



PM/7181/1/May 2020

PRODUCT MANUAL FOR
Horizontally Cast Iron Double Flanged Pipes for Water Gas and Sewage
According to IS 7181:1986

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 7181:1986
	Title	:	Horizontally Cast Iron Double Flanged Pipes for Water Gas and Sewage
	No. of amendments	:	5
2.	Sampling Guidelines		
a)	Raw material	:	Grey cast iron used for manufacture of pipe shall conform to any of appropriate grades as specified in IS 210.
b)	Grouping Guidelines	:	Please refer Annex - A
c)	Sample Size	:	1 pipe - for Workmanship and Finish, Dimensions, Mass, Hydraulic Test and Coating requirements. 1 pipe/ 1 Test piece each -for Tensile and Brinell Hardness Test Note: Not more than one sample shall be procured from open market in an operative year for Independent testing because of its high cost, ref: CMD-2/G-18 29.12.2016.
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 7181:1986 with the following scope:		
	Name of the product	Horizontally Cast Iron Double Flanged Pipes for Water Gas and Sewage	
	Class	Class B	
	Size(DN)	Upto and including 750mm DN	
	Length	3m	

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

Size Range	Group	Remarks
Up to and including 300 mm	1	Sample of 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.
300 to 600	2	
600 to 750 mm	3	

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	Angle Protractor	Manufacture (3)
2	Vernier calliper, Range	
3	Tensile Testing Machine Up to 1000 kN, L.C-1kN Test bar moulds.	Tensile Test (5.1) Material (3.1)
4	Brinell Hardness Machine with Standard sample	Hardness Test (5.2)
5	Hydrostatic Test Setup with pressure gauge/Pressure Digital Transducer, end plugs of various sizes, Stop Watch(0 to 1 Hr, L.C-1Sec), Hammer of Weight 700 Grams	Hydrostatic test (6.1)
6	Measuring Tape	Sizes and Mass (7) Tolerances (8)
7	Weighing Balance	
8	(a)Pie tape /Outside Calliper (b)Goose neck thickness gauge (c) Vernier Calliper (d) Radius Gauges (e) Steel Scale	
9	Hot Air Oven 0-70 ⁰ C Deep Freezer/Dry ice to maintain 0 Degree Stop Watch of Range 0 to 1 Hr, L.C-1Sec Penknife and associated tools	Coating requirements (9)

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.

4. CONTROL UNIT – For the purpose of this scheme, every four hours production of pipes using same material grade as per IS 210 and manufactured under identical conditions 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 3 of IS 7181:1986.

6. TEST CERTIFICATE-For each consignment of BIS Certified material conforming to IS 7181:1986 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				
3.2	Workmanship and Finish	3.2	IS 7181:1986	R	Each pipe	Each pipe	
5.1	Tensile Test	5.1, 5.3	IS 7181:1986 IS 1608 Pt.1 IS 210	R	Two	Each Control Unit	
5.2	Hardness Test	5.2, 5.3	IS 7181:1986 IS 1500 Pt.1	R	Two	Each Control Unit	
6	Hydrostatic Test	6.1 to 6.3 Table-1	IS 7181:1986	R	Each pipe	Each pipe	
7	Size & Mass	7.1 to 7.4 Table- 2 to 4	IS 7181:1986	R	One One	Each pipe for dimensions Each size in a control unit	
8	Tolerances	8.1 to 8.7	IS 7181:1986	R	-do-	-do-	
9	Coating requirements	9.1 to 0.2	IS 7181:1986	R	Two samples	Once in 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.

ANNEXURE I

(Para 6 of the Scheme of Inspection and Testing)

XYZ CAST IRON COMPANY

(Registered office Address and works address)

TEST CERTIFICATE FOR Horizontally Cast Iron Double Flanged Pipes for Water Gas and Sewage



TEST CERTIFICATE No. _____

DATE _____

To M/s _____ We certified that the material described below fully conforms to IS 7181:1986 Physical properties of the product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks LicenceNo.CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 7181:1986 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	Grade as per IS 210#	Remarks
							Tensile Test	Hardness			

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