



उत्पाद मैनुअल
वेल्डेड ट्यूब एवं पाइपों के लिए तप्त-बेल्लित इस्पात की प्लेटें, चादरें एवं पत्तियाँ- विशिष्ट
IS 10748: 2025 के अनुसार

**Product Manual for
Hot-Rolled Steel Plates, Sheets and Strips for Welded Tubes and Pipes
According to IS 10748: 2025**

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 लाइसेंसधारियों 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.	भारतीय मानक संख्या IS No.	:	IS 10748:2025
	शीर्षक Title	:	Hot-Rolled Steel Plates, Sheets and Strips for Welded Tubes and Pipes
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement 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	:	For mechanical test: 0.5 Sq.m

		For chemical test : 5 pieces of 50 mm length/50 g drilling Requirements of Freedom from Defects (Cl 11) and Dimensions and Tolerances (Cl 12 & 13) may be tested in the factory (F/T) on full sizes of steel plates, sheets, strips from which samples are drawn for IT. 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)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	Grade, Killing method (mode of deoxidation), micro alloying contents, Nominal Size Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
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	
	All Tests. 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:	
	IS 10748:2025 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है □Licence is granted to use Standard Mark as per IS 10748:2025 with the following scope:	
7.	उत्पाद का नाम Name of the product	Hot-Rolled Steel Plates, Sheets and Strips for Welded Tubes and Pipes
	Type	Plates, Sheets, Strips
	Grade	[Grade 1, Grade 2,.....ISH 275H.....8C3, 10C4.....]

	Sizes	[Width and Thickness] in case of strip [Width, Thickness and Length] in case of plate and sheet

**BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002**

Annex-A
To Product Manual for
Hot-Rolled Steel Plates, Sheets and Strips for Welded Tubes and Pipes
According to IS 10748:2025

GROUPING GUIDELINES

(A) Hot rolled steel plates, sheets and strips for welded tubes and pipes according to IS 10748: 2004 is classified on following three groups:

- (1) Grades defined by chemical composition and mechanical properties
- (2) Fine grain steel grades (based on chemical composition and mechanical properties)
- (3) Grades defined by chemical composition only

(B) The group (1) & (2) are further classified on the basis of increasing minimum yield stress and decreasing % elongation as mentioned below:

Group (1)- Grades defined by chemical composition and mechanical properties

YS (Min)	Grade	% Elongation (Min)
↓	Grade 1	↑
	Grade 2	
	Grade 3	
	Grade 4	
	Grade 5	
	Grade 6	
	Grade 7	
	Grade 8	

Group (2)- Fine grain steel grades

YS (Min)	Grade	% Elongation (Min)
↓	ISH 275H	↑
	ISH 355H	
	ISH 420H	
	ISH 460H	

Grades defined by chemical composition only (Table 3 of IS 10748:2025) have been further classified into three groups based on the manganese content as well as the presence of Cr, Ti, and B,

Group 3	8C3, 10C4, 20C4, 21C3, 26C8, 30C8, 35C8, 40C8,
Group 4	20C12, 26C13, 30C14, 36C14, 38C14, 41C15, 43C15
Group 5	20C12B, 22C12B, 26C13B, 30C13B, 34C13B

(c) The following guidelines shall be followed for considering grant of licence/inclusion as per IS 10748:2025:

Group	Grades	Sampling
1	Grade 1 Grade 2 Grade 3 Grade 4 Grade 5	One sample each of any size/mode of de-oxidation of carbon steel strip of Highest and Lowest Yield Stress shall be drawn for testing. On testing of the two samples, grades including and in between those strength limits may be covered in scope of the licence.

	Grade 6 Grade 7 Grade 8	e.g: Alongside one sample of highest grade 8, sample of lowest grade 1 is also to be drawn for covering carbon steel plates, sheets & strips of grades 1 to 8.
2	ISH 275H ISH 355H ISH 420H ISH 460H	One sample each of any size/mode of de-oxidation of carbon steel strip of Highest and Lowest Yield Stress shall be drawn for testing. On testing of the two samples, grades including and in between those strength limits may be covered in scope of the licence. e.g: Alongside one sample of highest ISH460H, sample of lowest grade ISH275H is also to be drawn for covering carbon steel plates, sheets & strips of grades ISH27H to ISH460H.
3	8C3, 10C4, 20C4, 21C3, 26C8, 30C8, 35C8, 40C8,	Any one sample to be drawn from this group to cover all grades of this group in to the scope of the licence.
4	20C12, 26C13, 30C14, 36C14, 38C14, 41C15, 43C15	Any one sample to be drawn from this group to cover all grades of this group in to the scope of the licence.
5	20C12B, 22C12B, 26C13B, 30C13B, 34C13B	Any one sample to be drawn from this group to cover all grades of this group in to the scope of the licence.

