



IS 3989:2024 के अनुसार

PRODUCT MANUAL FORCentrifugally Cast (Spun) Iron Spigot and Socket Pipes, Fittings and Accessories
Specification**ACCORDING TO IS 3989:2024**

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 लाइसेंस धारियों 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 3989: 2024
	शीर्षक Title	:	Centrifugally Cast (Spun) 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	:	Cast Iron used for the manufacture of pipes, fittings and accessories shall conform to FG Grade 150 (min), as specified in IS 210. Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer Annex - A

c)	नमूने का परिमाण Sample Quantity	: One piece of pipe/fitting Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer to Annex-B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex- C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	
	1. Hardness (Clause 4.3) 2. Hammer Test (Clause5) 3. Hydrostatic Test (Clause6) 4. Sizes/Dimensions (Clause7) 5. Coating Test (Clause 9.1.4) Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.	
6.	लाइसेंस का दायरा /Scope of the Licence:	
	“Licence is granted to use Standard Mark as per IS 3989:224 with the following scope: IS 3989:2024 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है	
	Name of the product उत्पाद का नाम	Cast Iron used for the manufacture of pipes, fittings and accessories shall conform to FG Grade 150 (min), as specified in IS 210.
	Type of the product	Socket and Spigot pipe, Bends with and without Access Doors etc. as per Tables 2 to 22 of IS 3989:2024
	Sizes	Nominal Diameter (DN) of the pipe or fitting *Angle (θ) to be mentioned where applicable *Offset (E) to be mentioned where applicable *Combination of nominal diameters to be mentioned where applicable (e.g. for equal and unequal single parallel branches as per Table 14, nominal diameter of body and branch to be mentioned)

ANNEX-A
GROUPING GUIDELINES

IS 3989:2024 mentions 21 types of uncoated pipes and fittings under Tables 2 to 22. These are identified as per their nominal diameters, as well as Angle (θ) , Offset (E) in some cases, and in some cases, Combination of sizes (nominal diameter) is mentioned (e.g. for equal and unequal single parallel branches as per Table 14, nominal diameters of both body and branch has been mentioned)

For the purpose of Grant of licence and Change in scope of licence, the following Grouping Guidelines shall apply:

- i) Samples of Each type of pipe or fitting shall be drawn and tested to cover those types in the scope of licence.
- ii) For each type of pipe or fitting, sample of any one size (i.e. nominal diameter) may be drawn and tested to cover all the sizes of pipes or fittings of that type.
- iii) For pipes/fittings where Angle (θ) , or Offset (E) is mentioned in the Table, one sample of each Angle (θ) , or Offset (E) as applicable shall be drawn and tested to cover all the sizes (nominal diameters) corresponding to that Angle (θ) , or Offset (E).
- iv) For pipes/fittings where combination of sizes (nominal diameter) is mentioned, sample of any combination of sizes (nominal diameter) may be drawn and tested to cover all the combinations of sizes.

Scope of licence shall be restricted based on the manufacturing and testing facilities available.

During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – A

LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Brinell Hardness Test (Clause 4.3)	Brinell Hardness Tester
2	Hammer Test (Clause 5)	Hammer
3	Hydrostatic Test (Clause 6)	Hydrostatic Test Arrangement with Pressure Gauge
4	Sizes/Dimensions (Clause 7)	Inside Caliper, Outside Caliper, Micrometer, Measuring Tape, Vernier Caliper, Ultrasonic Thickness Gauge
5	Coating Test (Clause 9)	Air oven or similar furnace and Freezer, penknife
6	For Raw Material Test (Clause 4.1)	Universal Testing Machine (UTM)
7	For Raw Material Test (Clause 4.1)	Impact Testing Machine and Freezer/Arrangement for maintaining temperature of sample
8	For Raw Material Test (Clause 4.1)	Metallurgical Microscope

ANNEX B

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 : For the purpose of this scheme the material produced or packed on a particular coating machine continuously during a day.

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. (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 cast, stamped or indelibly painted on each pipe and fitting provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

4. 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				
4.1	Material	4.1	IS 3989 IS 210	R	01	Each Cast	No further testing is required if the material is Standard Marked and is received with Test Certificate
4.2	Freedom from Defects	4.2	IS 3989	R	Firm shall exercise adequate in-process controls to ensure that each pipe and fitting is free from harmful defects.		
4.3, 4.3.1	Hardness	-	IS 1500	R	02	Every Four hour's production of pipe & fitting irrespective of size	----
4.4.1	Rubber joints	-	IS 3989	R	Adequate inspection to ensure that each pipe or fitting with rubber joints conforms to the requirements of the specification		Only for pipes or fittings with rubber joints
5	Hammer test	5	IS 3989	R	Each Pipe		

PM/3989/2
APRIL 2024

6	Hydrostatic test	6	IS 3989	R	Each Pipe and Fitting	
7 and	Sizes/ Dimensions	7 and 8	IS 3989	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	

8	& Tolerances						
9	Coating test	9	IS 3989	R	01	Each Control Unit	