



**उत्पाद मैनुअल
दरवाजों के लिए स्टील फ्रेम
आई एस 4351 : 2024 के अनुसार**

**PRODUCT MANUAL FOR
STEEL FRAMES FOR DOORS
ACCORDING TO IS 4351:2024**

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 4351 : 2024
	शीर्षक Title	: Steel Frames for Doors
	संशोधनों की संख्या No. of amendments	: Nil
2.	नमूना दिशानिर्देश Sampling Guidelines	
a)	कच्चा माल Raw material	: Please refer to Annex-A 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	: Please refer to Annex-B
c)	नमूने का परिमाण Sample Quantity	: Qty – 1 No (all test except powder coating finish) (34 plates + test liquid-500ml is additionally required for powder coating test) 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-C
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex-D
5.	एक दिन में संभावित परीक्षण Possible tests in a day	
	Clause 6,7 & 8 of IS 4351:2024 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 4351:2024 with the following scope:	
	Name of the product	Steel Frames for Doors
	Type of Steel Frame	Pressed / Tubular
	Door Designation	SD7/ SD8/ SD9/ SD10/ SD11/ SD12/DD12/ DD15/ DD18/ DD20/ DD22/ DD24
	Profile Designation	A/B/C/D/E/F/G/H/I/J/K/L/M/N/O/P/Q/R/S /other profiles
	Finish	
	Material	

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

ANNEX A
Raw Material

Raw Material	Indian Standard
Mild steel sheet (cold rolled)	Mild steel sheets shall be of thickness 1.25/1.60mm conforming to IS 513 (Part 1)
Galvanized sheets	Galvanized sheets shall be of Plain grade — Lock forming (GPL), zinc coating 120 g/m ² with thickness 1.20/1.60mm conforming to IS 277
Stainless steel	Stainless steel shall be of Grade — X04Cr17Ni12Mo2 (316) or X02Cr17Ni12Mo2 (316L) or X04Cr19Ni9 (304S1) or X02Cr19Ni10 (304S2) with thickness 1.20/1.60mm conforming to IS 6911
Pre-painted galvanized steel sheets	Pre-painted galvanized steel sheets shall be of thickness 1.20/1.60mm conforming to IS 14246

ANNEX B

Grouping Guidelines

1. IS 4351: 2024 covers Steel Frames for Doors which are categorized as given below:
 - a) Type of Steel Frame : Pressed / Tubular
 - b) Door Designation : SD7/ SD8/ SD9/ SD10/ SD11/ SD12/DD12/ DD15/ DD18/ DD20/ DD22/ DD24
 - c) Profile Designation : A/B/C/D/E/F/G/H/I/J/K/L/M/N/O/P/Q/R/S /other profiles
 - d) Finish – Painting/Powder coating
 - e) Material – Mild Steel/ Galvanized Steel/ Stainless Steel
2. Considering the above, following grouping guidelines is developed for GoL/CSoL:
 - a) Each type of steel frame, i.e. Pressed/Tubular shall be tested for all requirements (except finish requirement as per clause 9 of IS 4351:2024) to include that particular type of steel frame in the scope of licence.
 - b) One sample of steel frame of the highest door designation from each profile designation shall be tested for all requirements (except finish requirement as per clause 9 of IS 4351:2024) to cover all the lower door designations of frame upto and including the door designations tested for that particular profile designation.
 - c) Steel frame of any profile with each finish, i.e. painted/ powder coated, shall be tested separately for finish requirement as per clause 9 of IS 4351:2024 to cover that finish on all the profiles in the licence scope.
 - d) Steel Door Frames of any material shall be tested for all requirements to cover all the materials in the licence scope. However declaration wrt thickness and ensuring conformity to the Standard shall be obtained.
3. The Firm shall declare the varieties (i.e. type of frame, door & profile designations, finish & material) intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. In case, firm intends to cover other profile designations other than A to S as given in Table 3 & 6 of IS 4351:2024; then the firm shall submit the drawings of such profile designations. Details of the type, size (depth & height) and rebate of the profile designation shall be mentioned in the drawing.
5. 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

