



उत्पाद मैनुअल
चमकीले इस्पात की छड़े
IS 9550:2024 के अनुसार

PRODUCT MANUAL
FOR Bright Steel Bars
ACCORDING TO IS 9550:2024

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.	मानक संख्या IS No.	:	IS 9550 : 2024
	शीर्षक Title	:	Bright Steel Bars- Specification
	संशोधनों की संख्या No. of amendments	:	NIL
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 – B
c)	नमूने का परिमाण	:	For physical tests: 1 m length For chemical tests : 5 pcs of 5 cm (or 5 cm x 5 cm)

	Sample Quantity		length The requirements of Dimensions and Tolerances (as per cl.8.) of IS 9550:2024 shall be carried out in the factory on full thicknesses/width/length of bars from which samples are drawn for I/T. 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)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer Annex – C
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer Annex – D
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:		
	“Licence is granted to use Standard Mark as per IS 9550:2024 with the following scope:		
	Name of the product	Bright Steel Bars	
	Product Designation	IS 9550 CPS 2062/E250BR IS XXXX (in case of grade without any CPS, where XXXX is a grade supplied on mutual agreement between the manufacturer and the purchaser)	
	Treatment Condition at Delivery	As-rolled and peeled/turned (+SH), Cold Drawn (+C), Soft annealed and peeled/turned (+A+SH),...	
	Product Form	Rounds, Squares and Hexagonal, Flats	
	Surface Quality Class	1,2,3,4	
	Sizes	Thickness from ...xx...mm to up to and including ...xx... mm, Width from ...xx...mm to up to and including ...xx... mm (in case of Flats)	

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG,
NEW DELHI-110002

ANNEX-B

GROUPING GUIDELINES

1. For the purpose of grant of licence/change in scope of licence, the following grouping guidelines shall apply:-

A) Grouping based upon Product Designation:

A.1 Manufacturer shall declare the Product Designations of Bright Bars, intended to be covered in the Scope of Licence, as per cl.4.5. of IS 9550:2024 and classify the Product Designations as per the below given Steel Groups and Sub-Categories.

Steel Group	Sub-Category	Grouping
Unalloyed Steel (excluding Product Designations covered under IS 11169 (Part 1) and IS 3748) (refer cl.1.2 of IS 9550:2024)	Low Carbon ($C < 0.25\%$) Medium Carbon ($C \geq 0.25\%$ up to 0.60%) High Carbon ($C \geq 0.60\%$)	One sample of any Product Designation shall be drawn and tested from each Sub-Category (Also See A.2)
Alloy Steel (excluding Product Designations covered under IS 11169 (Part 1) and IS 3748) (refer cl.1.2 of IS 9550:2024)	Low Alloy(up to and including 5 percent) Medium Alloy (more than 5 but up to and including 10 percent) High Alloy (More than 10 percent)	One sample of any Product Designation shall be drawn and tested from each Sub-Category (Also See A.2)
Stainless Steel (excluding Product Designations covered in IS 11169 (Part 2) and IS 6603) (refer cl.1.2 of IS 9550:2024)	Austenitic Ferritic Martensitic Duplex Precipitation Hardening	One sample of any Product Designation shall be drawn and tested from each Sub-Category (Also See A.2)

A.2 Evidence of manufacturing capability in the form of Mill Test Certificates (MTCs) (of earlier consignments) of all Product Designations, intended to be covered in the Scope of Licence, within each Sub-Category shall be submitted by the manufacturer and their conformity to the requirements of IS 9550:2024 shall be established before endorsing all Product Designations in scope of licence. In case of non-availability of MTCs, samples of all those Product Designations shall also be drawn and tested.

B) Grouping based upon Treatment Conditions at Delivery:

B.1 Manufacturers shall declare the Treatment Conditions of Delivery of Bright Bars intended to be covered in the Scope of Licence. Manufacturer shall also declare the Mechanical Properties (if any) for each Treatment Condition.

