



PM/ IS 15905/ 1/ May 2020

**PRODUCT MANUAL FOR
Hubless Centrifugally Cast (Spun) Iron Pipes, Fittings and Accessories - Spigot Series
According to IS 15905:2011**

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 15905:2011
	Title	:	Hubless Centrifugally Cast (Spun) Iron Pipes, Fittings and Accessories - Spigot Series
	No. of amendments	:	1
2.	Sampling Guidelines		
a)	Raw material	:	Pipes, fittings and accessories shall conform to FG 150 Grade, as appropriate, as specified in IS 210. Couplings/clamping of Ductile Iron as per IS 1865, of Stainless Steel (IS 1570 Pt.5) with EPDM Rubber Gasket.
b)	Grouping Guidelines	:	Please refer Annex - A
c)	Sample Size	:	One piece each of Pipes and fittings - coated + Machined Tensile Test piece as per IS 210 Chemical test: 5 pcs of 5 cm x 5 cm or 50 gm drillings
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 15905:2011 with the following scope:		
	Name of the product	Hubless Centrifugally Cast (Spun) Iron Pipes, Fittings and Accessories - Spigot Series	
	Pipe(Size) Fitting(Variety with Size)	Pipes - from DN 75 mm upto & including DN 200 mm,.. Fittings (88 Degree T-Y Single Branch DN 100 mm),..	
	Accessory	Couplings,..	

ANNEXURE A
TOPRODUCT MANUAL FOR
Hubless Centrifugally Cast (Spun) Iron Pipes, Fittings and Accessories - Spigot Series
according to IS 15905:2011

GROUPING GUIDELINES

1. For the purpose of grant of licence / change in scope of licence, samples from pipes and fittings shall be tested for all the requirements of IS 15905:2011 as under:
 - a) **Pipes:**In order to cover the entire range of pipes, two samples (one each of minimum and maximum size from the lot offered) shall be drawn for independent testing.
 - b) **Fittings:** In order to cover the entire range of fittings of a particular Table, two samples from that Table (one each of minimum and maximum size from the lot offered) shall be drawn for independent testing.
2. It shall be ensured that the applicant / licensee has got adequate manufacturing and testing facilities for the sizes & types of fittings to be covered in the licence.
3. During the operation of license, BO shall ensure that all Grades & Product types covered in the license are drawn for independent testing on rotation over a period of time.

ANNEXURE B
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to IS 15905:2011

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	For Machined Tensile Test piece – casting mould, machining facilities, cutting facilities	Preparation of specimen for tensile test
2	Vision-based inspection system Light Hand Hammer	Freedom from Defects (5.2) Visual Inspection and Hammer (7), Joints (6.4)
3	Tensile Testing Machine of suitable range	Tensile Test (5.1)
4	Brinell Hardness Tester, with Standard Reference Blocks for calibration, Conditioning Facilities - control the temperature within a range, such as $23 \text{ }^{\circ}\text{C} \pm 5 \text{ }^{\circ}\text{C}$	Hardness(5.3)
5	Fracture Testing Machine or by hand hammer	Fracture (5.4)
6	Crush Testing Machine	Crush Tests on Pipe Rings (8)
7	Hydrostatic Testing Setup with pressure gauges, Stop watch	Hydrostatic Test (9)
8	Vernier Callipers, Micrometre, Steel Scale, Measuring Tape, Angle Protector, Height Gauge, Inside & Outside Callipers, Pistol Callipers, Straight Edge, Surface Plate, Flat Bench, Weigh bridge/ Weighing balance	Dimensions (11) Technical Specification (10)
9	Laboratory Hot Air Oven, Deep Freezer, Penknife and associated tools	Coating (12)

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

ANNEXURE C
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SCHEME OF INSPECTION AND TESTING

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 and packed conforms to all the requirement of the specification.

4. CONTROL UNIT – For the purpose of this Scheme, a control unit is defined as pipes/fittings/accessories produced using material of same cast and processed to same form and dimensions in a day under uniform conditions of production.

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. The material used for the manufacture shall conform to cl 5 of IS 15905:2011 and shall be provided with joints, as applicable, conforming to Cl 6 of IS 15905:2011.

5.3 Further, each consignment the material for coupling & clamping components shall be accompanied with Test Certificate from the supplier for ensuring compliance to Cl 6 of IS 15905:2011.

6. TEST CERTIFICATE-For each consignment of BIS Certified material conforming to IS 15905:2011 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				
5.1	Material	5.1	IS 15905:2011 IS 210	S	One	Each Heat	If the material is accompanied with TC from the supplier and having the identity of heat number on the material, no further testing is required
5.2	Freedom from defects	5.2	IS 15905: 2011	R	Each Pipe/ fitting /accessory	Each Pipe/ fitting /accessory	Minor defects, if any, may be rectified by agreement between the purchaser and the manufacturer
5.3	Hardness	5.3	IS 1500 Pt.1 IS 15905: 2011	R	Two	Every Four hour's production of each control unit	Either Hardness test or Fracture test shall be conducted as applicable.
5.4	Fracture	5.4	IS 1879: 2010	R	-do-	-do-	
6.4	Coupling or Clamping components	6.4.d)	IS 15905: 2011	R	Each item	Each item	All parts of the joints shall be free from defects likely to compromise their suitability for use.
7	Visual inspection and Hammer test	7.1	IS 15905: 2011	R	Each Pipe/ fitting /accessory	Each Pipe/ fitting /accessory	
8	Crush Test on Pipe Rings	8.1 8.2	IS 15905: 2011	R	Three	Every Four hour's production of each control unit	

(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	Hydrostatic test	9.1 to 9.3	IS 15905: 2011	R	Each Pipe/ fitting /accessory	Each Pipe/ fitting /accessory	In case of any sign of leakage, sweating or other defects of any kind, the product shall be rejected
10	Technical Specification	10.1,10.2, 10.4,10.5, 6.3, Table 1, 2 & 3	IS 15905: 2011	R	One	Every one hour's production of each control unit	In case of failure, all pipes/ fittings produced during that hour shall not be marked.
11.1	Dimensions of Pipe	11.1, 10.3 Fig.1	IS 15905: 2011	R	-do-	-do-	-do-
11.2	Dimensions of Fittings	11.2, 10.3 Table 4 to 22	IS 15905: 2011	R	-do-	-do-	-do-
12	Coating test	12.1 to 12.5	IS 15905: 2011	R ^s	One	Each Control Unit	-do-

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.

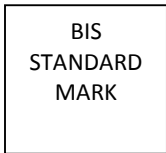
^sNote-3: R is substituted by S for manufacturers without facilities for applying coating on the product.

ANNEXURE I

(Para 6 of the Scheme of Inspection and Testing)

XYZ IRON COMPANY

(Registered office Address and works address)



TEST CERTIFICATE FOR Hubless Centrifugally Cast (Spun) Iron Pipes, Fittings and Accessories - Spigot Series

TEST CERTIFICATE No. _____

DATE _____

To M/s _____ We certified that the material described below fully conforms to IS 15905:2011 Chemical composition and 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 15905:2011 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	(Nom Size)	Control Unit No.	Grade	Dimensions and Tolerances	Qty in tonnes	CHEMICAL COMPOSITION [#]	PHYSICAL PROPERTIES						Joints	Coating	Remarks		
							Tensile Test	Freedom from Defects/hammer test	Hydrostatic test	Crush test	Fracture test	Hardness test					

[#]As and If agreed between

REMARKS

WAGON NO.

TRUCK NO. FOR XYZ IRON COMPANY

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