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उत्पाद मैनुअल
पिटवाँ एल्युमीनियम और उसकी मिश्रधातुएँ – सामान्य इंजीनीयरिंग प्रयोजनों के लिए
चेकर्ड / रेखांकन चादरें – विशिष्टि
IS 14712: 2025 के अनुसार

**Product Manual for
Wrought Aluminium and its Alloys-Chequered/Tread Sheets for General Engineering
Purposes
According to IS 14712: 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 14712:2025
	शीर्षक Title	:	Wrought Aluminium and its Alloys-Chequered/Tread Sheets for General Engineering Purposes-Specification
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The chemical composition of material used for making chequered/tread sheets shall conform to the grade and alloys 19000, 19000A, 19002, 31000, 31000A, 31200, 31500, 31500B, 31500C, 40800, 51300, 52000, 52000A, 52300, 52300B, 64430, 64430A, 65028, 65028A, 65032, 81400 and 81400A as specified in IS 737. 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 pcs of 50 mm X 50 mm For mechanical tests : 1 pc of 500 mm length Test for Dimensions and Tolerances as per Cl.9 and Freedom from Defects as per Cl. 10 shall be carried out in the factory on the full width/length of sheets 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)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	Designation, Condition (Temper Designation), Pattern, Size (Base Thickness, Width & Length) 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 can be carried out in a day. 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 14712: 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 21: 2025 with the following scope:		
7.	उत्पाद का नाम Name of the product		Wrought Aluminium and its Alloys-Chequered/Tread Sheets for General Engineering Purposes

	Designation	19000, 19000A, 19002, 31000,.....
	Condition (Temper Designation)	O, H12, H22, H14, H24,....
	Pattern	Diamond, Single Bar (Type 1, Type 2), Two Bar, Five Bar
	Size	Base Thickness Frommm to upto and including thicknessmm, Width frommm to upto and including..... mm Length frommm to up to and includingmm

ANNEX-A
TO PRODUCT MANUAL FOR
Wrought Aluminium and its Alloys-Chequered/Tread Sheets for General Engineering
Purposes
According to IS 14712:2025

GROUPING GUIDELINES

1. For the purpose of GoL/CSoL, the following Grouping Guidelines shall be considered:

A) Grouping based upon Grade Designations:

(i) Manufacturer shall declare the Grade Designations of the Chequered Plates/Tread Sheets intended to be covered in the scope of licence

Grade Designation	Grouping
19000,19000A, 19002	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))
31000, 31000A, 31200, 31500, 31500B, 31500C	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))
40800	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))
51300, 52000, 52000A, 52300, 52300B,	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))
64430, 64430A, 65028, 65028A, 65032,	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))
81400, 81400A	One sample of the Grade Designation shall be drawn and tested (Also See A (ii))

(ii) Evidence of manufacturing capability in the form of Mill Test Certificates (MTCs) etc., of all Grade Designations, intended to be covered in the scope of licence, within each Group, shall be submitted by the manufacturer and their conformity to IS 14712:1999 shall be ensured before endorsing all Grade Designations in scope of licence. In case of non-availability of MTCs, samples of all those Grade Designations shall also be drawn and tested.

B) Grouping based upon Temper Designations:

Manufacturer shall declare the Temper Designations in which the Chequered Sheets/Tread Sheets are intended to be supplied in.

Samples of different Grade Designations, drawn at A above, shall be drawn in such a way (combination) that samples of all Temper Conditions, intended to be covered in the Scope of the Licence, are tested.

C) Grouping based upon Pattern:

Samples, drawn at A & B above, shall be drawn in such a way (combination) so that samples of all patterns (Diamond, Single Bar (Type 1, Type 2), Two Bar, Five Bar) intended to be covered in the Scope of Licence, are tested.

D) Grouping based upon Size:

Samples, drawn at A, B & C above, may be of any size (Thickness/Width/Length). Separate Samples for each Size are not required to be drawn. However, recommendation of Scope of Licence with regards to Sizes shall be restricted based upon manufacturing capability.