Treatment Conditions at Delivery	Grouping
As-rolled and peeled/turned (+SH), , Cold Drawn (+C)	Samples of different Product Designations, drawn at A above, shall be drawn in such a way (combination) that samples of all Treatment Conditions at Delivery are tested.
Soft annealed and peeled/turned (+A+SH)	
Soft annealed and cold drawn	
Treated to ferrite-pearlite structure and hardness range and peeled/turned (+FP+SH)	
Treated to ferrite-pearlite structure and hardness range and cold drawn (+FP+C)	
Quenched and tempered and peeled or cold drawn and quenched and tempered (+QT+SH, +C+QT)	
Quenched + tempered and cold drawn (+QT+C)	
Other heat-treated conditions, for example stress relieved (+SR), normalized (+N), cold drawn and annealed or normalized (+C+A, +C+N) etc.	

C) Grouping based upon Surface Quality Class:

Surface Quality Class	Grouping
1	Samples drawn at A and B above may be of any Surface Quality Class. However, if the sample drawn is of the most stringent Surface Quality Class i.e. Class 4, other Classes (Class 1 ,2 and 3) can also be covered in the Scope of Licence
2	
3	
4	

D) Grouping based upon Product Form and Size:

Product Form	Grouping
Rounds	Samples drawn at A, B & C shall be drawn in such a way (combination) that samples of all Product Forms, intended to be covered in the Scope of the Licence, are tested.
Square and Hexagons	
Flats	
	The samples of different Products Forms drawn may be of any size.

- 2) Scope of licence shall be restricted based on the manufacturing and testing facilities available.
- 3) During operation of licence, samples of each variety covered in the scope of licence, shall be tested in rotation, to the extent possible

ANNEX – C

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

Sl. No.	Tests Used In With Clause Reference	Test Equipment/Chemical
1	6, CHEMICAL COMPOSITION	Instrumental method: Spectrometer/ Spectrophotometer. Chemical Method: For C,S 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. For P-- 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)₂Mo₂O₇], Ammonium Phosphate [(NH₄)₃PO₄], 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.

		For Mn- 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. For Si-- 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. For Cu- 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, solid, Dilute Ammonium Hydroxide, Acetic Acid, Potassium Iodide, Starch Solution, Sodium Thiosulphate Solution, Ammonium Bifluoride Solution. For Ni- 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, solid, Dilute Ammonium Hydroxide, Acetic Acid, Potassium Iodide, Starch Solution, Sodium Thiosulphate Solution, Ammonium Bifluoride Solution. For Cr- 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. For N- Inert gas fusion followed by determination using thermal conductivity detector
2	7, MECHANICAL PROPERTIES	Universal Tensile Test Machine, Rockwell Hardness Tester, Brinell Hardness Tester

3	8, DIMENSIONS AND TOLERANCES	Vernier Caliper, Height gauge, Micrometer, Steel Scale, Measuring Tape, Straight Edge, Feeler gauge,
4	9, SURFACE CONDITION/ Decarburization	Metallurgical/Optical microscope with image Analyser
5	7, MECHANICAL PROPERTIES	Universal Tensile Testing Machine
6	11, OTHER TESTS	
	a. Hardenability	Rockwell or Vickers hardness tester and Quenching arrangement
	b. Inclusion content	Metallurgical/ Optical microscope
	c. Grain size	Metallurgical/ Optical microscope
	d. Microstructure	Metallurgical/ Optical microscope
	e.. Crack testing	Ultrasonic Flaw Tester
	f. Microscopic examination for depth of defects;	Metallurgical/ Optical microscope
	g. Any other tests (that is, surface roughness in micron), etc.	Roughness Tester

ANNEX D

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan 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 defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

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, bright steel bars of the same Product Designation, Product Form and Size, Treatment Condition at Delivery, Surface Quality Class and manufactured from the same heat/cast of raw material on the same line in one go.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in Schedule of the license and Licence Number (i.e. CM/L) shall be legibly and indelibly stamped on each bar (over 50 mm in diameter or of equivalent cross-sectional area) or metal tag attached to each bundle of bars (of 50 mm in diameter or of equivalent cross-sectional area and below).

3.1 Each bar over 50 mm in diameter or of equivalent cross-sectional area shall be stamped at one end with the cast identification and supplier's identification mark/code.