(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Material (Clause 5)	- Micrometer
2	Construction requirements & dimensions (Clause 6 & 7)	- Steel tape - Steel scale - Vernier caliper
4	Hinges (Clause 8)	- Steel tape - Vernier caliper - Micrometer - Screw of size M5 x 12 CSK head, M6 x 12mm countersunk head
6	Finish (Clause 9) (Painting/Coating thickness)	- Coatmeter

ANNEX D

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:

1.2.1 For the guidance of manufacturers, the recommended definition of control unit: Steel frames of the same type, door & profile designation, finish and materials manufactured from the same batch of raw materials in a day shall constitute a control unit.

1.2.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.2.3 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.

1.3 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.

2.2 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.

2.3 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.

2.3.1 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.

2.4 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.

2.4.1 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.

2.5 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 marked on each steel door frame, provided always that the product so marked conforms to all requirements of the specification.

3.2 Marking shall be done as per Clause 11 of IS 4351:2024.

3.3 **Additional Marking requirements:** Each stirrup plate/ its package shall also be marked with the following detail:

“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)

(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	Reference				
5	Material			S	One	Each consignment	No further testing is required, if received with test certificate or ISI marked.
	Mild steel sheet (Cold rolled)	5, Table 1	IS 4351 IS 513				
	Galvanized steel sheet	5, Table 1	IS 4351 IS 277				
	Stainless steel	5, Table 1	IS 4351 IS 6911				
	Pre-painted galvanized steel sheets	5, Table 1	IS 4351 IS 14246				
6	Standard Wall Openings, Dimensions, Sizes & Tolerances	6.1, 6.2, 6.3, 6.4 & 6.5	IS 4351	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.		
7.1	Pressed Steel Frame Profile	Table 3, 7.1.1	IS 4351				
	Construction and Workmanship - Frame construction	7.1.2					
	Hardware reinforcement	7.1.2.1					
	Mortar guards	7.1.2.2					
	Lock strike plate	7.1.2.3					
	Shock absorbers	7.1.2.4					
	Rubber/ EPDM seal	7.1.2.5					
	Base ties	7.1.2.6					
	Aldrop, sliding bolts and tower bolts	7.1.2.7 7.1.2.8					
Frame Assembly – Knockdown frame	7.1.3 7.1.3.1	IS 4351					
Mitered frame	7.1.3.2						
Welded frame	7.1.3.3						

7.2	Tubular Steel Frame Profile	7.2.1 Table 6	IS 4351	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.		
	Tubular frame construction Base Ties Hardware fixing Frame assembly	7.2.2 7.2.3 7.2.4 7.2.5					
8	Hinges	8.1, 8.2, 8.3, 8.4 Table 7	IS 4351				
9	Finish						
9.1	Pretreatment and phosphating	9.1	IS 4351 IS 1477 (Pt 1)	R	One	From each batch of material finished together	
9.2	Painting	9.2	IS 4351 IS 1477 (Pt 2)	R	One	From each batch of material finished together	
9.3	Powder coating						
	Dry film thickness	Table 1	IS 13871	R	One	Every ten frames	Additional sample shall be tested whenever there is change in composition of coating material/ process of coating.
	Finish	Table 1	IS 13871	S	One	Once in six month	
	Gloss 60 °						
	Scratch Hardness 3000 g						
	Flexibility 6.25 mm mandrel						
	Cross cut adhesion						
	Erichsen test mm						
	Impact resistance (directive/reverse)						
	Protection against corrosion, 1000 h						
	Protection against humidity						
	Resistance to boiling water ½ h at 100 °C						
	Resistance to lubricating oil, SAE 30						
	Resistance to petrol						
	Resistance to heat double bake schedule						
	Resistance to bleeding						
	Resistance to detergent						
	Resistance to acid/alkali						