



**PRODUCT MANUAL FOR
UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) INJECTION
MOULDED FITTINGS FOR SOIL AND WASTE DISCHARGE
SYSTEM FOR INSIDE AND OUTSIDE BUILDINGS INCLUDING
VENTILATION AND RAIN WATER SYSTEM
ACCORDING TO IS 14735: 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 14735 : 1999
	Title	:	UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) INJECTION MOULDED FITTINGS FOR SOIL AND WASTE DISCHARGE SYSTEM FOR INSIDE AND OUTSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM
	No. of Amendments	:	3
2.	Sampling Guidelines:		
a)	Raw material	:	Clause 6 of IS 14735
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	6 fittings + 1 assembly of fitting with pipe
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 : Please refer ANNEX – E		

ANNEX A

Grouping Guidelines

1. UPVC injection moulded fittings as per IS 14735 : 1999 are classified as given below:

a) Types :

- i) Tee (87.5°) , Wye (45°) single, double (cross) or reducing , with or without inspection doors
- ii) Bend with or without inspection doors (87.5°, 45° and 22°)
- iii) Reducer
- iv) Coupler
- v) Socket plug
- vi) Cleansing pipe
- vii) Adaptor
- viii) Vent cowl
- ix) Pipe clip
- x) Waste trap with strainer

b) Sizes (DN) : 40 mm to 160 mm

2. For considering GoL/CSoL, Sizes covered are grouped as given below:

Group – I: 40 to 110 DN

Group – II: 125 to 160 DN

- 3. UPVC fitting of each type from each size group shall be tested for all requirements to cover all sizes in that size group for the particular type of fitting.
- 4. The Firm shall declare the Types and Sizes of fittings they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
- 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 B**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 (Clause 7)	<ul style="list-style-type: none"> - Dial Gauge - Micrometer - Ultrasonic gauge - Vernier Calipers or Outside Caliper - Pi Tape or flexible tape - Vernier Caliper or Vernier depth gauge - Inside Caliper - Angle Protractor
2	Sealing ring (Clause 8)	<ul style="list-style-type: none"> - Vernier caliper - Micrometer - Radius gauge - Shore hardness tester
3	Design requirements (Clause 11)	<ul style="list-style-type: none"> - Micrometer - Ultrasonic gauge - Vernier Caliper or Vernier depth gauge - Inside Caliper
4	Stress relief test (Clause 12.2)	<ul style="list-style-type: none"> - Thermostatically Control oil bath - Mono-polyethylene glycol, glycerol or mineral oil free from aromatic hydrocarbons - Vernier Calipers - Stop watch - Hot air oven
5	Vicat Softening temperature (Clause 12.3)	<ul style="list-style-type: none"> - Oil heating Bath equipped with means to raise the temperature at uniform rate of $50 \pm 5^\circ \text{C/hr.}$ with suitable stirrer. - Rod with loading plate, load and indenting tips - Micrometer dial gauge - Thermometer or temperature measuring equipment
6	Resistance to sulphuric acid (Clause 13)	<ul style="list-style-type: none"> - Sulphuric acid - Beaker with cover lid - Hot air oven
7	Titanium dioxide content (Clause 14)	<ul style="list-style-type: none"> - Spectrophotometer - Muffle furnace - Analytical balance - Hot plate

		<ul style="list-style-type: none"> - Porcelain or silica crucibles - Thermometers - Glasswares - Sulphuric acid - Sodium sulphate - Hydrogen peroxide - Rutile titanium dioxide
8	Sulphated as content (Clause 15)	<ul style="list-style-type: none"> - Analytical Balance - Silica Crucible or Platinum crucible - Bunsen Burner with Silica Triangle & Tripod - Muffle Furnace - Pipette - Desiccator - Drying agent - Sulphuric Acid and Acetic acid
9	Impact test (Drop test) (Clause 16.1)	<ul style="list-style-type: none"> - Deep freezer - Measuring tape - Stop watch - Flat concrete floor
10	Water tightness of joints (Clause 17)	<ul style="list-style-type: none"> - Hydrostatic pressure testing machine with pressure gauge and timer - End plugs

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

ANNEX C

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 14735: 1999

4. CONTROL UNIT – All fittings of same type and size moulded under similar condition of manufacturing and from same mix using one moulding machine in a day shall constitute 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				
6	Material	6.1, 6.2	IS 14735	S	One	From each lot/ consignment received	Adequate control shall be exercised to meet quality of raw materials. No further testing is required if accompanied with the Test Certificate or ISI marked
5	Colour	5	IS 14735	R	-	Each fitting	-
7	Dimensions	7.1 to 7.4 Table 1, 2, 3	IS 14735	R	Ten	Each Control Unit	-
8	Sealing Rings	8	IS 14735 IS 5382	S	Ten	Each consignment received	No further testing is required if accompanied with the Test Certificate or ISI marked
10	Workmanship	10	IS 14735	-	-	Each fitting	-
11.3	Access Opening	11.3 Table 4	IS 14735	R	Ten	Each control unit	-
11.4	Vent Cowl	11.4 Table 5	IS 14735	R	Ten	Each control unit	-
11.5	Pipe Clips	11.5 Table 6	IS 14735	R	Ten	Each control unit	-
12.1	Visual Appearance	12.1	IS 14735	-	-	Each fitting	-
12.2	Stress Relief Test	12.2	IS 14735 IS 12235 (Part 6)	R	Three	Each control unit	-

12.3	Vicat softening Temperature	12.3	IS 14735 IS 6307	S	One	Once in 3 months	-
13	Resistance to Sulphuric Acid	13	IS 14735 IS 12235 (Part 7)	S	One	Once in 3 months	-
14	Titanium di-oxide content	14	IS 14735 Annex-A	S	One	Once in 6 months	-
15	Sulphated Ash content	15	IS 14735 Annex-B	R	One	Every 5 th control unit	-
16.1	Impact test (Drop test)	16.1	IS 14735 Annex-C	R	Three	Each control unit	-
17	Water Tightness of Joint	17	IS 14735 Annex- D	R	Three	Each control unit	-

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 – D

POSSIBLE TESTS IN A DAY

1. Colour of fittings (Clause 5)
2. Dimensions (Clause 7)
3. Workmanship (Clause 10)
4. Access openings (Clause 11.3)
5. Vent cowl (Clause 11.4)
6. Pipe clips (Clause 11.5)
7. Visual appearance (Clause 12.1)
8. Stress relief test (Clause 12.2)
9. Vicat softening temperature (Clause 12.3)
10. Sulphated ash content (Clause 15)
11. Impact test (Clause 16.1)
12. Water tightness of joints (Clause 17)

ANNEX – ESCOPE OF THE LICENCE

Licence is granted to use Standard Mark as per IS 14735 : 1999 with the following scope:

Name of the product	UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) INJECTION MOULDED FITTINGS FOR SOIL AND WASTE DISCHARGE SYSTEM FOR INSIDE AND OUTSIDE BUILDINGS INCLUDING VENTILATION AND RAIN WATER SYSTEM
Type of fittings	
Size of fittings	