



सैंड कास्ट आयरन स्पिगोट और सॉकेट पाइप, फिटिंग और सहायक उपकरण - विशिष्टता  
IS 1729:2023 के अनुसार

**PRODUCT MANUAL**

**For Sand Cast Iron Spigot and Socket Pipes, Fittings and  
Accessories - Specification According to IS 1729:2023**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity 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.*

1.	मानक संख्या IS No.	:	IS 1729:2023
	शीर्षक Title	:	Sand Cast Iron Spigot and Socket Pipes, Fittings and Accessories-Specification
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Grey Iron: Quality not less than Grade FG 150 of IS 210.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	1 number + 2 metre
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day : All Chemical and Physical Tests		

6.	<b>लाइसेंस का दायरा /Scope of the Licence:</b>	
	Licence is granted to use Standard Mark as per IS 1729: 2023 with the following scope:	
	Name of the product	Sand Cast Iron Spigot and Socket Pipes, Fittings and Accessories
	Variety	Straight Pipe, Short radius bend without Access door of size,...(Variety from Table-2 to Table-33 of IS 1729:2023)
	Type	Type A 'Socket' with spigot end, ..
	Sizes	Nominal Size (in mm)

**BUREAU OF INDIAN STANDARDS  
MANAK BHAVAN,9, BAHADUR SHAH ZAFAR MARG,  
NEW DELHI-110002**

**ANNEX A**

**GROUPING GUIDELINES**

1. Grouping of Sand CI pipes and fittings for over ground non-pressure purposes is carried out on the basis of following:
  - a) For pipes: Type of Socket (Socket A having Spigot end, Socket B having Spigot, Double socketed) and Nominal Size
  - b) For fittings: Type of fittings (Table 2 to Table 33) and Nominal size
2. Accordingly, for the purpose of the GoL/CSoL the product is grouped as under:

Product	Group	Remarks
Pipe	1	One sample of higher nominal size for each end condition (Socket A having Spigot end, Socket B having Spigot, Double socketed A, Double Socketed B) shall be drawn and tested for considering pipes of all sizes of particular end condition in scope of licence.
Fittings	2	Sample of each type of fitting of highest nominal size shall be drawn and tested for considering inclusion/ grant of licence of fittings of all sizes in the scope of licence.

3. Scope of licence shall be restricted based on the manufacturing and testing facilities available.
4. During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

**ANNEX B**

**List of Test Equipment**  
**(Indicative List, For Guidance only)**

Sl. No.	Tests used in with Clause Reference	Test Equipment/Chemical
1.	Material Test (5.1)  a) Chemical composition	<p>For Grey Iron: Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry.</p> <p>Chemical Methods: Sulphur Content Strohlein or Leco apparatus with all attachments Barometer with chart, Hot plate, Muffle furnace, Complete range of glass wares, measuring cylinders, Desiccator, porcelain boats or ceramic crucibles, Thermometer, Electronic Balance, Distilled Water, Hot air oven, Oxygen - 99.5 percent minimum purity, ether or acetone, Standard Reference Material (NML) with certificate Reagents for S: Ceramic boats/crucibles – desiccators, Fluxes -Low sulphur copper, tin or iron, Dilute hydrochloric acid, Starch Iodide solution, Potassium iodate</p> <p>Phosphorus Content : Weighing balance, Heater/ Heating element along with energy regulator, Ice water bath, Vol Flask Cap – 1 litre, (Whatman) filter paper No. 040, Suction Filtration Facility, Filter paper pulp pad, Standard Reference Material (NML) with certificate Potassium Permanganate (KMnO<sub>4</sub>), Sodium Nitrite (Na<sub>2</sub>NO<sub>3</sub>), Ammonium Molybdate [(NH<sub>4</sub>)<sub>2</sub> Mo<sub>2</sub>O<sub>7</sub>], Ammonium Phosphate [(NH<sub>4</sub>)<sub>3</sub> PO<sub>4</sub>], Potassium Nitrate (K<sub>2</sub>NO<sub>3</sub>), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO<sub>4</sub>), Sulphurous Acid, Hydrobromic Acid (HBr) , other chemicals and reagent as applicable</p>

