



**PRODUCT MANUAL FOR
WOODEN FLUSH DOOR SHUTTERS
(SOLID CORE TYPE) – PLYWOOD FACE PANELS
ACCORDING TO IS 2202 (PART 1): 1999**

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 2202 (PART 1) : 1999
	Title	:	WOODEN FLUSH DOOR SHUTTERS (SOLID CORE TYPE) – PLYWOOD FACE PANELS
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	Please refer ANNEX- A
b)	Grouping guidelines	:	Please refer ANNEX- B
c)	Sample Size	:	- 2 Flush door shutters for all tests - Raw materials as per clause 6 of IS 2202 (Part 1)
3.	List of Test Equipment	:	Please refer ANNEX – C
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – D
5.	Possible tests in a day	:	Please refer ANNEX – E
6.	Scope of the Licence	:	Please refer ANNEX – F

ANNEX- A**Details of Raw Materials**

Raw Material	Clause of IS 2202 (Part 1)
Timber	6.1
Plywood	6.2
Cross bands	6.3
Face veneers	6.4
Adhesive (BWP grade)	6.6
Particle boards	6.7
Medium density fibre (MDF) board	6.8

ANNEX B
Grouping Guidelines

1. Wooden Flush Door Shutters as per IS 2202 (Part 1) are classified as given below:

- a) **Grade - BWP**
b) **Type and Construction**

Core	Type	Abbreviation
Blockboard	Decorative	BD
	Non-Decorative (Paintable)	BN
Particle board with or without blockboard	Decorative	PD
	Non-Decorative (Paintable)	PN
Medium density fibreboard with or without blockboard	Decorative	MD
	Non-Decorative (Paintable)	MN

- c) **Sizes**

Modular (with Designation of Doors) - 8 DS 20/8 DS 21/9 DS 20/9 DS 21/10 DS 20/10 DS 21/12 DT 20/12 DT 21

(D - Door, S - Single shutter, T - Double leaf shutter)

Non-Modular - As agreed to between the manufacturer and the purchaser. The thickness of shutters in such cases shall be 25mm, 30mm, or 35mm provided that the thickness is not less than that specified against the nearest higher modular size as given at clause (d) below.

- d) **Thickness**

The nominal thickness of the shutters shall be 25mm, 30 mm and 35 mm corresponding to each of the sizes given below:

Flush Door Designation	Thickness of Shutter (mm)
8 DS 20/8 DS 21	25
9 DS 20/9 DS 21	30
10 DS 20/10 DS 21	35
12 DT 20/12 DT 21	35

For sizes greater than 12DT21, the thickness of such shutters shall be greater than 35 mm and shall be as agreed to between the manufacturer and the purchaser.

2. Considering the above, the following groups have been evolved for GoL/CSoL:

Group	Flush Door Designation
I	8 DS 20/8 DS 21
II	9 DS 20/9 DS 21
III	10 DS 20/10 DS 21
IV	12 DT 20/12 DT 21

3. For Modular sizes, Wooden Flush Door Shutters of highest Size Designation from each group for each Type and Construction shall be tested for all requirements to cover Shutters of all Size Designations in that group for the particular Type and Construction tested.
4. For Non-modular sizes, Wooden Flush Door Shutters of any Size Designation (with the permitted thickness) for each Type and Construction shall be tested for all requirements to cover Shutters upto and including that Size Designation (with the permitted thickness) for the particular Type and Construction tested.
5. The Firm shall declare the varieties of Wooden Flush Door Shutters they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
6. During the operation of the Licence, BO shall ensure that all the types and sizes covered in the Licence are tested in rotation, to the extent possible.

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
1.	Dimensions and Squareness (Clause 11.1)	- Measuring Tape - Steel Scale - Micrometer - Vernier Calipers - Squareness Gauge - Straight Edge - Feeler Gauge
2.	General flatness test (Clause 11.2)	- General Flatness test assembly/fixture with Plump Bob - Feeler Gauge - Spirit Level
3.	Local planeness test (Clause 11.3)	- Local Planeness test assembly/fixture with Dial Gauge - Spirit Level - Filler Gauge
4.	Impact indentation test (Clause 11.4)	- Impact indentation test assembly/fixture with steel ball - Dial gauge - Ball stand
5.	Flexure test (Clause 11.5)	- Flexure test arrangement with Loads
6.	Edge loading test (Clause 11.6)	- Edge loading test arrangement with Loads - Depth gauge
7.	Shock resistance test (Clause 11.7)	- Shock resistance test arrangement - Leather ball
8.	Buckling test (Clause 11.8)	- Buckling resistance test arrangement with Loads - Angle protector
9	Slamming test (Clause 11.9)	- Slamming Test assembly/fixture with Protractor, Stop watch - Hard wood strips
10	Misuse test (Clause 11.10)	- Misuse test assembly with angle protector, hard wood strip and loading arrangement
11	Varying humidity test (Clause 11.11)	- Temperature and humidity control cabinet
12	End immersion test (Clause 11.12)	- End emersion test arrangements - Door holding arrangement
13	Knife test (Clause 11.13)	- Knife - Stout table
14	Glue adhesion test (Clause 11.14)	- Glue Adhesion Test - Water Bath with temperature controller - Humidity Chamber with temperature controller

15	Screw withdrawal Resistance test (Clause 11.15)	<ul style="list-style-type: none"> - Tensile Testing Machine with fixture for screw withdrawal - Screws - Dial Gauge - Hot Air Oven temperature controller
16	Raw material Testing (Clause 6.6)	<ul style="list-style-type: none"> - Moisture Meter - Stop Watch - Viscosity Cups B-4 Cup /B-6 Cup - Thermometer - Desiccators - IS Sieve - Air Conditioner - Dry /Wet Thermometer - Distilled Water - Electronic Balance - PH Meter - Enamelled Tray

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

ANNEX D
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 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 IS 2202 (Part 1): 1999.

