उत्पाद मानुयल
आई एस 17953:2023 के अनुसार
खिड़कियों और दरवाजों के लिए यूपीवीसी प्रोफाइल के लिए

दस्तावेज़ संख्या– पी एम/आई एस 17953/1/ सितम्बर 2023

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन मे रीति और पारदर्शिता के सुसंगता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेन्स धारियों द्वारा संदर्भ सामग्री के रूप मे उपयोग किया जाएगा। बीआईएस लाइसेन्स/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR
UPVC PROFILES FOR WINDOWS AND DOORS
ACCORDING TO IS 17953:2023

Document No.- PM/IS 17953/1/Sep 2023

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 17953:2023
	Title	:	uPVC Profiles for Windows and Doors
	No. of Amendments	:	0
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	Declaration w.r.t. defined formulation of raw material composition
b)	**Grouping Guidelines**	:	Please refer Annex A
c)	**Sample Size**	:	10 Nos – 1 Meter Profiles 3 nos of welded corners for Tensile Bending Test 3 nos of Welded T Joints for Tensile Bending Test 3 nos of Welded Corners for Compression Bending Test 3 nos of Welded T Joints for Compression Bending Test
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 Standard Mark as per IS 17953:2023 with the following scope:		
	Name of the product		UPVC PROFILES FOR WINDOWS AND DOORS – SPECIFICATION
	Type of Extrusion		Mono Extrusion/ Co Extrusion
	Profile Design & Size		Drawing No with profile identification code for each design and size

ANNEX A

Grouping Guidelines

1. The Firm shall declare the design and sizes of uPVC profiles for windows and doors, that it intends to cover in the Licence. The manufacturer shall submit the drawings of each design and size which shall include the following parameters:

- Nominal profile shape
- Nominal mass per metre length
- Minimum wall thickness of the co-extrusion layer of sight visible and non-sight visible surface
- Deviation from straightness for auxiliary profiles
- Defined formulation of the material composition
- Monoextrusion or Co-Extrusion manufacturing process

1.1 Whenever there is any change in the defined formulation of the material composition, the manufacturer shall inform BIS about the change alongwith the declaration of parameters as specified at Serial No.1 above.

2. Samples of uPVC Profiles For Windows and Doors as per IS 17953:2023 for GoL/CSoL, shall be tested as per the following:

a) Sample of one design and size of profile for each defined formulation of material, shall be tested for test requirements given in Clause 4.1 and 4.3 of IS 17953:2023. Other design and sizes of profiles manufactured from the same defined formulation of material shall be tested as per Clause 4.3 of IS 17953:2023.

b) uPVC profiles shall be tested for each of the extrusion manufacturing process for the requirements as specified at Serial No 2(a) above.

3. The Scope of licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer. 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

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Appearance (Clause 5.2, 6.1)	Spectrophotometer with the spectral measuring range of at least 400 nm to 700 nm. The spectral step width and optical bandwidth shall be ≤ 20 nm (preferable 5 nm to 10 nm), with the following conditions: - a) Standard CIE illuminant D65, as per IS 11472 (Part-1) or equivalent; - b) Using observing fields of 2° or 10° angular subtense; - c) Measurement including the specular reflection and the geometry di:8° (without gloss trap)
2	Dimensions – Depth, Width ,Wall Thickness & Parallelism (Clause 5.3, 6.2)	- Vernier Calipers/ Projector/ Scanner
3	Dimensions – Flatness (Clause 5.3, 6.2)	- Dial or Plunger Guage/ Straight Edge
4	Dimensions – Deviation From Straightness (Clause 5.3, 6.2)	- Surface Table & Filler Guage/ Distance Gauge
5	Mass of the Profile (Clause 5.4, 6.3)	- Weighing Balance with least count 1g - Measuring device capable of measuring upto 0.5mm - Timer - Air Conditioner - Thermometer
6	Weldability (Clause 5.8)	- Tensile or Compression Testing Machine as per Annex F - Equipment capable to prepare samples as per Annex F.3
7	Density (Clause 5.11)	- Weighing Balance with Least count 0.1 mg, - Thermometer - Demineralized water

