



PRODUCT MANUAL FOR GLAZED STONEWARE PIPES AND FITTINGS ACCORDING TO IS 651: 2007

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 651 : 2007
	Title	:	GLAZED STONEWARE PIPES AND FITTINGS
	No. of Amendments	:	1
2.	Sampling Guidelines:		
a)	Raw material	:	---
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	2 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 :		
	(i) Internal diameter	(iv) Thickness	
	(ii) Length and straightness	(v) Crushing strength	
	(iii) Hydraulic test	(vi) Dimensions of fittings and Grooving	
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 651 : 2007 with the following scope:		
	Name of the product	GLAZED STONEWARE PIPES AND FITTINGS	
	Type of pipes/fittings	(a) As per clause 1.1 of IS 651:2007 (b) Right hand and left hand fittings	
	Class of pipes	SP1, SP2, SP3.	
	Sizes	Internal diameter and length of pipes and fittings (as applicable)	

ANNEX A**Grouping Guidelines**

1. Glazed stoneware pipes and fittings are classified as given below:
 - a) Internal Diameter – 100 mm, 150 mm, 200 mm, 230 mm, 250 mm, 300 mm, 350 mm, 400 mm, 450 mm, 500 mm, 600 mm, 700 mm and 800 mm.
 - b) Class of pipe (based on crushing strength) – SP1, SP2 and SP3
 - c) Length of pipe – 600 mm, 750 mm, 900 mm and 1000 mm (Other higher lengths as agreed between the manufacturer and buyer are also permitted)
 - d) Other types of pipes/fittings:
 - Straight and taper pipes
 - Bends
 - Taper Bends
 - Junctions
 - Half-section channels, straight and taper
 - Channel junctions
 - Channel bends
 - Channel interceptors
 - Gully Traps
 - Inspection pipes
 - e) Right-handed and left-handed fittings.
2. Glazed stoneware pipes are grouped as given below based on internal diameter and class of pipes:

Group	Class SP 1 Sizes (Internal Dia) mm	Class SP 2 Sizes (Internal Dia) mm	Class SP 3 Sizes (Internal Dia) mm
Group 1	Upto 150	Upto 150	Upto 150
Group 2	200-300	200-300	200-300
Group 3	350-450	350-450	350-450
Group 4	500-800	500-800	500-800

3. Considering the above, following grouping guidelines for GoL/CSoL have been developed:
 - a) One pipe of any length and any size (Internal Diameter) from each group and each class shall be tested for all the requirements to cover all the lengths of pipes for all the sizes in that particular group and class.
 - b) One sample from each type of fittings as per (d) above and right-handed or left-handed (as applicable) from each size group shall be tested for all the requirements to cover all fittings of that type and sizes in that group.

- c) The Firm shall declare the varieties of Pipes and 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.
- d) 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*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	General Quality as per Cl 5.1	Light hammer
2	Hydraulic Test as per Cl 7.2	Hydraulic Pressure Testing Machine Stop Watch
3	Absorption Test as per Cl 7.3	Oven/ Muffle furnace/ Hot Plate Desiccators Weighing Balance (accuracy of 0.1g) Heater/Water Bath
4	Test for Acid Resistance as per Cl 7.4	Sulphuric Acid (4.90 %, Specific Gravity 1.84) Weighing Balance (accuracy of 0.01g) Oven
5	Test for Alkali Resistance as per Cl 7.5	Saturated Solution of Magnesium Sulphate (Conforming to IS 2730, Specific Gravity 1.295 to 1.308) Hot plate Oven/Drier
6	Crushing Strength Test as per Cl 7.6	Crushing Strength Testing machine Bearing Strips
7	Internal Diameter per Cl 10 Thickness as per Cl 11 Length and Straightness as per Cl 12 Angle of bend as per Cl 13.1.1 , 13.3.1	Measuring Scale Vernier Callipers Micrometer Depth Gauge Arrangement for angle measurement

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 equipments.

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 651: 2007. In addition, each pipe and fitting shall be marked with Control Unit Number for traceability.

4. CONTROL UNIT – 500 pipes or fittings or part thereof of the same type and size from one fire chamber load 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 Standards 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 Clause Reference			No. of Sample	Frequency	Remarks
5	General Quality	5	IS 651	R		All pipes and fittings	
6	Glazing	6.1	IS 651	R		All pipes and fittings	
7.2	Hydraulic Test	7.2	IS 651	R	5% of the pipes/fittings from each control unit subject to min of 10		In case of failure all pipes shall be tested and only those found conforming shall be marked.
7.3	Absorption Test	7.3	IS 651	R	2	Each control unit	The control unit shall be rejected, if found failing.
7.4	Test for Acid Resistance	7.4	IS 651	R	2	Each control unit	
7.5	Test for Alkali Resistance	7.5	IS 651	R	2	Each control unit	
7.6	Crushing strength test	7.6	IS 651	R	2	Each control unit	
Section A							
10	Internal diameter and tolerances	10	IS 651	R	5% of the pipes/fittings from each control unit subject to min of 10		May be checked with gauges In case of failure all pipes/fittings in the control unit shall be checked.
11	Thickness of barrels, socket and bends	11	IS 651	R			
12	Length and straightness of barrels or straight and taper pipes	12	IS 651	R			
13	Tapers, bends and junctions	13	IS 651	R			
14	Socket	14	IS 651	R			
15	Grooving	15	IS 651	R			

Section B						
17	Dimensions	17	IS 651	R	5% of the pipes/fittings from each control unit subject to min of 10	May be checked with gauges
18	Spigots and Sockets of fittings	18	IS 651	R		In case of failure all pipes/fittings in the control unit shall be checked.
19	Grooving	19	IS 651	R		

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled 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 of BO Head.