



PRODUCT MANUAL FOR
Steel Tubes, Tubulars and Other Steel
Fittings — Part 2 Steel Pipe Fittings
According to IS 1239 Pt.2:2011

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 1239 Pt.2:2011
	Title	: Steel Tubes, Tubulars and Other Steel Fittings — Part 2 Steel Pipe Fittings
	No. of amendments	: 3
2.	Sampling Guidelines	
a)	Raw material	: Tubulars conforming to this standard shall be made from tubes which comply with all the appropriate requirements of IS 1239 (Part 1).Sockets shall be manufactured from mild steel.
b)	Grouping Guidelines	: Please refer Annex - A
c)	Sample Size	: Mechanical Test 4 Pieces Chemical test : 5 pcs of 5cm x 5cm (for OES) or 50 gm drillings for testing by chemical method
3.	List of Test Equipment	: Please refer Annex - B
4.	Scheme of Inspection and Testing	: Please refer Annex - C
5.	Possible tests in a day	: All tests
6.	Scope of the Licence :	
	Licence is granted to use Standard Mark as per IS 1239 Pt.2:2011 with the following scope:	
	Name of the product	Steel Tubes, Tubulars and Other Steel Fittings — Part 2 Steel Pipe Fittings
	Method of Manufacture	ERW,..
	Type	Tubular/Socket/fittings
	Size Designation	
	Optional	Protective coating(galvanizing)

ANNEXURE A
TO PRODUCT MANUAL FOR
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GROUPING GUIDELINES

1. Grouping of Steel tubulars, sockets and fittings for steel pipes is carried out on the basis of method of manufacture and strength as under:
 - a) Method of manufacture
 - b) Type
2. Accordingly, for the purpose of the GOL/CSoL the product is grouped as under:

Type	Reference	Remarks
Sockets	Covered under table 6 of IS 1239 (Pt 2)	The sample of the highest size designation (nominal bore / nominal size / nominal size of the outlet) each type of manufacturing process shall be tested for all the requirements of IS 1239 (Pt2)
Tubulars (Long Screws, Bends, Springs, Return Bends & Barrel Nipples etc)	Covered from Table 2 to 5 of IS 1239 (Pt 2)	The sample of the highest size designation (nominal bore / nominal size / nominal size of the outlet) shall be tested for all the requirements of IS 1239 (Pt2)
Other Fittings((Elbows, Tees and Crosses etc)	Covered from Table 7 to 28 of IS 1239 (Pt 2)	The sample of the highest size designation (nominal bore / nominal size / nominal size of the outlet) shall be tested for all the requirements of IS 1239 (Pt2),
Pieces	Covered under table 1 of IS 1239 (Pt 2)	The sample of the highest size designation (nominal bore / nominal size / nominal size of the outlet) shall be tested for all the requirements of IS 1239 (Pt2)

3. It shall, however, be ensured that the applicant/licensee has got complete manufacturing capabilities as well as testing facilities for the sizes/types required to be covered in the licence scope.
4. During the operation of license, BO shall ensure that all Grades & Product types covered in the license are drawn for independent testing on rotation over a period of time.

ANNEXURE B
TO PRODUCT MANUAL FOR
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LIST OF TEST EQUIPMENTS

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

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	Vernier calliper gauge or any other suitable device, Steel scale, micrometer (screw) gauge or other suitable device, Weighing Balance, Measuring Tape, Ring/ Plug gauges	Dimensions (8,9) Joints (10)
2	Hydrostatic Test Equipment or Air Compressor	Internal Hydraulic/Air Pressure Test (11.1)
3	Universal Testing Machine (UTM), Class-1 accuracy or better	Tensile Test (6)
4	Variable Speed Press with Conical Mandrels of preferred angles 30°, 45° & 60°	Drift Expanding Test (11.2.1)
5	Test Plug (Dimensions as per Table-31), Pipe Wrench/power machine for twisting	Taper Screw Plug Test (11.2.2)
6	Weighing balance, Clean soft cotton cloth, Vernier Caliper, micrometer, Stripping method: Antimony trioxide / Antimony tri chloride, Conc.HCl, soft cotton cloth, solvent naphtha, trichloroethylene, alcohol, Distilled Water, 100 ml glass burette with stopcock, rubber tube	Mass of Zinc Coating (13.1.1)
7	Copper carbonate (laboratory grade) or Copper hydroxide (laboratory grade), Copper Sulphate Crystals – Technical grade, Ammonium Hydroxide, Alcohol, Distilled water, Volatile organic solvent such as ether, trichloroethylene, carbon tetrachloride, etc. and other chemicals and reagents applicable, Thermostatically Controlled Freezer (Capable of achieving 15 deg to 20 deg Celsius temp., LC = 1 deg. C)	Uniformity of Zinc Coating(13.1.2)
8	Pivotal Hammer	Adhesion Test (13.1.3)

Note: The above is an indicative list for the purpose of guidance only

ANNEXURE C
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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, MARKING, PACKING – The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L.....) shall be incorporated, and the marking and packing shall be done as per the provisions of the Indian Standard, provided always that the product thus marked and packed conforms to all the requirement of the specification.

