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उत्पाद मैनुअल
संरचनात्मक इस्पात भाग -1 तप्त बेल्लित मध्यम एवं उच्च तान्यता के इस्पात
IS 2062 (Part-1): 2025 के अनुसार

Product Manual for
Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel
According to IS 2062 (Part-1): 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 2062 (Part-1): 2025
	शीर्षक Title	:	Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Material produced by re-rolling finished products (virgin or used or scrap), or by rolling material for which the metallurgical history is not fully documented or not known, are not acceptable. Since the starting material for re-rollers is mostly billets, ingots, it has to be ISI marked as per IS 2830. 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: 1 metre + Prepared test pieces for impact test For chemical test : 5 pieces of 50 mm length/50 g drilling Requirements of Freedom from Defects (Cl 7) and Dimensions and Tolerances (Cl 14 & 15) may be tested in the factory (F/T) on full sizes of steel plates, sheets, strips, shapes and sections, flats, bars, rods etc. 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 Designation, Type, Quality, Killing method, Addition of micro alloying elements, 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		
	Freedom from defects, Dimensions, Tensile test ,Bend test, Impact Test, Chemical Composition: By chemical method -- C, S, Mn or By instrumental method –all required elements. 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 2062 (Part-1): 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 2062 (Part-1): 2025 with the following scope:		

7.	उत्पाद का नाम Name of the product	Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel
	Type	<i>[Grade Designation with Type and Quality]</i>
	Size	<i>[Mention range of nominal sizes for various steel varieties (flat products/sections/Steel bars/rods)]</i>

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

ANNEX-A
TO PRODUCT MANUAL FOR
Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel

According to IS 2062 (Part-1):2025

GROUPING GUIDELINES

i) Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel according to IS 2062 (Part-1): 2025 are designated as per the following:

Higher Grade ↓	Grade Designations	Quality
	E235	A, BR, B0, C —————→ Higher Quality
	E250	
	E275	
	E300	
	E350	
	E410	A, BR —————→ Higher Quality
	E450	
	E500	
	E550	
	E600	
	E650	

ii) The following grouping based on type of product, shall be followed for considering grant of licence/inclusion as per IS 2062 (Part-1):2025

Group Number	Group Description	Grouping Guidelines
1	Flat Products: (1) Plates, Sheets, Strips & Flats (2) Bulb Flats	One sample of any size/mode of de-oxidation of flat products Higher Grade and Higher Quality shall be drawn for testing. On testing of the sample, all other Lower grades of higher to lower Quality of flat products alongside Higher Grade and Higher to lower Quality shall be covered in scope of licence. In case highest quality is not specified for the sample of higher grade offered then one more sample of the immediate lower grade with highest quality intended to be covered shall also be drawn for testing. Eg: One sample of highest grade E 650 of quality BR is offered, another sample of grade E 410 of quality C is also to be drawn for covering flat products of grades E 250 to E 650 quality A, BR and grades E 250 to E 410 of Quality B0, C.
2	Sections: 1) Beam, Column, Channels and Angles (2) Bulb Angles,	One sample of any size of Steel section shall be drawn for testing. On testing of sample of Higher Grade and Highest Quality, all other Lower grades and higher to lower Quality of

	(3) Sheet Piling Sections (4) Channel sections (5) Track Shoe Sections (6) Parallel Beam and Column sections (7) Tee Bars	the Steel Sections alongside Higher Grade and Higher to lower Quality shall be covered in scope of licence. In case highest quality is not specified for the sample of higher grade offered then one more sample of the immediate lower grade with highest quality intended to be covered shall also be drawn for testing. Eg: One sample of highest grade E 650 of quality BR is offered, another sample of grade E 410 of quality C is also to be drawn for covering sections of grades E 250 to E 650 quality A, BR and grades E 250 to E 410 of Quality B0, C.
3	Bars & Rods: (1) Round and Square Bars (ii) Rods	One sample of any size of bars and rods shall be drawn for testing. On testing of sample of Higher Grade and Highest Quality, all other Lower grades and higher to lower Quality of the Steel bars alongside Higher Grade and Higher to lower Quality shall be covered in scope of licence. In case highest quality is not specified for the sample of higher grade offered then one more sample of the immediate lower grade with highest quality intended to be covered shall also be drawn for testing. Eg: One sample of highest grade E 650 of quality BR is offered, another sample of grade E 410 of quality C is also to be drawn for covering bars of grades E 250 to E 650 quality A, BR and grades E 250 to E 410 of Quality B0, C.

iii) Scope of licence shall be restricted based on the manufacturing and testing arrangements available.

