



PM/ IS 9523/ 1  
Sept 2019

**PRODUCT MANUAL FOR  
Ductile Iron Fittings for Pressure Pipes for Water, Gas and Sewage  
According to IS 9523:2000**

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.	<b>Product</b>	:	IS 9523:2000
	<b>Title</b>	:	Ductile Iron Fittings for Pressure Pipes for Water, Gas and Sewage
	<b>No. of amendments</b>	:	06
2.	<b>Sampling Guidelines</b>		
a)	<b>Raw material</b>	:	The material of rubber gaskets for use with mechanical joints and push-on-joints shall conform to IS 5382
b)	<b>Grouping Guidelines</b>	:	Please refer Annex –A
c)	<b>Sample Size</b>	:	Two pcs - one coated and one uncoated + prepared tensile specimen
3.	<b>List of Test Equipment</b>	:	Please refer Annex –B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer Annex –C
5.	<b>Possible tests in a day</b>	:	All tests
6.	<b>Scope of the Licence :</b>		
	Licence is granted to use Standard Mark as per IS 9523:2000 with the following scope:		
	<b>Name of the product</b>	Ductile Iron Fittings for Pressure Pipes for Water, Gas and Sewage	
	<b>Types of Fitting</b>	Double Socket 90° Bend, etc. (As per Tables 15 to 31)	
	<b>Size of fitting</b>	Nominal Diameter in mm (DN)	



**ANNEXURE A  
TO PRODUCT MANUAL FOR  
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**GROUPING GUIDELINES**

1. IS 9523:2000 covers Ductile Iron Fittings for Pressure Pipes from DN 80 to DN 2000.
2. For the purpose of covering the entire range under certification at the time of grant of licence and inclusion of new varieties, the above range of sizes are divided into the following groups:

<b>Group</b>	<b>Sizes (Nominal diameter) (mm)</b>
<b>I</b>	Upto and including DN 300
<b>II</b>	Over DN 300 upto and including DN 600
<b>III</b>	Over DN 600

3. In order to cover the entire range one sample from each group of similar fittings as indicated in Table 15 to Table 31 of IS 9523 shall be drawn and tested. For the purpose of drawal of sample out of similar fittings, each item as referred in Table 19, 20, 21, 22, 23, 24, 25, 29, 30 & 31 and any one out of Table 15 to Table 18 and that out of Table 26 to Table 28 may be considered.
4. While considering grant of licence/inclusion of additional varieties, it shall be ensured that complete manufacturing facilities, testing equipments for essential requirements and testing arrangement for optional requirements are available with manufacturer.
5. During operation of the licence, all the varieties covered shall be tested by rotation.



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**ANNEXURE B**  
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**LIST OF TESTING EQUIPMENT**

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

<b>Sl. No.</b>	<b>Test Equipment/Chemicals and Identification Numbers (Where applicable)</b>	<b>Tests Used in with Clause Reference</b>
1.	Vernier Callipers	Cl.11,12 – Dimensions and Tolerances
2.	Micrometer	Cl.5 - Thickness
3.	Steel Scale , Tape, Try-square, Radius gauges, Filler Gauges, Depth gauges, Straight edges, MagneticV-block, Angle Protector (combination set), Protector outside and inside calliper, Carbon Paper	Cl.11,12 – Dimensions and Tolerances
4.	UTM (0-1000KN)	Cl.9 - Mechanical Test
5.	Hardness Testing Machine (Brinell/Rockwell/Vickers)	Cl 4.5, 9.2- Hardness
6.	Hydrostatic Testing Setup with pressure gauge	Cl. 10 – Hydrostatic test
7.	Coating Thickness Tester	Cl 13 – Coating thickness

Least Count and Range should match the values/parameters/tolerances mentioned in the Indian Standard.

**The above list is meant only for guidance and may not be treated as exhaustive.**



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**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 shall be stenciled on each fitting provided that the material thus marked conforms to the requirement of the specification.

3.1 Marking shall be done as per the provisions of the standard. In addition, details of BIS Certification i.e. BIS Licence Number CM/L—and BIS website shall be marked on each fitting or shown on a tag attached to each fitting as follows “For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)”

**4. CONTROL UNIT** – For the purpose of this scheme the castings manufactured from steel of the same cast in a day (24 hours) 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.

**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. Any rejected material which is potentially resalable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose. A separate record shall be maintained giving information on quantity and batch number/control unit number, as applicable, relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

**TABLE 1**  
**LEVELS OF CONTROL**  
**(Clause 5 of SIT)**

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Methods			No. of Specimen	Frequency	Remarks
		Clause	Reference				
4.	Manufacture and Repair	4.2 to 4.6	IS 9523	R	Each fitting	-	Inspection to be done for core box preparation, mould assembly for getting the accurate sizes within the given tolerance
6	Joints	6.1 to 6.9	IS 9523	R	-do-	-	-do-
7	Rubber Gaskets	7	IS 9523	S	One	Each Consignment	If gaskets are ISI marked no testing is required.
9.1	Tensile test		IS 1608 (Pt.1)	R	One	Each Control Unit	In case of failure in the first instance retesting as per Cl. 9.4 may be carried out
9.2	Hardness testing	9.2	-do-	R	One	-do-	-do-
10	Hydrostatic test	10	IS 9523	R	Each fitting		

11 &12	Size & Tolerance	11 & 12	-do-	R	-do-		This is to be checked by template and gauges. Additionally two fittings of each size and PN rating produced in a day to be checked for all dimensions and actual dimensions to be recorded.
13	Coating	13	-do-	R	One	Each Control Unit	In case of failures all the fittings manufactured during the day shall be checked visually and good ones are to be accepted. From the subsequent day; one sample shall be drawn and tested for this property daily. The original frequency may be restored if samples taken from five consecutive days production pass the test.

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: The control unit and levels of control as decided by the Bureau are obligatory to which the licensee shall comply with.