



**PRODUCT MANUAL FOR
INJECTION MOULDED PVC SOCKET FITTINGS WITH SOLVENT
CEMENT JOINTS FOR WATER SUPPLIES
ACCORDING TO IS 7834 (PART 1 TO 8): 1987**

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 7834 (Part 1 to 8) : 1987
	Title	:	INJECTION MOULDED PVC SOCKET FITTINGS WITH SOLVENT CEMENT JOINTS FOR WATER SUPPLIES
	No. of Amendments	:	NIL
2.	Sampling Guidelines:		
a)	Raw material	:	PVC Resin – Clause 2 of IS 7834 (Part 1) : 1987
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	10 Nos for all tests
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. IS 7834 (Part 1 to 8): 1987 covers requirements for various types of Injection moulded PVC socket fittings with solvent cement joints for water supplies as detailed given below :

- a) Part 1 – General requirements
- b) Part 2 – Specific requirements for 45 degrees elbows
- c) Part 3 – Specific requirements for 90 degree elbows
- d) Part 4 – Specific requirements for 90 degree tees
- e) Part 5 – Specific Requirements for 45 degree tees
- f) Part 6 – Specific requirements for sockets
- g) Part 7 – Specific requirements for unions
- h) Part 8 – Specific requirements for caps

2. Each type of fittings are categorized into the following groups based on sizes:

Type of Fittings	Group 1	Group 2	Group 3
45 degrees elbows	16 - 63 mm	75 -160 mm	180 – 315 mm
90 degrees elbows	16 - 63 mm	75 -160 mm	180 – 315 mm
90 degree tees	16 - 63 mm	75 -160 mm	180 – 315 mm
45 degree tees	16 - 63 mm	75 -160 mm	-
Sockets	16 - 63 mm	75 -160 mm	180 – 315 mm
Unions	16 - 63 mm	-	-
Caps	16 - 63 mm	75 -160 mm	180 – 315 mm

3. Further, the fittings shall be of the appropriate Class (Working Pressure) of IS 4985 to which the pressure rating of the fitting corresponds.

4. Considering the above, grouping guidelines as given below shall be followed for GoL/CSoL :
 - For each type of fitting, any size from each group and highest pressure class shall be tested to cover all the sizes of that particular type of fitting in that size group for all the pressure classes upto and including the pressure class tested.
5. The Firm shall declare the types of fittings, pressure class and sizes 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 varieties covered in the Licence are tested in rotation, to the extent possible.

Note:

- (i) As IS 7834 (Part 1) covers General Requirements and are applicable to all other parts i.e IS 7834 (Part 2 to Part 8) wherein specific requirements relevant to each type of fittings are prescribed, licence may be granted as per IS 7834 (Part 1).
- (ii) Various types of fittings proposed to be covered in the licence as per different parts of IS 7834 shall be shown as varieties under the licence.
- (iii) The marking on the product shall be as per the relevant part as applicable.
- (iv) Minimum marking fee applicable for the licence shall be as given below:
 - Whenever more than one type as per different parts is covered under the licence, the highest minimum marking fee amongst the minimum marking fee of all applicable parts shall be collected.
 - However if only one type is covered in the licence, minimum marking fee applicable for that part shall be collected.
 - Unit Rate shall be as per the existing unit rates for the relevant part.

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	Socket length and diameter at midpoint of socket length, inside diameter, minimum thickness, out of roundness, taper from mouth to root and size. (Clause 3,4 and 5)	<ul style="list-style-type: none"> - Vernier calliper - Micrometre - Steel scale - Angle protractor
2	Stress relief test (Clause 6.1)	<ul style="list-style-type: none"> - Hot air oven or thermostatically control oil bath - Thermometer - Vernier calliper - Stop watch
3	Opacity (Clause 6.2)	<ul style="list-style-type: none"> - Test apparatus as per Clause B – 1 of IS 7834 (Part 1)
4	Effect on water (Clause 6.3)	<ul style="list-style-type: none"> - Distilled water - Air conditioner - pH meter - Testing reagent and equipment for determination of cadmium, mercury, lead, tin and other toxic substances.
5	Short term hydraulic test (Clause 6.4)	<ul style="list-style-type: none"> - Hydrostatic pressure testing apparatus with pressuring unit and multiple outlets - Water bath with temperature control - Thermometer - 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 7834 (Part 1): 1987 and relevant part of IS 7834 (Part 2 to 8): 1987.

4. CONTROL UNIT – All fittings of same type, size and pressure class manufactured from one mix of compound from one injection-moulding machine in a maximum duration of 24 h 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				
2	Material	2	IS 7834 (Part 1)	R	One	From each lot received	No further testing is required if received with manufacturers test certificate.
3, 4, 5 and 8.1.1	Dimensions	3 , 4 , 5 , Table 1 2.1, 2.2, Table 1	IS 7834 (Part 1) IS 7834 (Part 2 to Part 8)	R	Five	Each Control Unit	–
6.2	Opacity	Appendix B	IS 7834 (Part 1)	S	Three (Thinnest wall section)	Once in three months	The test shall also be done when there is change in formulation, composition or method of manufacture. In a year, production from all the machines and for each type of fitting shall be covered to the extent possible.
6.3	Effect on Water	Appendix C	IS 7834 (Part 1)	S	Three (Smallest size of fitting)	Once in Six months	The test shall also be done when there is change in formulation, composition or method of manufacture. In a year, production from all the machines and for each type of fitting shall be covered to the extent possible.
6.1	Stress Relief Test	Appendix A	IS 7834 (Part 1)	R	Three	Each Control Unit	In case of failure of sample in Stress relief test and Short term hydraulic test, six samples taken from the same control unit shall be tested and if any of these samples fails, the control unit shall be rejected.
6.4	Short-term Hydraulic Test	Appendix D	IS 7834 (Part 1)	R	Three	Every alternate 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

- (i) Size of the fittings [Clause 3 of IS 7834 (Part 1)]
- (ii) Minimum thickness [Clause 4 of IS 7834 (Part 1)]
- (iii) Socket length and diameter at mid-point of socket length
[Clause 5 of IS 7834 (Part 1)]
- (iv) Stress relief test [Clause 6.1 of IS 7834 (Part 1)]
- (v) Opacity [Clause 6.2 of IS 7834 (Part 1)]
- (vi) Short term hydraulic test [Clause 6.4 of IS 7834 (Part 1)]

ANNEX – E

Scope of the Licence

Licence is granted to use Standard Mark as per IS 7834 (Part 1) : 1987 with the following scope:	
Name of the product	INJECTION MOULDED PVC SOCKET FITTINGS WITH SOLVENT CEMENT JOINTS FOR WATER SUPPLIES
Type of Fittings with reference to relevant part of IS 7834	
Sizes and Pressure Class	