	b) Microstructure	Metallurgical Microscope
	c) Tensile Test	Tensile Testing Machine
	d) Transverse Test	Transverse Test Machine with all arrangements
2.	Hardness Test (5.4, 5.4.1 & 5.5)	Brinell Hardness Test, Tungsten Carbide composite ball indenter
3.	Casting Defects (5.3)	Visual Inspection System, Magnifying Glass
4.	Hammer Test (6)	Light Hand Hammer
5.	Leakage Test (7)	Hydrostatic Pressure Testing Machine, Pressure Gauge, Stop Watch, Safety Valves, Water Supply
6.	Pipes, Dimension, Mass and tolerance (8,9 & 10)	Vernier Caliper, Steel Scale, Radius Gauge, Steel Scale, Measuring Tape, Weighing Balance, Go & No Go Gauges
7.	Coating test (11)	Tar or suitable base bath, Heating arrangement Or Coating can also be done by spraying or brush painting, Heating oven, Deep Freezer, Pen knife

## ANNEX C

### SCHEME OF INSPECTION AND TESTING

#### 1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

#### 1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is All the Production carried out from material of single heat.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

**2. ENSURING COMPLIANCE THROUGH TESTING-** It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

**2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.**

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

**2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1),** where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website [www.bis.gov.in](http://www.bis.gov.in). (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

**2.4 TEST RECORDS-** The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

**3. PACKING AND MARKING** - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each Pipe, Fitting & Accessories provided always that the material so marked conforms to each requirement of the specification.

3.1 Marking shall be done as per Cl. 11 of IS 1729:2023.

**4. HYGIENIC CONDITIONS (if applicable)** – Not Applicable.

5. **TEST CERTIFICATE** – If so desired by the purchaser, for each consignment of BIS certified material conforming to IS 1729:2023, test certificate may be issued which shall contain the Standard Mark, cast/control unit number, type, variety, Nominal size of Pipes/Fittings and corresponding test results as given in Annex-1.

**6. REJECTION** - All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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**  
**ONLY FOR GUIDANCE PURPOSE**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5	Manufacture						
	Material Test	5.1	IS 1729: 2023	R	One	Each Heat	
	Hardness Test	5.4, 5.4.1 & 5.5	-do-	R	-do-	-do-	
	Casting Defects	5.3	-do-	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
	<b><u>Pipes</u></b>						
6	Hammer Test	6	-do-	R	Each Pipe	Each Pipe	
7	Leakage Test	7.1 & 7.2	-do-	R	-do-	-do-	
8, 9 & 10	Pipes Dimensions and Tolerances	8.2, 9.2, 9.3, 10.1, 10.7, 10.8 Table 1 to 33	-do-	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
11	Coating Test	11.1 to 11.7	-do-	R	One pipe	Once a week	
	<b><u>Fittings</u></b>						
6	Hammer Test	6	-do-	R	Each Fitting	Each Fitting	
7	Leakage Test	7	-do-	R	-do-	-do-	
8, 9 & 10	Dimensions and tolerances	8.2, 9.2, 9.3 10.1 to10.8	-do-	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
11	Coating Test	11.1 to 11.7	-do-	R	One fitting	Once a week	





**ANNEXURE I**  
(Para 5 of the Scheme of Inspection and Testing)  
**XYZ IRON COMPANY**

(Registered office Address and works address)

**TEST CERTIFICATE FOR**  
**Sand Cast Iron Spigot and Socket Pipes, Fittings and Accessories**

TEST CERTIFICATE No. \_\_\_\_\_

DATE \_\_\_\_\_

To M/s \_\_\_\_\_ We certified that the material described below fully conforms to IS 1729:2023. 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 1729:2023 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

**TEST RESULTS**

Order No. & Date	(Nom Size)	Control Unit No.	Type	Tolerances	Qty in tonnes	Coating #	Properties of material#	Hardness	Leakage test	Hammer Test	Freedom from defects

# As agreed between manufacturer and purchaser.

REMARKS

WAGON NO.

TRUCK NO.

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

FOR XYZ IRON COMPANY