		- Beaker - Corrosion resistant wire
8	Heat Reversion (Clause 5.5)	- Thermostatically controlled hot air oven,with forced air circulation capable of maintaining 100 ± 2 °C - Heat resistant glass plate or stainless steel plate and talc/PTFE foil - Thermometer, graduated in 0.5 °C - Measuring device, to measure the length of the test specimen upto 0.1 mm.
9	Heat Ageing (Clause 5.7)	- Ventilated Oven or Liquid bath as per Annex E - Thermometer, graduated in 0.5 °C
10	Resistance to Impact of Falling Mass (Clause 5.6)	- Deep Freezer capable of maintaining - 10 (+0 -2) - Impact Testing Machine as per Annex D
11	Charpy Impact Resistance (Clause 4.1 (e), 5.9)	- Charpy Impact Test Machine as per as per IS 13360 (Part5/ sec5) - Micrometers and gauges
12	Vicat Softening Temperature (Clause 4.1 (a))	- Vicat Softening Temperature test Apparatus as per Cl 5 of IS 13360 (Part 6/Sec 1) : 2018
13	Flexural modulus of elasticity (Clause 4.1 (b))	- Flexural modulus of elasticity Test machine as per Cl 5 of IS S 13360 (Part 5/Sec 7) : 2022
14	Tensile Impact Strength (Clause 4.1 (c))	- Tensile Impact Strength Test Machine as per Cl 5.1 of IS 13360 (Part 5/Sec 27) : 2022 - Pendulum and striker - Crosshead - Clamping devices/jaws - Micrometers and gauges
15	Resistance to weathering (Clause 5.10)	- Resistance to weathering test apparatus as per Annex G, G 3

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

ANNEX B

Scheme of Inspection And Testing

1. 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 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 requirements of Clause No. 8 of IS 17953:2023. The Standard Mark, as given in the Schedule of the licence, shall be marked provided always that the uPVC profile thus marked conforms to all the requirement of the specification. In addition, details of BIS website shall be marked on the packaging of uPVC profiles as follows: "For details of BIS certification please visit www.bis.gov.in".

4. CONTROL UNIT – uPVC profiles of same Design and size manufactured in a day shall constitute one 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 Standard 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 Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
	UV Resistant Virgin material						
5.1.1	Vicat softening temperature	Annex B-3.1	IS 17953 IS 13360 Part 6/Sec 1	S	One	Once in 5 Years or whenever a change is made in defined formulation, whichever is earlier	
	Flexural Modulus of Elasticity	Annex B-3.2	IS 17953 IS 13360 Part 5/Sec 7	S			
	Tensile Impact Strength	Annex B-3.3	IS 17953 IS 13360 Part 5/Sec 27	S			
	Resistance to Weathering –	5.10 Annex G	IS 17953	S	One	Once in 7 Years or whenever a change is made in defined formulation, whichever is earlier	*
	Reduction in Impact Strength after Weathering (Cl 5.10.3)						
	Colour fastness after Weathering (Cl 5.10.4)						
	Non-UV Resistant Virgin material -						
5.1.2	Vicat softening temperature	Annex B-3.1	IS 17953 IS 13360 Part 6/Sec 1	S	One	Once in 5 Years or whenever a change is	

	Flexural Modulus of Elasticity	Annex B-3.2	IS 17953 IS 13360 Part 5/Sec 7	S		made in defined formulation, whichever is earlier	
	Tensile Impact Strength	Annex B-3.3	IS 17953 IS 13360 Part 5/Sec 27	S			
5.1.3	Own Reprocessed, Recyclable Materials and Non-UV Resistant Virgin Materials	5.1.3 Table 1	IS 17953	R	Firm to have adequate in-process controls to check compliance of this parameter as per the requirements given in the Indian Standard. Appropriate records shall be maintained by the manufacturer for evidence of conformity		
5.2	Appearance	5.2, 6.1	IS 17953	R			
5.3	Dimensions and Tolerances – (Depth, Width, Sight Visible Surface Wall thickness, Sight Visible Surface Flatness, Parallelism, Wall Thickness of Main Profiles & Straightness)	Table 2 & 6.2	IS 17953	R			
5.4	Mass of Profile	6.3	IS 17953	R	One	Each Control Unit	
5.5	Heat Reversion	5.5 Annex C	IS 17953	S	One	Once in 5 Years or whenever a change is made in defined formulation, whichever is earlier	
5.6	Resistance to Impact of falling Mass	5.6 Annex D	IS 17953	S	One		
5.7	Heat Ageing	5.7 Annex E	IS 17953	S	One		
5.8	Weldability (Tensile Bending Test, Compression Bending Test)	5.8 Annex F	IS 17953	R	One	Each Control Unit	

5.9	Charpy Impact Resistance	5.9	IS 17953:2023 IS 13360 Part 5/Sec 5	S	One	Once in 5 Years or whenever a change is made in defined formulation, whichever is earlier	
5.11	Density	5.11	IS 17953 IS 13360 Part 3/Sec 10	R	One	Each Control Unit	

* The firm shall provide the report of conformity of weathering test as per Clause 5.10 of IS 17953:2023 from a BIS approved lab, once in seven years to BIS. The varieties covered under the scope of licence shall be tested in rotation.

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 hisown levels of control in column 3 with proper justification for approval by BO Head.

ANNEX-C

POSSIBLE TESTS IN A DAY

1. Appearance (Clause 5.2)
2. Dimensions and Tolerance (Clause 5.3 & Table 2)
3. Deviation From Straightness (Clause 5.3.4)
4. Mass of Profile (Clause 5.4)
5. Weldability (Clause 5.8)
6. Density (Clause 5.11)