4. CONTROL UNIT – All Flush door shutters of the same type, size and construction manufactured under similar conditions in a day with the same adhesive compound made from constituents received in one day shall be considered as 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 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					
5	Sizes	5.1, 5.2	IS 2202 (Part 1)	R	Each shutter	-	-	
6.2	Plywood	6.2.1, 6.2.2, 6.5	IS 2202 (Part 1)	R	One	Each lot received	No further testing is required, if material received with test certificate or ISI Marked.	
6.3	Cross band	6.3.1, 6.5	IS 2202 (Part 1)	R	One			
6.4	Face veneers	6.4.1, 6.4.2, 6.5	IS 2202 (Part 1)	R	One			
6.6	Adhesive	6.6.1, 6.6.2	IS 2202 (Part 1)	R	One			Each lot received or each kettle
6.7	Particle board	6.7.1	IS 2202 (Part 1)	R	one			Each lot received
6.8	Medium density fibre (MDF) board	6.8	IS 2202 (Part 1)	R	one			
9.1	Workmanship and finish	9.1 to 9.3	IS 2202 (Part 1)	R	Each shutter	-	-	
11.1	Dimensions and Squareness test	11.1	IS 2202 (Part 1) IS 4020 (Part 2)	R	Five	For each size from each control unit	Sample shall be drawn at regular intervals. In case of failure, all shutters covered in control unit shall be tested and only those shutters which are conforming to the requirements shall be marked.	
11.2	General flatness test	11.2	IS 2202 (Part 1) IS 4020 (Part 3)	R				
11.3	Local planeness test	11.3	IS 2202 (Part 1) IS 4020 (Part 4)	R				

11.9	Slamming test	11.9	IS 2202 (Part 1) IS 4020 (Part 10)	R	One	Once in a week from each type and construction	In case of failure of sample, twice the number of samples from next two control units shall be tested and control units shall be accepted on passing of retested samples. Original frequency for testing may be resumed on passing of both control units.
11.12	End immersion test	11.12	IS 2202 (Part 1) IS 4020 (Part 13)	R	Two		
11.13	Knife test	11.13	IS 2202 (Part 1) IS 4020 (Part 14)	R			
11.14	Glue adhesion test	11.14	IS 2202 (Part 1) IS 4020 (Part 15)	R			
11.4	Impact indentation test	11.4	IS 2202 (Part 1) IS 4020 (Part 5)	S	One	Every 1000 shutters or part thereof of same type, size and construction manufactured in six months	These tests shall also be conducted for every change in construction. In case of failure, marking shall be stopped and reasons for failure shall be investigated. The marking shall be resumed only after two samples pass in the requirements in which failure occurred.
11.15	Screw withdrawal resistance test	11.15	IS 2202 (Part 1) IS 4020 (Part 16)	S	One		
11.5	Flexure test	11.5	IS 2202 (Part 1) IS 4020 (Part 6)	S	One		
11.6	Edge loading test	11.6	IS 2202 (Part 1) IS 4020 (Part 7)	S	One		
11.7	Shock resistance test	11.7	IS 2202 (Part 1) IS 4020 (Part 8)	S	One		
11.8	Buckling test	11.8	IS 2202 (Part 1) IS 4020 (Part 9)	S	One		
11.10	Misuse test	11.10	IS 2202 (Part 1) IS 4020 (Part 11)	S	One		
11.11	Varying humidity test	11.11	IS 2202 (Part 1) IS 4020 (Part 12)	S	One		

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 – E

Possible Tests in a Day

- (i) Fittings (Clause 8.1)
- (ii) Workmanship and finish (Clause 9)
- (iii) Dimension and Squareness (Clause 11.1)
- (iv) General flatness test (Clause 11.2)
- (v) Local planeness test (Clause 11.3)
- (vi) Knife test (Clause 11.13)
- (vii) Impact indentation test (Clause 11.4)
- (viii) Flexure test (Clause 11.5)
- (ix) Edge loading test (Clause 11.6)
- (x) Shock resistance test (Clause 11.7)
- (xi) Buckling test (Clause 11.8)
- (xii) Slamming test (Clause 11.9)
- (xiii) Misuse test (Clause 11.10)

ANNEX – F**Scope of the licence**

“Licence is granted to use Standard Mark as per IS 2202 (Part 1):1999 with the following scope:	
Name of the product	WOODEN FLUSH DOOR SHUTTERS (SOLID CORE TYPE) – PLYWOOD FACE PANELS
Type and Construction	BD/BN/PD/PN/MD/MN
Size	- Modular sizes with designation of doors (8 DS 20/8 DS 21/9 DS 20/9 DS 21/10 DS 20/10 DS 21/12 DT 20/12 DT 21) and thickness - Non-Modular sizes with designation of doors and thickness