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उत्पाद मैनुअल
तप्त बेल्लित कार्बन एवं मिश्रधातु इस्पात की प्लेटें, चादरें एवं पत्तियाँ - विशिष्टि
IS 19608: 2026 के अनुसार

**Product Manual for
Hot-rolled Carbon and Alloy Steel Plates, Sheets and Strips-Specification
According to IS 19608: 2026**

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 19608:2026
	शीर्षक Title	:	Hot-rolled Carbon and Alloy Steel Plates, Sheets and Strips
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Shall conform to the requirements of IS 14650. For integrated steel plants, establishing conformity of raw material, test certificate of raw material is sufficient. 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 Chemical Test: 5 test pieces of 50 mm x 50 mm size OR 50 g drilling (for laboratories who don't have machining facility and conducting test as per chemical method). For Physical Test: 2 pieces of 500 mm x 500 mm (If applicable) Subjective requirements e.g. Dimensions and Tolerances (Cl 14), Freedom from Defects (Cl 13) shall be tested in the factory (during Factory Testing) on the full width/length of the material from which samples are drawn for Independent Testing. 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, Size, Heat Treatment Condition, Surface Condition, Optional Requirements (The requirements which are if agreed upon between the purchaser and the supplier) 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 19608: 2026 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 19608: 2026 with the following scope:		

7.	उत्पाद का नाम Name of the product	Hot-rolled Carbon and Alloy Steel Plates, Sheets and Strips
	Type	Unalloyed Steel (Low, Medium and High Carbon)/Alloyed Steel
	Steel Designation	10C5, 12C5, 15C5.....(As per Table 1A & 1B of IS 19608:2026)
	Size	Thickness from ... xx... to up to & includingxx... Width from ...xx... to up to & including ...xx... Length (in case of Sheets) from ...xx... to up to & including ...xx...
	Delivery Condition	Heat Treatment conditions and surface conditions (as agreed)
	Edge Condition	Mill edges or sheared /trimmed (slit) edges (as agreed)
	Optional Requirements	With or without optional requirement e.g. Grain Size, Non-Metallic Inclusions, Decarburization

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

ANNEX-A
TO PRODUCT MANUAL FOR
Hot-rolled Carbon and Alloy Steel Plates, Sheets and Strips
According to IS 19608:2026

GROUPING GUIDELINES

1. IS 19608:2026 specifies the chemical composition requirements of various steel grades as specified in Table 1A and Table 1B for non-alloy and alloy type steel grades respectively.
2. In order to follow a uniform policy in the drawl of samples for independent testing for the purpose of grant of license/ inclusion of additional varieties in the existing license, the procedure as mentioned below is to be followed:

(A) For Low, Medium and High Carbon Steel (Unalloyed)

Manufacturer shall declare the Grade Designations of the Steel Sheets and Strips intended to be covered in the scope of licence.

Group	Type	Designation (As per Table 1A of IS 19608)	Remarks
1	Low Carbon	10C5, 12c5,.....30C14 (Sr. No. 1 to Sr. No. 19)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
2	Medium Carbon	33C8, 34C14,.....60C8 (Sr. No. 20 to Sr. No. 36)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
3	High Carbon	65C3, 65C8,.....140C4 (Sr. No. 37 to Sr. No. 56)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.

(B) For Alloy Steel

Manufacturer shall declare the Grade Designations of the Steel Sheets and Strips intended to be covered in the scope of licence.

Group	Type	Designation (As per Table 1B of IS 19608)	Remarks
1	Chromium Steels	15Cr3 to 30Cr4Si5 (Sr. No. 1 to Sr. No. 24)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel

			Plates, Sheets and Strips of all the grades designation in the group.
2	Chromium Molybdenum Steels	15Cr4Mo2 to 40Mn6Cr8Mo2 (Sr. No. 25 to Sr. No. 43)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
3	Chromium Vanadium Steels	50Cr4V2, 58Cr4V2, 80Cr2V2 (Sr. No. 44 to Sr. No. 46)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
4	Chromium Molybdenum Vanadium Steels	15Cr5Mo9V2, 45Cr8Mo4V1 (Sr. No. 47 & Sr. No. 48)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
5	Nickel and Nickel Chromium Steels	75Ni8 to 80Ni7Cr1 (Sr. No. 49 to Sr. No. 60)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
6	Nickel Chromium Molybdenum Steels	14Ni13Cr4Mo2 to 68Ni2Cr2Mo2 (Sr. No. 61 to Sr. No. 84)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
7	Boron Steels and Boron Chromium Steels	20Mn5BT to 39Mn6Cr2BT (Sr. No. 85 to Sr. No. 94)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
8	Chromium Aluminium Molybdenum Steels	45Cr6Al10Mo2 (Sr. No. 95)	One sample of any size, delivery condition and edge condition, may be drawn and tested.
9	Chromium Tungsten Steels	110Cr1W9 (Sr. No. 96)	One sample of any size, delivery condition and edge condition, may be drawn and tested.
10	Nickel Chromium Molybdenum Vanadium Steels	32Ni2Cr14Mo12V4 (Sr. No. 97)	One sample of any size, delivery condition and edge condition, may be drawn and tested.