3.2 Bars of 50 mm in diameter or of equivalent cross-sectional area and below shall be bundled together and tied with suitable steel strappings at 3 to 4 places along the length of the bars. The metal tag shall be securely attached to each bundle and shall bear the information such as supplier's name, cast heat number, size and mass, order no., etc

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

4. TEST CERTIFICATE- For each consignment of BIS Certified material conforming to IS 9550:2024, 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 - All 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 –
(ONLY FOR GUIDANCE PURPOSE)

(1)				(2)		(3)		
Test Details				Test equipment requirement R:required (or) S: Sub-contracting permitted	No. of Sample	Levels of Control		
CI .	Requirement	Test Method				Lot Size	Frequency	Remarks
		Clause	Reference					
6	Chemical Composition	6.1,6.2 & 10.1	IS 9550 IS 228 (all parts) Any established instrumental/chemical method	R	1	Each Heat/ Cast	Each Heat/ Cast	The chemical composition of bright bars shall be as per relevant product Indian standard or it may be as agreed between the purchaser and the supplier. For manufacturers having steel making facilities, suitable records with regards to product designation of each heat manufactured shall be kept. For manufacturers not having steel making facilities and are procuring billets/blooms/bars from outside, shall ensure that each cast of the material is received with test certificate indicating the steel grade. No further testing is required if the raw material procured is ISI marked and is received with Test Certificate.

7	Mechanical Properties	7 & 10.2	IS 9550 IS 1608 (various parts) IS 1500 (Part 1) etc.	S	---	----	The mechanical properties of bright bars shall be as agreed to between the purchaser and the manufacturer.
8	Dimensions & Tolerances	8.1 & 8.2,8.2.1.1.,8.2.2,8.2.3,8.2.4,8.2.5 Table 1, 2 , 3 4,5,6,7	IS 9550 IS 919 (Part2)	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
9	Surface Condition	9 Table 8	IS 9550	R	1	Each Control Unit	---
	Decarburization	9.1 9.1.1 9.1.2 Table 8	IS 9550 IS 6396	R	1	Each Control Unit	No surface decarburization shall be permitted for turned and ground bars. If a lower depth of decarburization is required, it shall be mutually agreed to between the purchaser and the manufacturer.
11	Other Tests: a)Hardenability b)Inclusion Content c)Grain Size d)Micro-structure e)Crack Testing f)Microscopic examination for depth of defects g)Any other test (Surface Roughness) etc.	11.1	IS 9550 IS 3848 IS 4163 IS 4748 IS 7739(pt.1) IS 7739(pt.2) & IS 7739(pt.5) IS 2595, IS 3658 & IS 3664 IS 3703	S	---	-----	To be conducted if required by purchaser. Acceptance values and details of tests in absence of any Indian Standard shall be as agreed to between the purchaser and the manufacturer.

13	Surface protection and packing	13	IS 9550 IS 1153 IS 1154	R	A suitable clear temporary rust preventive shall be applied on all the bars to avoid rust during transit (see IS 1153 and IS 1154). The material shall be suitably packed in bundles-hessian wrapped to prevent sagging, corrosion and damage during transit.
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ANNEXURE I
XYZ STEEL COMPANY
(Registered office Address and works address)
TEST CERTIFICATE FOR
Bright Steel Bars according to IS 9550:2024
TEST CERTIFICATE No.



To M/s _____ DATE _____

We certified that the material described below fully conforms to IS **9550:2024** Chemical composition and Mechanical properties of the product, as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence No. CM/L____ are as indicated below against each order No.

(PLEASE REFER TO IS **9550:2024** FOR DETAILS OF SPECIFICATION REQUIREMENTS)
TEST RESULTS

Order No. & Date	Product Form/Nominal Size	Control Unit No.	Product Designation	Quantity in tonnes	CHEMICAL COMPOSITION								Mechanical Properties #	Treatment Condition at Delivery	Surface Condition and Decarburization	Dimensions and Tolerances	Surface Quality Class	Remarks
					C %	Si %	Mn %	Ni %	Cr %	Mo %	S %	P etc. %						

as agreed to between manufacturer and purchaser

REMARKS
WAGON NO.
TRUCK NO.
(It is suggested that size A4 paper be used for this test certificate)

FOR XYZ STEEL COMPANY