



**PRODUCT MANUAL
FOR CENTRIFUGALLY CAST (SPUN) DUCTILE IRON PRESSURE PIPES
FOR WATER, GAS AND SEWAGE
ACCORDING TO IS 8329:2000**

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.	Product	:	IS 8329:2000
	Title	:	Centrifugally cast (spun) ductile iron pressure pipes for water, gas and sewage
	No. of Amendments	:	05
2.	Sampling Guidelines:		
a)	Raw material	:	Please see ANNEX - A
b)	Grouping guidelines	:	Please see ANNEX - B
c)	Sample Size	:	Mechanical Test: Prepared samples Hydrostatic Test, Dimension & other tests : 01 Pipe full length
3.	List of Test Equipment	:	Please see ANNEX – C
4.	Scheme of Inspection and Testing	:	Please see ANNEX – D
6.	Possible tests in a day	:	All tests
7.	Scope of the Licence :		
	"Licence is granted to use Standard Mark as per IS 8329:2000 with the following scope:		
	Name of the product	Centrifugally cast (spun) ductile iron pressure pipes for water, gas and sewage	
	Class designation & Pressure Rating	K7, K8, K9, K10, K12.. etc./ PN 10, PN 16, PN 25 etc	
	Type of pipe	e.g. Socket and spigot pipes and/or flanged pipes etc.	
	Nominal Size DN (in mm)		

**ANNEX-A
TO PRODUCT MANUAL
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RAW MATERIAL

- 1) There are two types of manufacturing units producing centrifugally cast (spun) ductile iron pressure pipes for water, gas and sewage according to IS 8329:2000 (DI Pipes):
 - i. **Pipe casting units** i.e. those units which have in house facility for centrifugal casting to produce DI pipes as per the standard.
 - ii. **Flanging Units** i.e. those units which do not have in house facility for centrifugal casting of DI pipes, and procure DI pipes from the pipe casting units on which they then carry out flanging operation to produce flanged DI pipes.
- 2) **For pipe casting units**, the raw material shall be Ductile Iron or Spheroidal Graphite Iron of good quality, commensurate with the mechanical requirements laid down in Clause 10 and 11 of the standard IS 8329. Compliance shall be ensured as per GOL guidelines.
- 3) However, **flanging units** shall be required to procure **only BIS Standard Marked (ISI marked) DI pipes** from manufacturing unit(s) holding valid BIS licence as per IS 8329:2000. These flanging units shall also maintain appropriate records of purchase and consumption of ISI marked DI Pipes.
- 4) In addition, rubber gaskets used with joints of DI pipes as per IS 8329:2000 shall conform to Cl. 8 of IS 8329:2000 and their conformity shall be established as per GoL guidelines.

ANNEX-B
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GROUPING GUIDELINES

For the purpose of grant of licence as well as inclusion of additional sizes in the existing licence, the following groups having sizes as mentioned below shall be considered and one sample from each group for each type, class and pressure rating shall be tested for all the requirements of the specification to cover all sizes of pipes of that type, class and pressure rating.

Group	Sizes
1	80 mm to 250 mm
2	300 mm to 600 mm
3	700 mm to 1000 mm
4	1100 mm to 1400 mm
5	1600 mm to 2000 mm

While considering grant of licence/ inclusion of additional sizes, BO to ensure that the applicant/ licensee has got the complete manufacturing and testing facilities for all the varieties to be covered in the licence.

During operation of the licence, BO shall ensure that pipes of all varieties covered in the licence are tested in the factory and drawn for independent testing on rotation.

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LIST OF TEST EQUIPMENT

Major test equipment required to test as per the Indian Standard

S.No.	Test Equipment	Tests used in with clause Reference
1.	Universal Testing Machine (UTM), Class-1 accuracy or better as per IS 1608 (Part 1)	Mechanical test , Cl 10
2.	Brinell hardness Testing Machine as per IS 1500 (Part-1)	Brinell hardness test , Cl 10.2,
3.	Hydrostatic Test arrangement	Hydrostatic test , Cl 11
4.	Dimensions and size 1) Ultrasonic Thickness gauge (UTG) 2) Tape 3) Go and no go gauge 4) Circumferential tape 5) Thread & nut arrangement with Vernier caliper	Dimension and Size, Cl 12, 13
5.	Coating 1) Visual/Coat meter/mylar film 2) Visual/Coat meter/ Pin & Vernier 3) Go gauge/ inside caliper	Coating, Cl 16

The above list is indicative in nature and may not be taken as exhaustive

**ANNEX –D
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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 licence, shall be cast, stamped or legibly and indelibly painted/stencilled on each Pipe length, provided always that the material in each container to which this mark is thus applied, conform to every requirement of the specification.