3. While considering grant of licence/inclusion of additional varieties, it shall be ensured that complete manufacturing facilities, testing equipments for all requirements are available with manufacturer.

4. During the operation of licence, BO shall ensure that all the grades covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX – B

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

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

Sl. No.	Test Equipment/Chemicals and Identification Numbers (Where applicable)	Tests Used in with Clause Reference
1	Vernier Callipers, Micrometer	Dimensions & Tolerances, Condition of Delivery (Cl 12, 13 & 15)
2	Steel Scale(0-1000mm) ,Measuring tape(0-15mtr), Weighing Balance (Range and Least Count- as per the scope required and Mass Requirements given in Table 7 of IS 1730)	Dimensions & Tolerances, Condition of Delivery (Cl 12, 13 & 15)
3	Universal Tensile Testing Machine Range - 400KN(Minimum) with facility for sample preparation	Tensile Test (Cl 8)
4	Bending Device with Supports and a Mandrel or Bending Device with a V-Block or Bending Device with a Clamp , Internal Diameter of Bending mandrels for different Grades and Thickness shall be as per Table 3 of IS 10748, UTM attachments, Magnifying glass	Bend Test (Cl 9)
5	Steel Coil Weigh Bridge	Calculation of Mass (Cl 14)
6	Laser Shapemeter or Measuring Tape	Telescopicity (Cl 15.5)
7	Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry. Spectrophotometer	7, 7.1, 7.2 (C,S,P,Mn,Si,V,Cu,Cr, Micro alloying and alloying elements content) Mn,S,P,Si
8	Strohlein or Leco apparatus with all attachments Barometer with chart, Hot plate, Muffle furnace, Complete range of glass wares, measuring cylinders, Desiccator, porcelain boats or ceramic crucibles, Thermometer, Electronic Balance, Distilled Water,Hot air oven, Oxygen - 99.5 percent minimum purity,ether or acetone, Standard Reference Material (NML) with certificate	7, 7.1, 7.2 (C& S, chemical method, alternative to instrumental method)

	Reagents for C: tin granules or pure iron fillings, acidulated water/brine water, methyl red, caustic potash Reagents for S: Ceramic boats/crucibles – desiccators, Fluxes -Low sulphur copper, tin or iron, Dilute hydrochloric acid, Starch Iodide solution, Potassium iodate	
9	Weighing balance, Heater/ Heating element along with energy regulator, Ice water bath, Vol Flask Cap – 1 litre, (Whatman) filter paper No. 040, Suction Filtration Facility, Filter paper pulp pad, Standard Reference Material (NML) with certificate Potassium Permanganate (KMnO₄), Sodium Nitrite (Na₂NO₃), Ammonium Molybdate [(NH₄)₂ Mo₂O₇], Ammonium Phosphate [(NH₄)₃ PO₄], Potassium Nitrate (K₂NO₃), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO₄), Sulphurous Acid, Hydrobromic Acid (HBr) , other chemicals and reagent as applicable	7, 7.1, 7.2 (Phosphorus content, chemical method, alternative to instrumental method)
10	Hot plate, Conical flask Reagents: silver nitrate, ammonium persulphate sodium arsenite solution, Dilute Nitric Acid, Phosphoric Acid, Dilute Sulphuric Acid, Concentrated Nitric Acid, NaCl Solution, Permanganic acid	7, 7.1, 7.2 (Manganese content, chemical method, alternative to instrumental method)
11	Medium textured filter paper, Porcelain casserole, platinum crucible, filter paper pulp, hot plate, hot air oven, muffle furnace Reagents: Silver nitrate solution, concentrated nitric acid, concentrated sulphuric acid, Dilute Hydrochloric Acid, Dilute Sulphuric Acid, Perchloric Acid, Tartaric acid and hydrofluoric acid	7, 7.1, 7.2 (Silicon content , chemical method, alternative to instrumental method)
12	Plate, Muffle Furnace, porcelain or silica crucible, Reagents: Hot Wash Solution (dilute sulphuric acid solution 1: 99 v/v with hydrogen sulphide), dilute sulphuric acid, hydrogen sulphide, Dilute Nitric Acid, Sodium Fluoride,	7, 7.1, 7.2 (Cu content, chemical method, alternative to instrumental method)

