



**PRODUCT MANUAL  
FOR  
CAST IRON SPECIALS FOR MECHANICAL AND PUSH-ON FLEXIBLE JOINTS  
FOR PRESSURE PIPES FOR WATER, GAS AND SEWAGE  
ACCORDING TO IS 13382:2018**

*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 13382:2018
	<b>Title</b>	:	Cast Iron Specials for Mechanical and Push-on Flexible Joints for Pressure Pipes for Water, Gas and Sewage
	<b>No. of amendments</b>	:	0
2.	<b>Sampling Guidelines</b>		
a)	<b>Raw material</b>	:	Raw materials grade as per IS 210 (Cl. 5.1), Rubber gasket used shall conform to IS 5382
b)	<b>Grouping Guidelines</b>	:	Please refer Annex – A
c)	<b>Sample Size</b>	:	Please refer Annex – B
3.	<b>List of Test Equipment</b>	:	Please refer Annex – C
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer Annex – D
5.	<b>Possible tests in a day</b>	:	Manufacture and Repair Cl.No 5 Thickness- Cl.no 6 Mechanical test Cl.No 10 Hydrostatic test, Cl.no 11 Size and Dimension, Cl. No 12 Tolerance's, Cl. No 13

6.	<b>Scope of the Licence :</b>	
	License is granted to use Standard Mark as per IS 13382:2018 with the following scope:	
	<b>Name of the product</b>	Cast Iron Specials for Mechanical and Push-on Flexible Joints for Pressure Pipes for Water, Gas and Sewage
	Type	Flange/ Spigot & Socketed end and type of Joint :Flexible Joint or Push-on Flexible Joint or Mechanical Flexible Joint or Restrained Joint or Flanged Joint
	Sizes	DN 80, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 750, 800, 900,1000,1100, 1200, 1400, 1500, 1600 mm
	<b>Variety</b>	covered in table No 9- 27 as per IS 13382
	<b>Any other aspect required as per the Standard</b>	with Bituminous paint or Synthetic enamel paint /epoxy coating; or Fusion bonded epoxy coating or Cement mortar

**ANNEX A**

**Subject: grouping guidelines as per IS 13382:2018 (Cast Iron Specials for Mechanical and Push-on Flexible Joints for Pressure Pipes for Water, Gas and Sewage)**

1. IS 13382:2018 covers requirements for cast iron special castings to be used with cast iron and ductile iron pressure pipes for carrying water, and sewage for sizes from DN 80 mm up to DN 1600 mm.
2. In order to cover the entire range of sizes of casting of a single variety (Refer Clause No 19 of IS 13382:2018) any one sample of any size of each variety (as per Cl.no 19 ) shall be drawn within a group at the stage of GOL/ Change of Scope

Group	Nominal Diameter(DN) in mm
Group 1	DN80 to DN 300
Group 2	DN 350 to DN 600
Group 3	DN 700 to DN 1600

3. However, it shall be ensured at the stage of GOL/change in scope that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the varieties to be defined in the licence.
4. During surveillance inspections, samples of all varieties covered in the scope of licence shall be drawn and tested by rotation.

**ANNEXURE -B**

**Sample Size:**

- i. Samples shall be drawn as per the above grouping guidelines
- ii. Additional raw material samples may also be drawn for mechanical testing as per the requirement of IS 13328:2018
- iii. Separate samples shall be drawn for Type test for Cl. No 17 & 18 for Joints tests

**Quantity of samples:**

- i. 1 Pc of Casting (either Socketed or Flanged) with Rubber gasket  
(One Piece Coated & One-Piece Uncoated casting)
- ii. 2Pcs of Tensile Bars and 1 Pcs of Hardness test Pc
- iii. 2 Pcs of Fittings (as per the scope of GOL/CoS) as per grouping guidelines for type test

ANNEXURE C

**LIST OF TEST EQUIPMENT**

*Major test equipment required to test as per the Indian Standard*

Sl. No	Test used in with Clause reference	Test Equipment/Chemicals & Id No
1	12.2, table 6 to 27 as relevant	Steel Tape
2		Steel Scale
3		Vernier Caliper
4		Digital Spring Balance
5		External Micrometer
6		Inside & outside calipers
7		Feeler Gauges
8		Templates to measure angles with angle protector / Profile Projector
9		Radius gauges
10		Feeler Gauges
11		Inside & outside calipers
12	<b>10.1</b>	Tensile testing machine
13	<b>10.2</b>	Brinell Hardness test machine
14	<b>11&amp; 17</b>	Hydrostatic test with pressure gauge and Load arrangement
15	<b>11&amp; 17</b>	Hammer & Suitable Rubber gaskets , End connections with Nut & bolts
16	<b>18</b>	V shape Block
17	<b>18</b>	Dynamometer / Load gauge
18	<b>11</b>	Stopwatch
19	<b>14.1.2</b>	Deep Freezer
20	--	Digital Balance bridge type
21	<b>14.1.2</b>	Hot air Oven with controller
22	<b>14.1.2</b>	penknife
23	<b>15</b>	Compressive strength test machine
24		Digital Tachometer

The list is indicative only and may not be taken as exhaustive.

## ANNEXURE D

### 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. LABELLING AND MARKING** -The Standard Mark as given in Schedule of the license shall be stamped/ engraved or indelibly painted on each casting and the marking shall be done as per the provision of the Indian Standard, provided always the casting thus marked conforms to all the requirement of the specification.

**3.1** In addition, BIS Licence No i.e. CM/L-\_\_\_\_\_ and details of BIS website shall be marked (stamped or indelibly painted) 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, all the castings of same size and type cast from the same metal in a day shall constitute one 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.

**6. REJECTION** - 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 except re-melting. A separate record shall be maintained giving information on quantity and cast 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 5.0 of the Scheme of Inspection and Testing)

1				2	3		
Test Details				Test equipment requirement  R: required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirement	Test method			No. of Samples	Frequency	Remarks
		Clause	Reference				
10.1	Tensile test	10.1 & Annex A	IS 13382:2018	R	Two	Each days Casting	If any of the sample fails, retesting shall be done as per clause 9.3 of IS 13382
10.2	Hardness test		IS 1500:P1	R	--do--	--do--	
11	Hydrostatic test	11 & Table 2	IS 13382:2018	R	Each fitting	--do--	
6,12,13,19	Size and tolerances	6,12,13, 19	--do--	R	Two	Each Control unit	
5	Manufacturer and repair	5.1 to 5.6	--do--	R	Each fittings manufactured		Were ever required
7	Joints	7.1 to 7.6	--do--	R	--do--		
14	Coating	14.1 and 14.2	--do--	R	One	One control unit	
8	Rubber gasket (if supplied)		IS 5382	R	One	Each consignment	In case TC is received with the supply indicating conformity, no testing is required.



15	Cement mortar lining(Optional)	15	IS 13382:2018	S	As agreed between purchaser and supplier
17	Type tests	17 and 18	--do--	R	If the design has been tested and documented by the manufacturer and successfully used for a minimum of ten years, no type test is necessary for that design. The performance of a type test is only required whenever there are significant changes in design which could adversely affect the performance of the joint.

**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 empanelled 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 for approval by BO Head.