11	Silicon alloy Steels	38Si7, 50Si7, 55Si7 & 60Si7 (Sr. No. 98 to Sr. No. 101)	One sample from the group of any grade designation, size, delivery condition and edge condition may be drawn and tested to cover steel Plates, Sheets and Strips of all the grades designation in the group.
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3. Scope of licence shall be restricted based on the manufacturing and testing facilities available.

4. During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible.

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	Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry. Spectrophotometer	Cl. 7 for C, Mn, Si, S, P, Cr, V, Mo, Ni, Cu Content For Mn, S, P, Si
2	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 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	Cl. 7 –Carbon & Sulphur Content (chemical method, alternative to instrumental method)
3	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	Cl.7 –Phosphorus Content (chemical method, alternative to instrumental method)
4	Hot plate, Conical flask Reagents:	Cl. 7 –Manganese Content (chemical method, alternative to instrumental method)

	silver nitrate, ammonium persulphate sodium arsenite solution, Dilute Nitric Acid, Phosphoric Acid, Dilute Sulphuric Acid, Concentrated Nitric Acid, NaCl Solution, Permanganic acid	
5	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	Cl. 7 –Silicon Content (chemical method, alternative to instrumental method)
6	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, and standard potassium permanganate solution.	Cl. 7 –Chromium Content (chemical method, alternative to instrumental method)
7	Microscope with Magnification (upto 1000x)	Clause 09 (Grain Size), Clause 10 (Non-Metallic Inclusions), Clause 11 (Decarburization),
8	Vernier Calipers, External Micrometer, Flat bench, Level Indicator (to verify Flatness), Depth gauge, Micrometer, Feeler gauge, Vernier Calipers, Measuring Tape, Cord, Flat bench, Feeler Gauge, Weighing Scale	Clause 14 (Dimensions and Tolerances)
9	Vickers/Brinell/Rockwell Hardness Testing machine	Clause 8 (Hardness)
10	Tensile Testing Machine with facility for sample preparation, Air Conditioner	Clause 8 (Tensile Test)

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, steel plates, sheets & strips manufactured from the same cast under uniform conditions to same dimensions in a day shall constitute a 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 suitably incorporated on the material (Each coil or bundle) or each Package 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 19608:2026 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					
	Ladle Analysis	7.1 Table 1A & 1B	IS 19608 IS 228 or IS 8811 (relevant parts) or	One	Each Heat	Applicable for manufacturers with steel making facilities.
	Product Analysis	7.2, Table 2	Any other established instrumental/ chemical method.	(i) Nil	(i) Nil	i) Applicable for manufacturers with steel making facilities
				(ii) One	(ii) Each Cast	ii) Applicable for manufacturers without steel making facilities. No testing for check analysis is required if material fed to rolling/forging is ISI marked and received with test certificate.
8	Mechanical Properties					
	Hardness	8	IS 19608 IS 1501 (Part-1) IS 1586 (Part 1)	These requirements shall apply if mutually agreed upon by the purchaser and the supplier. Details of these requirements shall be as agreed to between the purchaser and the supplier. Records of agreed upon values shall be maintained.		
	Tensile Test	8	IS 19608 IS 1608 (Part 1)			
9	Grain Size	11.1 to 11.4	IS 19608 IS 4748	These requirements shall apply only when specified by the purchaser at the time of enquiry and order. Details of these requirements shall be as agreed to between the purchaser and the supplier. Records of agreed upon values shall be maintained.		
10	Non-Metallic Inclusions	12	IS 19608 IS 4163			

			IS 10138	
11	Decarburisation	13	IS 19608 IS 6396	
13	Freedom from defects	13.1 to 13.3	IS 19608	Manufacturer shall exercise adequate in-process controls to ensure each item to be free from surface defects.
14	Dimensions and Tolerances	14.1 to 14.4	IS 19608 IS 1730 IS/ISO 16160	Adequate inspection to ensure each item conforms nominal dimensions and tolerances stipulated in relevant standard.

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 Carbon and Alloy Steel Plates, Sheets and Strips
According to IS 19608:2026

TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

We certified that the material described below fully conforms to IS 19608:2026. Chemical, Physical 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 19608:2026 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Grade	Size	Delivery Condition	Cast/ Coil/ Lot/ Heat No.	Qty in tonnes	Chemical Composition (%)											Mechanical Properties*	Hardness*	Grain Size, Non-metallic Inclusions, Decarburization*	Freedom from defects	Remarks
						C	Mn	Si	S	P	Cu	Cr	Mo	Ni	V	B	Othrs				

* If agreed

Remarks
Wagon No.
Truck No.

FOR XYZ IRON AND STEEL COMPANY

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