iv) 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	Vernier Caliper, Micrometer, Steel Scale ,Try-square, Radius gauges, Filler Gauges, Depth gauges, Straight edges, Magnetic V-block, Angle Protector (combination set), Protector outside and inside calliper, Carbon Paper, Weight M/c, Steel Tape	Tensile Test (Cl 10) & Dimensions & Tolerances (Cl 14 & 15)
2	UTM (0-1000KN)	Tensile Test (Cl 10)
3	Steel Mandrels (for bend tests), Templates (for Bend test), UTM attachments/clamps/vice/Magnifying glass	Mandrels is required on the basis of thickness of the products as given in Table-3 as per Cl 11
4	Charpy Impact tester, Thermometer, Specimen Inspection (Profile projector/Go & No Go Gauges, dial stand, surface plate, Micrometer), Deep Freezer	Impact Test (Cl 12)
5	Analytical balance (0-200g,Lc:0.1mg)	Chemical Composition (Cl 8)
6	NDT equipments, Metallurgical microscope with all attachments, Polishing wheel, etching solution.	Other Test (Cl 13)
7	Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry. Spectrophotometer	Chemical Composition (Cl 8.1 & 8.2) for C, S, P, Mn, Si, Al, Cu, Microalloying 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 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	Chemical Composition (Cl 8.1 & 8.2) –C& S (chemical method, alternative to instrumental method)

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 (KMnO ₄), Sodium Nitrite (Na ₂ NO ₃), Ammonium Molybdate [(NH ₄) ₂ Mo ₂ O ₇], Ammonium Phosphate [(NH ₄) ₃ PO ₄], Potassium Nitrate (K ₂ NO ₃), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO ₄), Sulphurous Acid, Hydrobromic Acid (HBr) , other chemicals and reagent as applicable	Phosphorus (P) (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	Manganese (Mg) (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	Silicon (Si) (chemical method, alternative to instrumental method)
12	Plate, Muffle Furnace, porcelain or silica crucible, Reagents: HotWash Solution(dilute sulphuric acid solution 1 : 99 v/v with hydrogen sulphide), dilute sulphuric acid, hydrogen sulphide, Dilute Nitric Acid, Sodium Fluoride, solid, Dilute Ammonium Hydroxide, Acetic Acid, Potassium Iodide, Starch Solution, Sodium Thiosulphate Solution, Ammonium Bifluoride Solution	Copper (Cu) (chemical method, alternative to instrumental method)
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	Nickel (Ni) (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.	Chromium (Cr) (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, all structural steel hot rolled to same dimensions and form (Angle or Channel or Flat or Round etc.), representing the same cast & grade designation, manufactured under uniform conditions of production in a day in the same place 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 incorporated suitably 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.

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 bundles/coils/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 733:2025 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	Freedom from defects	7.1 to 7.3	IS 2062 (Part-1)	Manufacturer shall exercise adequate in-process controls to ensure each item to be free from surface defects.		
8	Chemical Composition					
	Ladle Analysis	8.1 Table-1	IS 2062 (Part-1) IS 228 (Various Parts) IS 8811	One	Each Heat	Applicable for manufacturers with steel making facilities.
	Product Analysis	8.2 Table-2	Or any established Chemical/ Instr. method	(i) Nil (ii) One	(i) Nil (ii) Each Cast	i) Applicable for manufacturers with steel making facilities ii) Applicable for manufacturers without steel making facilities. No testing for product analysis is required if material fed to rolling mills is ISI marked and received with test certificate.
10	Tensile Test	10.1 to 10.3	IS 2062 (Part-1) IS 1608 (Part-1) IS 3803 (Part-1)	Two	Each Unit Control	—
11	Bend Test	11.1 to 11.3	IS 2062 (Part-1) IS 1599	Two	Each Unit Control	—
12	Impact Test	12.1 to 12.5	IS 2062 (Part-1) IS 1757 (Part-1)	Three	Each Unit Control	—

13	Other Tests- Nondestructive testing, Metallurgical tests	13.1 to 13.3	IS 2062 (Part-1) IS 2314 (Part-1)	Subject to mutual agreement between the purchaser and the manufacturer/supplier.
14 & 15	Dimensions & Tolerances	14 & 15 and Table 4	IS 2062 (Part-1), IS 1852, IS 12779 IS 808 IS 1173 IS 1252 IS 1730 IS 1732 IS 1863 IS 2314 (Part-1) IS 3954	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 Structural Steel Part 1 Hot Rolled Medium and High Tensile Steel
According to IS 2062 (Part-1):2025
TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

We certified that the material described below fully conforms to IS 2062 (Part-1):2025 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 Licence No. CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 2062 (Part-1):2025 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Type (steel plates, sheets, strips, shapes and sections (angles, tees, beams, channels, etc), flats, bars, rods, etc) and nominal size	Control Unit No.	Grade & Quality	Qty. (in tonnes)	Chemical Composition (in %)									Mechanical Properties					Optional	Remark
					C	S	P	Si	Mn	*Cu	@Micro Alloying Elements	Al	CE	Tensile Strength	Yield Stress	Elongation (%)	Bend Test	Impact Test		

* 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)