3.1 Marking shall be done as per the provision of the Indian Standard. In addition, the following details shall be mentioned on each pipe:

- a) BIS Licence No. CM/L_____.
- b) BIS website details i.e –“For details of BIS certification please visit www.bis.gov.in”.

4. CONTROL UNIT – For the purpose of this scheme, the total quantity of pipes of the same type, class, pressure rating and nominal size manufactured under similar conditions from the same cast of metal (in case of pipe casting units) or made from the same consignment of ISI Marked DI pipes (in case of flanging units) and having the same type of internal and external coating/lining shall constitute one control unit*.

**(However, the total size (number of pipes) of the control unit shall not exceed the maximum batch size for that particular size of pipes mentioned in Cl 9.2 of IS 8329:2000)*

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 On the basis of the test results, decision regarding conformity or otherwise of the material to the requirements of the specification shall be made as follows:

6. TEST CERTIFICATE: Each consignment of DI pipes conforming to the standard and complying to the levels of control as per Table 1 shall be accompanied by a certificate bearing standard mark indicating conformity of the material to the Indian Standard.

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)		
Test Details				Test equipment requirement R: required (or)S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
6	Joints	6	IS 8329	R	Each pipe	-	-
7	Manufacture	7	-do-	R	Each pipe		See Note 3
8	Rubber Gasket	8	-do-	S	One	Each consignment	See Note 4
10	Mechanical Tests						
10.1	Tensile Test		IS 1608 (Pt.1)	R	One	Each control unit	
10.2	Brinell Hardness Test		IS 1500 (Pt.1)	R	One	Each control unit	
11	Hydrostatic Test	11	IS 8329	R	Each pipe	-	-
12,13, 15	Sizes, dimensions and tolerances	12, 13, 15 Tables 2 to 13	-do-	R	Each pipe	-	
16	Coating	16	-do-	R	One	Each control unit	

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.

Note-3: For DI pipe casting units, compliance to Cl 7.1 of IS 8329 shall be established by testing the pipe as per Cl . 10 & 11 of IS 8329 as per the levels of control specified for those tests. For flanging units, they shall procure only BIS Standard Marked (ISI marked) DI pipes from BIS licensed manufacturer for making flanged pipes, which will establish compliance to Cl 7.1. However, compliance to 7.2 which calls for visual inspections of defects, shall be conducted for each pipe.

Note-4: Conformity of each consignment of Rubber gaskets to the requirement of the standard may be established through supplier's test certificate or test report issued by laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau. In case the rubber gaskets are ISI marked no testing is required.

PROFORMA I
TEST CERTIFICATE

(Para 6 of the Scheme of Inspection and Testing)
XYZ IRON AND STEEL COMPANY
(Registered office Address and works address)



TEST CERTIFICATE FOR CENTRIFUGALLY CAST (SPUN) DUCTILE IRON PRESSURE PIPES FOR WATER, GAS AND SEWAGE
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Test Certificate No. and Date: _____
Name and Address of Consignee: _____

We certify that the material described below fully conforms to IS 8329:2000. Mechanical properties of the product, as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence No. CM/L _____ are as indicated below against each order No.

TEST RESULTS (FOR DETAILS PLEASE REFER IS 8329:2000)

Order No. & Date	Control Unit/Batch No.	Class and pressure rating	Type and size of pipe	Quantity in tonnes	MECHANICAL PROPERTIES			Size/dimensions	Coating	Remarks
					Tensile strength	Brinell Hardness	Hydrostatic test			

REMARKS

WAGON/TRUCK NO:

FOR XYZ IRON AND STEEL COMPANY

