1, Table 1A	IS 2553 (Part 2)	Four	Once in six months for each type	--
5.3	Additional Requirements applicable to All Laminated-Glass and All Glazing faced with Plastics, Glass Plastics					
5.1.2	Resistance to abrasion	6.6, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in six months for each type	--
5.3.1	Resistance to Radiation	6.8, 6.11, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in two years for each type	--

5.3.2	Resistance to High Temperature	6.7, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in two years for each type	--
5.3.3	Resistance to humidity	6.9, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in six months for each type	--
5.4	Additional Requirements applicable to Windscreens					
5.1.2	Resistance to abrasion	6.6, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in six months for each type	--
5.4.1	Optical Distortion Test	6.12, Table 1, Table 1A	IS 2553 (Part 2)	Four	Once in two years for each type	--
5.4.2	Secondary image separation test	6.13, Table 1, Table 1A	IS 2553 (Part 2)	Four	Once in two years for each type	--
5.4.3	Head-form test	6.5, Table 1	IS 2553 (Part 2)	Eight	Once in two years for each type	--
5.4.4	2260 g Ball test	6.4, Table 1, Table 1A	IS 2553 (Part 2)	Twelve	Once in two years for each type and nominal thickness	--
5.4.5	227 g Ball test	6.3, Table 1, Table 1A	IS 2553 (Part 2)	Ten	Once in a month for each type and nominal thickness	--
5.4.6	Fragmentation test	6.2.4	IS 2553 (Part 2)	One	Once in two years for each type	--
5.5	Additional Requirements applicable to Panes					
5.5.1	Requirements applicable only to uniformly Toughened Glass Panes					
5.5.1.1	Fragmentation test	6.2, Table 1, Table 1A	IS 2553 (Part 2)	Four	Once in six months for each type	--
5.5.1.2	227 g Ball test	6.3, Table 1, Table 1A	IS 2553 (Part 2)	Six	Once in a month for each type and nominal thickness	--
5.5.2	Requirements applicable only to Laminated-Glass and Glass-Plastic Panes					
5.5.2.1	227 g Ball test	6.3, Table 1, Table 1A	IS 2553 (Part 2)	Eight	Once in a month for each type and nominal thickness	--

5.5.2.2	Head form test (For XI/D glazing only)	6.5, Table 1, Table 1A	IS 2553 (Part 2)	Eight	Once in two years for each type and nominal thickness	
5.5.2.3	2260 g Ball test (For XI/D glazing only)	6.4, Table 1, Table 1A	IS 2553 (Part 2)	Twelve	Once in two years for each type and nominal thickness	
5.5.3	Requirements applicable only to Double-Glazed Units					
5.5.3.1	Individual components	5.5.3.1, Table 1	IS 2553 (Part 2)	As outlined in the SIT for that type of glazing		
5.5.3.2	Head-form test	6.5, Table 1, Table 1A	IS 2553 (Part 2)	Twelve	Once in two years for each type	--
5.5.2.1	227 g Ball test	6.3, Table 1	IS 2553 (Part 2)	Eight	Once in a month for each type and nominal thickness	--
5.6	Additional requirements specific to Rigid Plastic Glazing					
5.1.2	Resistance to abrasion	6.6, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in six months for each type	--
5.6.1	Head-form test	6.16, Table 1, Table 1A	IS 2553 (Part 2)	Six	Once in two years for each type	--
5.6.2	Mechanical Strength test- 227g Ball test	6.3, Table 1, Table 1A	IS 2553 (Part 2)	Ten	Once in a month for each type and nominal thickness	--
5.6.2.5	227g Ball Test at $-18^{\circ} \pm 2^{\circ}\text{C}$	6.3, Table 1, Table 1A	IS 2553 (Part 2)	Ten	Once in six months for each type and nominal thickness	--
5.6.3	Flexibility and Fold test	6.17, Table 1, Table 1A	IS 2553 (Part 2)	One	Once in a month for each type	--
5.6.4	Weathering	6.18, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in two years for each type	--
5.6.5	Cross-cut	6.19, Table 1, Table 1A	IS 2553 (Part 2)	One	Once in a month for each type	--
5.7	Additional requirements specific to Flexible Plastic Glazing					

5.7.1	227g Ball Test at 20° ± 5°C	6.3, Table 1	IS 2553 (Part 2)	Ten	Once in a month for each type and nominal thickness	--
5.7.2	227g Ball Test at -18° ± 2°C	6.3, Table 1	IS 2553 (Part 2)	Ten	Once in six months for each type and nominal thickness	--
5.7.3	Flexibility and Fold test	6.17, Table 1	IS 2553 (Part 2)	One	Once in a month for each type	--
5.7.4	Weathering test	6.18, Table 1, Table 1A	IS 2553 (Part 2)	Three	Once in two years for each type	--
5.8	Additional requirements specific to Toughened glass windscreens for Agricultural Tractor					
5.8.2	Fragmentation test	6.2.1, 6.2.2.1, 6.2.2.2, 6.2.2.4, Table 1A	IS 2553 (Part 2)	Six	Once in six months for each type	
5.8.3	Head-form test	6.5.3, Table 1A	IS 2553 (Part 2)	Four	Once in two years for each type	

Note: Type of safety glass is defined at para 1 of Grouping Guidelines of this Manual.

Annex-E

Possible tests in a day

- i) Thickness measurement (Cl. 3.7)
- ii) Marking Cl. 4.1
- iii) Light transmittance test (Cl. 5.1.1)
- iv) Thickness (Cl. 3.7)
- v) Resistance to temperature change (Cl. 5.2.1)
- vi) Resistance to High Temperature (Cl.5.3.2)
- vii) Optical Distortion (Cl. 5.4.1)
- viii) Secondary Image Separation (Cl.5.4.2)
- ix) Fragmentation Test (Cl. 5.5.1.1)
- x) 227g Ball (Cl. 5.5.1.2)

Note: Fragmentation test shall be done on all applicable varieties available during surveillance inspection.

ANNEX F**Scope of Licence**

Licence is granted to use Standard Mark as per IS 2553 (Part 2):2019 with the following scope:				
Name of the Product		Safety Glass for Road Transport		
Variety		Variety 1	Variety 2	Variety 3
Technical parameter				
Part number or unique identification Number				
Drawing number				
Type of glazing along with identification marks as per Cl. 4.2 of IS 2553 (Part 2) and Classification given in Grouping Guidelines in this Manual				
Nominal Thickness				
Interlayer type, material and thickness (For Laminated-glass)				
Intended type of installation (Windscreen/Rear windscreen/ Pane/Roof glazing)				
Rake angle, in case of windscreen				
Color combination, Clear + clear or Clear + green etc.				
Colour (for toughened Panes)				