



## PRODUCT MANUAL FOR ASBESTOS CEMENT PRESSURE PIPES AND JOINTS ACCORDING TO IS 1592:2003

*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.	<b>Product</b>	:	IS 1592 : 2003
	<b>Title</b>	:	ASBESTOS CEMENT PRESSURE PIPES AND JOINTS
	<b>No. of Amendments</b>	:	2
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	a) Cement – As per relevant IS b) Pozzolana – IS 1344 or IS 3812 (Part 1)
b)	<b>Grouping guidelines</b>	:	Please refer <a href="#">ANNEX – A</a>
c)	<b>Sample Size</b>	:	Sample shall be tested in the factory for all requirements
3.	<b>List of Test Equipment</b>	:	Please refer <a href="#">ANNEX – B</a>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <a href="#">ANNEX – C</a>
5.	<b>Possible tests in a day :</b>		
	As the licence is operated on Factory Testing basis, complete testing of a sample shall be done in factory.		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 1592 : 2003 with the following scope:		
	Name of the product	ASBESTOS CEMENT PRESSURE PIPES AND JOINTS	
	Pressure Class	As applicable	
	Size	Nominal Diameter upto and including ---- mm	

**ANNEX A****Grouping Guidelines**

1. Asbestos cement pressure pipes and Joints are classified as given below:
  - a) Pressure Class – 10, 15, 20 and 25 ( Other pressure classes such as 12, 18, 24, 30, 35 and 36 may also be manufactured where detailed dimensions shall be as agreed to between manufacturer and purchaser).
  - b) Size (Nominal Diameter) - 50 mm to 1000 mm (Pipes of nominal diameter above 1000 mm may also be manufactured as per agreement between manufacturer and user).
  - c) Type of Joint – (a) Asbestos cement coupling with rubber sealing rings (b) Cast Iron detachable joints with rubber sealing rings and bolts and nuts.
2. Asbestos cement pressure pipes and Joints are grouped as given below based on Size (Nominal Diameter):

<b>Group</b>	<b>Size (Nominal Diameter) of Pipes/Joints (mm)</b>
1	50 -150
2	200-600
3	700 - 1000
4	1000 - 1200
5	>1200

3. Considering the above, following grouping guidelines for GoL/CSoL have been developed:
  - a) Two Pipes of any size (Nominal Diameter) from each group and each Pressure class shall be tested for all the requirements to cover all the sizes of Pipes in that particular group and class tested.
  - b) Two Joints of each Type and of any size (Nominal Diameter) from each group and each Pressure class shall be tested for all the requirements to cover all the sizes of Joints in that particular group, class and type tested.
4. Manufacturer shall submit testing data/details for the following Pipes/Joints:
  - (a) Pressure class other than 10, 15, 20 and 25
  - (b) Sizes above 1000 mm.
5. The Firm shall declare the varieties of Pipes/Joints 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 B****List Of Test Equipment***Major test equipment required to test as per the Indian Standard*

<b>S. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1.	Geometrical characteristics (Clause 3.4.1 & 4.2.1.1)	a) Steel tape/Tape b) Micrometre c) Vernier calliper d) Inside and Outside calliper e) Steel Scale
2.	Regularity of internal diameter [Clause 3.4.1.4 (b) ]	a) Metal disc for checking internal diameter as per clause 3.4.1.4 (b)
3.	Straightness [Clause 3.4.1.4 (e)]	a) Straightness test arrangement as per IS 5913 b) Vernier calliper
4.	Physical characteristics [Clause 3.4.2 & 3.5(a)] and Sealing characteristics (Clause 4.2.2)	Hydraulic pressure testing arrangement for pipes and joints with pressure gauge
5.	Bursting test [Clause 3.4.3.1, 3.5(a)]	Hydraulic bursting testing arrangement with pressure gauge and end fittings.
6.	Crushing [Clause 3.4.3.2, 3.5(a)]	Transverse crushing strength test arrangement with load gauge etc
7.	Bending [Clause 3.4.3.3, 3.5(a)]	Longitudinal bending test arrangement with load gauge etc.

*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 1592 : 2003.

**4. CONTROL UNIT** – 200 Pipes or 200 Joints of same pressure class and size or part thereof manufactured in one 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				
3.1	Composition						
	Cement	3.1	IS 1592	-	-	-	Cement received shall be ISI marked and accompanied with test certificate
	Pozzolana	3.1	IS 1592 IS 1344 IS 3812 (Part 1)	S	One sample in a month or whenever there is change of source of supply		No further testing is required if received with test certificate or ISI marked
3.3	General appearance and Finish	3.3	IS 1592	R	All pipes	-	-
3.4.1	Geometrical Characteristics	3.4.1, Table 3, Table 4	IS 1592	R	One	50 pipes or part thereof from each control unit	In case of failure, all pipes shall be tested and only those pipes which are passing shall be marked
3.4.2	Works Hydraulic Pressure tightness Test	3.4.2, 3.5 (a)(1)	IS 1592	R	All pipes	-	-
3.4.3	Hydraulic pressure Bursting Test	3.4.3.1, 3.5(a)(2)	IS 1592	R	One	Each control unit	#

3.4.3	Transverse Crushing Test	3.4.3.2, 3.5(a)(3)	IS 1592	R	One	Each control unit	#
3.4.3	Longitudinal bending test	3.4.3.3, 3.5 (a)(4)	IS 1592	R	One	Each control unit	#
4.1	Material	4.1.3, 4.1.4	IS 1592	S	One	Each lot received	No further testing is required if received with test certificate or ISI marked.
4.2.1	Geometrical characteristics (Dimensions)	4.2.1.1, Annex B	IS 1592	R	All	-	-
	Geometrical characteristics (Weight)				One	50 couplings or part thereof from each control unit	
4.2.2	Sealing Characteristics	4.2.2	IS 1592	R	One	Each control unit	#

# In case of any failure, two samples from the same control unit shall be tested and the control unit shall be accepted only if both samples pass.

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.