2) However, it shall be ensured that the firm is having all the necessary manufacturing and testing facilities for the manufacture and testing of the varieties to be included in the licence

3) During the operation of licence, BO shall ensure that all the varieties 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.	Tests Used in with Clause Reference	Test Equipment/Chemicals and Identification Numbers (Where applicable)
1	Pattern (Clause 6), Dimensions and Tolerances (Clause 9), Table 1, Table 2	Vernier Caliper, Micrometer, Steel Scale, Right Angle, Measuring Tape, Feeler Gauge, Straight Surface
2	Tensile Properties (Clause 8)	Universal Tensile Testing Machine (with Servo Control), Bend Test Machine, Extensometer
3	Material (Chemical Composition) (Clause 7)	Device for instrumental chemical analysis such as Optical Spectrometer with all requisite channels and Certified/Standard Reference Materials OR Chemicals and Reagents for Chemical method as per IS 504 (all relevant parts) for each element given below** Analytical Balance(0-200gm, LC- 0.1mg), Hot Plate, Hot Air Oven, Photometer (Absorption cell), Porcelain/Silica Crucible, Platinum Crucible, Thermometer, Filter Paper including ashless filter paper pad, Stainless steel/nickel beaker, Plastic/polyethene/SS Beaker, Pyrex beakers and other glassware
**	Chemical Method (alternative to instrumental method) as per IS 504 (various parts)	
(i)	Copper (Below 0.1%)	Reagents-Mixed Acid (Conc.HCL, Conc. Sulphuric Acid, Conc. Nitric Acid), Dilute Sulphuric Acid, Hydrofluoric Acid, Hydrogen Sulphide(gas), Hydrogen Sulphide Wash Solution, Dilute Nitric Acid, Concentrated Ammonium Hydroxide, Dilute Ammonium Hydroxide Wash Solution, Citric Acid Solution, Sodium-Diethyl-Dithiocarbonate solution, Carbon Tetrachloride, Sodium Sulphate, Standard Copper Solution, silica basin.
(ii)	Copper (Above 0.1%)	Reagents – Concentrated Sulphuric Acid, Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Mixed Acids(Conc.HCL, Conc. Sulphuric Acid, Conc. Nitric Acid), Hydrofluoric Acid, Dilute Sulphuric Acid, Ammonium Fluoride, Concentrated Ammonium Hydroxide, Acetic Acid, Urea Solution, Potassium Iodide Solution, Standard Sodium Thiosulphate Solution, Starch solution, ammonium

		thiocyanate, Sodium Hydroxide Solution, Sodium Sulphate Solution, Sodium Hydroxide-Sodium Sulphate Wash Solution, Dilute Nitric Acid, Sulphurous Acid, Hydrogen Sulphide(gas), Hydrogen Sulphide Wash Solution
(iii)	Magnesium (0.01 to 12 %)	Reagents – Sodium Hydroxide, Hydrogen Peroxide, Sodium Carbonate, Methyl Red Indicator Solution, Conc. Ammonium Hydroxide, Ammonium Chloride Wash Solution, Ammonium Chloride, Conc. Hydrochloric Acid, Ammonium Sulphide Solution, Ammonium Persulphate, Ammonium Sulphide Wash Solution, Bromine Water, 8- Hydroxyquinoline Solution, Dilute Ammonium Hydroxide, Methyl Orange Indicator Solution, Potassium Bromate-Potassium Bromide Solution, Potassium Iodide Solution, Starch Solution, Standard Potassium Iodate Solution, Standard Sodium Thiosulphate Solution
(iv)	Magnesium (0.5 to 11%)	Reagents – Sodium Hydroxide Solution, Hydrogen Peroxide, Potassium Cyanide Solution, Dilute Hydrochloric Acid, Ammonium Chloride, Bromine Water, Conc. Ammonium Hydroxide, Sodium Acetate, Tartaric Acid, Chrome Blank T Indicator, Standard Magnesium Sulphate, Standard EDTA Solution.
(v)	Silicon (0.02 to 0.3%)	Reagents- Sodium Hydroxide Solution, Dilute Nitric Acid, Ammonium Molybdate Solution, Standard Silicon Solution.
(vi)	Silicon (Above 0.3%)	Reagents – Sodium Hydroxide Solution, Hydrogen Peroxide, Conc. Sulphuric Acid, Sulphuric Acid-Perchloric Acid Mixture, Perchloric Acid Solution, Conc. Nitric Acid, Sulphurous Acid, Dilute Sulphuric Acid, Conc. Hydrochloric Acid, Ammonium Acetate Solution, Dilute Hydrochloric Acid, Hydrofluoric Acid
(vii)	Iron (0.03 to 0.10%)	Reagents-Sodium Hydroxide Solution, Finely granulated lead containing under 0.001% iron, Acetate Buffer Solution, Hydroxylamine Hydrochloride Solution, O- phenanthroline solution, Standard Iron Solution. Equipment – Magnet, Nickel Beaker.
(viii)	Iron (0.01 to 2.0%)	Reagents -Concentrated Sulphuric Acid, Concentrated Nitric Acid, Concentrated Hydrochloric Acid, Mixed Acids(Conc.HCL, Conc. Sulphuric Acid, Conc. Nitric Acid), Dilute Sulphuric Acid, Hydrofluoric Acid, Potassium Bisulphate, Hydrogen Sulphide, Hydrogen Sulphide Wash Solution, Potassium Permanganate Solution, Potassium

