



PM/ 1536/ 1/ May 2020

PRODUCT MANUAL FOR
Centrifugally Cast (Spun) Iron Pressure Pipes for Water, Gas and Sewage
According to IS 1536:2001

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 1536:2001
	Title	:	Centrifugally Cast (Spun) Iron Pressure Pipes for Water, Gas and Sewage
	No. of amendments	:	5
2.	Sampling Guidelines		
a)	Raw material	:	no specific requirements for raw material in the specification
b)	Grouping Guidelines	:	Please refer Annex - A
c)	Sample Size	:	1 pipe + 2 rings or 2 test bars
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	:	All tests
6.	Scope of the Licence :		
	Licence is granted to use Standard Mark as per IS 1536:2001 with the following scope:		
	Name of the product	Centrifugally Cast (Spun) Iron Pressure Pipes for Water, Gas and Sewage	
	Type	Socket and Spigot Pipes,..	
	Class	Class LA,..	
	Size	80mm, 100mm, 150mm, 200mm, 250mm & 300mm DN	
	Joint	lead joint,..	

ANNEXURE A
TO PRODUCT MANUAL FOR
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GROUPING GUIDELINES

1. Grouping of steel tubes for Mechanical and General Engineering Purposes is carried out on the basis of following
 - a) Class
 - b) Size
 - c) Joint

2. Accordingly, for the purpose of the GoL/CSoL the product is grouped as under:

Class (in ascending order within the row)	Joint	Size Range	Group	Remarks
LA A B C D E	Lead Joint, Push on Joint, Flexible Joint	80-300	1	Sample of a class of given joint and of highest size shall be drawn and tested for considering inclusion/ grant of license of pipes of the class for all sizes in the group for the given joint. If sample of highest Class intended to be covered in the scope is tested then GoL/CSoL may be considered for lower classes as well for a given joint. (Eg: For 80 DN to 800 DN, sample of 300 DN, 600 DN and 800 DN shall be tested)
		350-600	2	
		700-1000	3	
		1050 and above	4	
B C D E	Flanged Joint	80-300	5	Sample of a class and of highest size shall be drawn and tested for considering inclusion/ grant of license of pipes of the class for all sizes in the group. If sample of highest Class intended to be covered in the scope is tested then GoL/CSoL may be considered for lower classes as well.
		350-600	6	
		700-1000	7	
		1050 and above	8	

3. It shall, however, be ensured and recorded that manufacturer has testing and manufacturing facility for all types/classes/sizes/joints of pipes included in the scope of license.

4. During the operation of license, BO shall ensure that all Classes & Product types covered in the license are drawn for independent testing on rotation over a period of time.

ANNEXURE B
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LIST OF TEST EQUIPMENTS

Major test equipment required to test as per requirements of Indian Standard.

Sl. No.	Test Equipment/Chemicals and Identification Numbers (Where applicable)	Tests Used in with Clause Reference
1	Universal Testing Machine (along with knife edges holders)	Ring Test and Tensile Test (11.2)
2	Brinell Hardness Tester, with Standard Reference Blocks for calibration, Conditioning Facilities - control the temperature within a range, such as 23°C ± 5 °C	Brinell Hardness Test (11.3)
3	Hydrostatic Test Setup with pressure gauge/Pressure Digital Transducer, water pump, end plugs of various sizes, Stop Watch	Hydrostatic Test (12)
4	Vernier Calliper , Micrometer, Measuring tape Gantries, Inner/Outer Callipers, Measuring Scale, Ultrasonic Thickness gauge (UTG), Circumferential tape, Suitable templates, gauges	Sizes and Dimensions(13) Tolerances(14)
5	Oven/Muffle Furnace (maintaining 65°C) Refrigerator (maintaining 0°C) Thermometer, Penknife and associated tools	Coating Test(15)

Note: The above is an indicative list for the purpose of guidance only

ANNEXURE C
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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. MARKING – The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L.....) shall be incorporated, and the marking shall be done as per the provisions of the Indian Standard, provided always that the product thus marked conforms to all the requirement of the specification.

3.1 Marking may be done –

- (a) On the socket faces if pipe centrifugally cast in metal mould, and
- (b) On the outside of the socket or on the barrel of pipe centrifugally cast in sand mould.
- (c) Any other marks required by the purchaser may be painted on pipes.

4. CONTROL UNIT – For the purpose of this scheme, pipes of same class, size, joint and manufactured in a day under similar conditions of production 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.

5.2 General requirements relating to the supply of material shall conform to IS 1387. Manufacturing of cast iron pipes shall conform to cl 6 and 7 of IS 1536:2001.

6. TEST CERTIFICATE-For each consignment of BIS Certified material conforming to IS 1536:2001 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed)

7. 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: LEVELS OF CONTROL

(1)				(2)	(3)		(4)
TEST DETAILS					LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of Samples	Frequency	
		Clause	Reference				
9	Rubber Gasket	9.1 to 9.3	IS 1536: 2001 IS 12820, IS 5382 IS 638	S	1	Each Consignment	See Note-4
11.2	Ring Test (for pipes cast in metal moulds)	11.1,11.2, 11.4 Annex A	IS 1536: 2001	R	1	Every four hours	See Note-3
	Tensile Test (for pipes over 300mm)	11.1,11.2, 11.4, Annex A	IS 1536: 2001 IS 1608 Pt.1	R	2 1	Every four hours for each control unit (sizes below 700DN) Every 25 pipes or part thereof of control unit for pipes of DN 700mm and above)	
11.3	Brinell Hardness Test	11.3,6.2, 11.2,11.4	IS 1536: 2001 IS 1500 Pt.1	R	1	Every four hours	
12	Hydrostatic Test	12.1 to 12.2.1 Table-1,2	IS 1536: 2001	R	Each pipe	Each pipe	
13	Sizes and Dimensions	13.1 to 13.5 Table 3 to 9	IS 1536: 2001	R	Each pipe	Each pipe	
14	Tolerance	14.1 to 14.6 Table 10 to 13	IS 1536: 2001	R	Each pipe	Each pipe	
15	Coating	15.1 to 15.2	IS 1536: 2001	R	1	Once a week	

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. 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.

Note-3: Manufacturers procuring ISI marked pipes and processing further for threading joints need not carry out tensile test, ring test and Brinell hardness test.

Note-4: Conformity of each consignment of Rubber gaskets to the requirement of the standard may be established through supplier's test certificate or test report issued by laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau. In case the rubber gaskets are ISI marked no testing is required

ANNEXURE I

(Para 6 of the Scheme of Inspection and Testing)

XYZ CAST IRON COMPANY

(Registered office Address and works address)

TEST CERTIFICATE FOR Centrifugally Cast (Spun) Iron Pressure Pipes for Water, Gas and Sewage



TEST CERTIFICATE No. _____

DATE _____

To M/s _____ We certified that the material described below fully conforms to IS 1536:2001 Physical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 1536:2001 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	(Nom Size)	Control Unit No.	Class	Tolerances	Qty in tonnes	Coating #	Mechanical Properties		Hydrostatic test	Remarks
							Tensile Test/Ring test	Brinell		

As agreed between

REMARKS

WAGON NO.

TRUCK NO.

(It is suggested that size A4 paper be used for this test certificate)

FOR XYZ CAST IRON COMPANY