4. CONTROL UNIT –For the purpose of this scheme of Inspection &Testing, one shift production of one size & type of tubes/tubular/fittings 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.

5.2. The steel to be used in production of steel tubes shall be manufactured as per Cl 6 of IS 1239 Pt.2:2011. General requirements relating to the supply of material shall conform to IS 1387.

6. TEST CERTIFICATE-For each consignment of BIS Certified material conforming to IS 1239 Pt.2:2011 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed)

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. A separate record shall be maintained giving information relating to the rejection of tubes and method of their disposal which do not conform to the specification. Rejected material with Standard Mark (if already applied) should be defaced. The non-conforming material shall be segregated and made beyond intended use by any suitable method.

TABLE 1: LEVELS OF CONTROL

(1)				(2)	(3)		(4)
TEST DETAILS					LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of Samples	Frequency	
		Clause	Reference				
6	Tensile Test	6.4	IS 1239 Pt.2:2011 IS 1608 Pt.1	R	1	Each Cast	See Note-3
7	Chemical Composition						
	i) Ladle Analysis	7.1, 7.1.1	IS 1239 Pt.2:2011 IS 228(various Parts) or any established chem/instr.method	R	1	Each Heat	Applicable for manufacturers with steel making facilities.
	ii) Product Analysis	7.1,7.2		S	1	Each Cast	Applicable for manufacturers other than with steel making facilities. See Note-3
8	Dimensions of Tubulars	8.1 to 8.6 Table- 1 to 6	IS 1239 Pt.2:2011 IS 3468	R	1	One hour production of each type & size of fitting at each machine	In case a sample fails, that hour's production shall not be marked & segregated; those found failing shall be rejected. All fittings after this failure shall be checked till 5 consecutive samples confirm to; and thereafter normal frequency shall be resumed.
9	Dimensions of Fittings	9.1 to 9.2.3 Table- 7 to 28	IS 1239 Pt.2:2011 IS 554	R	1	-do-	
10	Joints	10	IS 1239 Pt.2:2011 IS 8999	R	1	-do-	

(1)				(2)	(3)		(4)
TEST DETAILS					LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		Test equipment requirement R: required (or) S: Sub-contracting permitted	No. of Samples	Frequency	
		Clause	Reference				
11.1	Pressure Tests (a) Internal Hydraulic Pressure or (b) Internal Air Pressure	11.1 to 11.1.2	IS 1239 Pt.2:2011	R	Acceptance criteria for Pressure test shall be as per Table-30 of IS 1239(Part-2) See Note-4		
11.2	Expansion Test on Sockets (a) Drift Expanding Test Or (b) Taper Screw Plug Test	11.2 to 11.2.2.6	IS 1239 Pt.2:2011 IS 2335 IS 554 IS 1501	R	2	Each Control Unit	At the option of the manufacturer anyone of the tests described in 11.2.1 and 11.2.2 shall be carried out.
13	Galvanizing	13.1 to 13.1.5	IS 1239 Pt.2:2011 IS 4736	R	2	Each Control Unit	
14	Workmanship	14	IS 1239 Pt.2:2011	R	Each Tube/ Tubular/ Fitting	Each Tube/ Tubular/ Fitting	

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: 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.

Note 3: No testing is required if material is ISI marked or received with test certificate from the steel manufacturer

Note-4: The fittings and sockets before they leave the works shall be subjected to either of Pressure tests [11.1 a) or 11.1 b)] as mutually agreed to between the purchaser and the manufacturer.

ANNEXURE I
 (Para 6 of the Scheme of Inspection and Testing)
 XYZ COMPANY
 (Registered office Address and works address)



TEST CERTIFICATE FOR Steel Tubes, Tubulars and Other Steel Fittings — Part 2 Steel Pipe Fittings

TEST CERTIFICATE No. _____ DATE _____

To M/s _____

We certified that the material described below fully conforms to IS 1239 Pt.2:2011 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 LicenceNo.CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 1239 Pt.2:2011 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Control Unit No.	Dimensions and Tolerances			CHEMICAL COMPOSITION		PHYSICAL PROPERTIES			Pressure test [#]	Galvanizing [#]
					S %	P %	TS	Drift expansion test [#]	Taper Screw Plug Test [#]		

[#] as agreed between

REMARKS

WAGON NO.

TRUCK NO.

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

FOR XYZ COMPANY