		Thiocyanate Solution, Standard Titanous Chloride Solution. Equipment – Apparatus for Storing Titanous Chloride Solution, Solid Glass Beads.
(ix)	Manganese (Chromium Content upto 0.5%)	Reagents - Sodium Hydroxide Solution, Acid Mixture(Conc. Sulphuric Acid, Phosphoric Acid and Nitric Acid), Silver Nitrate Solution, Ammonium Persulphate Solution, Ammonium Chloride Solution, Standard Arsenite-Nitrite Mixture, Sodium Arsenite, Standard Manganese Solution.
(x)	Manganese (Mn content between 0.1 to 1.5%)	Reagents – Conc. Nitric Acid, Sodium Bismuthate, Sulphurous Acid, Dilute Nitric Acid, Phosphoric Acid, Standard Ferrous Ammonium Sulphate Solution, Standard Sodium Oxalate Solution, Standard Potassium Permanganate Solution. Equipment- Asbestos Gooch Crucible.
(xi)	Zinc (Photometric Method for Zn content below 0.1%)	Reagents – Dilute Hydrochloric Acid, Potassium Chlorate, Carbon Tetrachloride, Complex Forming Solution (Conc. Ammonium Hydroxide, Ammonium Oxalate, HCl acid, sodium acetate, sodium thiosulphate solution and sodium sulphide solution), Dithizone Solution, Sodium Sulphide Wash Solution, Standard Zinc Solution.
(xii)	Zinc (By Mercuric Thiocyanate Method)	Reagents – Mixed Acid(Conc. Sulphuric Acid, Conc. HCl and Conc. Nitric Acid), Dilute Sulphuric Acid, Hydrogen Sulphide(gas), Hydrogen Sulphide Wash Solution, Tartaric Acid Solution, Conc. Ammonium Hydroxide, Methyl Red Indicator Solution, Formic Acid Mixture, Formic Acid Wash Solution, Dilute Hydrochloric Acid, Ammonium Nitrate, Methylated Spirit, Mercuric Potassium Thiocyanate Solution, Chloroform, Standard Zinc Solution, Standard Potassium Iodate Solution.
(xiii)	Titanium	Reagents – Sodium Hydroxide Solution, Nitric Acid-Sulphuric Acid Mixture, Dilute Sulphuric Acid, Hydrogen Peroxide, Standard Titanium Solution.
(xiv)	Chromium	Reagents – Conc. Sulphuric Acid, Conc. Nitric Acid, Silver Nitrate, Hydrofluoric Acid, Ammonium persulphate, Dilute HCl, Standard Ferrous Ammonium Sulphate Solution, Standard Potassium Permanganate Solution.

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 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: All quantity of material of same size (thickness and width), grade designation, temper designation, pattern and manufactured from the same raw material under on the same production line in one go 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**.

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/empanelled 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 the Schedule of the license and Licence Number (i.e. CM/L...) shall be incorporated on each package of chequered/tread sheet and on the Test Certificate, and the marking 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: The material shall also be marked with the following additional requirement on each Package, coil or reel:

- 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 14712:2025 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 - 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)		(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	Pattern	6	IS 14712	R	Manufacturer shall exercise adequate in-process controls to ensure that the Chequered/Tread Sheets shall have one of the Patterns as specified in the standard or any other pattern as agreed between the manufacturer and purchaser.		
7	Material	7	IS 737 IS 5052	R	One	Each Heat/Cast/ Each Batch (of raw material procured from outside)	No further testing is required if the raw material procured as per IS 737 is ISI marked and is received with Test Certificate.
8	Tensile Properties						
8.1	Tensile Test	8.1.1	IS 14712 IS 1608 (Part 1)	R	One	Each Control Unit	—

9	Dimensions & Tolerances	9.1, 9.2, 9.3, 9.4, 9.5	IS 14712 IS 2676	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.
10	Freedom from Defects	--	IS 14712	R	Manufacturer shall exercise adequate in-process controls to ensure that the material remains free from harmful defects.

PM/14712/2
October 2025

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

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

Test Certificate for Wrought Aluminium and its Alloys-Chequered/Tread Sheets for General Engineering Purposes

TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

We certified that the material described below fully conforms to IS 14712:2025 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 14712:2025 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Nominal Size & Pattern	Control unit No.	Type	Quantity (in tonnes)	Chemical Composition (in %)										Physical Properties		Freedom From Defects	Remarks
					Al	Cu	Mg	Si	Fe	Mn	Zn	Ti	Cr	Othrs	Dimension and Tolerances	Tensile Strength		

Remarks
Wagon No.
Truck No.

FOR XYZ COMPANY

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