	solid, Dilute Ammonium Hydroxide, Acetic Acid, Potassium Iodide, Starch Solution, Sodium Thiosulphate Solution, Ammonium Bifluoride Solution	
13	ashless paper pulp, paper pulp pad, hot plate, dessicator, Reagents: ammonium nitrate, methyl red, dilute ammonium hydroxide, Concentrated hydrochloric acid Concentrated nitric acid, Perchloric acid, Hydrofluoric Acid	7, 7.1, 7.2 (Ni content, chemical method, alternative to instrumental method)
14	Hot plate, stop watch Reagents: dilute sulphuric acid and phosphoric acid mixture, concentrated nitric acid, ammonium persulphate, silver nitrate, dilute hydrochloric acid, ferrous ammonium sulphate, standard potassium permanganate solution.	7, 7.1, 7.2 (Cr content, chemical method, alternative to instrumental method)

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

ANNEX- C SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) 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 (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

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, a control unit is defined as material produced continuously from the same cast under uniform conditions to same dimensions in a day in the same place shall be considered as one control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

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.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 TEST RECORDS- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L...) shall be incorporated suitably on each bundle/coil/product and on the Test Certificate issued along with each Consignment provided always that the product thus marked and packed conforms to all the requirement of the specification.

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

3.2 Additional Marking requirements: Additionally, the following shall also be marked on each package of the material:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) Any other requirement not specified in the Indian Standard

4. TEST CERTIFICATE – For each consignment of BIS Certified material conforming to IS 10748:2025 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).

5. REJECTION - 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
(Recommended Levels of Control by BIS- For Guidance Only)

(1)				(3)		(4)
TEST DETAILS				LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		No. of Samples	Frequency	
		Clause	Reference			
7	Chemical Composition					Applicable for manufacturers with steel making facilities
	Ladle Analysis	7.1, 7.2, 7.3 & 7.4 Table 1, 2 & 3	IS 10748 & IS 228 (Various Parts) / any established Chemical/ Instr. Method.	One	Each Heat	
	Product Analysis	7.1, 7.2, 7.3 & 7.4 Table-4		i) Nil 		

		Table 5 & 6				
9	Bend Test	9.1 to 9.2.4 Table 5 & 6	IS 10748 IS 1599	Two	Each Control Unit	—
11	Freedom from Defects	11	IS 10748	Adequate inspection to ensure each item to be free from defects which are detrimental to subsequent processing and ultimate use.		
12	Dimensions	12	IS 10748 IS 1730	Adequate inspection to ensure that each coil conforms to nominal dimensions specified or as agreed between manufacturer and supplier.		
13	Tolerances	13.1, 13.2 & 13.3	IS 10748 IS 1852	Adequate inspection to ensure that each coil conforms to tolerances stipulated in relevant standard.		
15	Condition of Delivery	15.1, 15.2, 15.3 & 15.6	IS 10748	Each material to be checked for condition. The material shall be in as-rolled, normalized, normalized rolling or thermomechanical rolling condition without any skin passing, pickling, oiling, and blast cleaning, annealing and normalizing unless otherwise specified by the purchaser. Coil Edges and cropping outer edge of coil may be as agreed between purchaser and manufacturer.		
		15.5	IS 10748	Telescopicity in coils should not be more than 100mm.		

Annexure-I
(Para 4 of the Scheme of Inspection and Testing)
XYZ IRON AND STEEL COMPANY
(Registered office Address and works address)

ISI Mark
With IS No.
and CM/L
no.

Test Certificate for Hot-Rolled Steel Plates, Sheets and Strips for Welded Tubes and Pipes
According to IS 10748:2025

TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

We certified that the material described below fully conforms to IS 10748:2025. Chemical composition and Mechanical properties of the product as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 10748:2025 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Nom Dimension & Thickness	Control Unit No.	Grade	Qty. (In tonnes)	Chemical Composition (%)										Mechanical Properties			Bend Test	Condition of Delivery	Remarks
					C	S	P	Si	Mn	*Cu	V	Cr	Al	@Micro Alloying elements %	CEV	TS	Elongation (%)	YS		

*For copper-bearing quality

@ Micro-alloying element present should be indicated

Remarks

Wagon No.

Truck No.

FOR XYZ IRON AND STEEL COMPANY

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