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उत्पाद मैन्युअल
फॉउन्ड्री और डाई कास्टिंग के लिए जिंक-एल्युमीनियम मिश्रधातु इंगट
IS 713: 2026 के अनुसार

Product Manual for
Zinc-Aluminium Alloy Ingots Intended for Foundry and Die Castings
According to IS 713: 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 713:2026
	शीर्षक **Title**	:	Zinc-Aluminium Alloy Ingots Intended for Foundry and Die Castings
	संशोधनों की संख्या **No. of amendments**	:	0
2.	**नमूना दिशानिर्देश** **Sampling Guidelines**		
a)	**कच्चा माल** **Raw material**	:	Zinc ingots or liquid zinc conforming to grade Zn99.995 or Zn99.99 of IS 209 with the addition of appropriate alloying elements or using master alloys (see Annex D of IS 713:2026) of Zn-Al. Materials that may cause contamination shall not be used. **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**	:	9 Grades of Zinc Base Alloys are covered under IS 713:2026 i.e. ZnAl4, ZnAl4LM, ZnAL4Cu1, ZnAl4Cu3, ZnAl8Cu1, ZnAl11Cu1, ZnAl27Cu2, ZnAl4HF and ZnAl3Cu6. One Sample from Ingot of each Zinc Base Alloy shall be drawn and tested for the purpose of Chemical Composition (cl.7.) only.
c)	**नमूने का परिमाण** **Sample Quantity**	:	For Chemical Composition test: 5 pcs of 5 cm length The requirements of Shape, Size and Mass of Ingots (Cl 8) shall be tested in the factory during Factory Testing and be reported accordingly. **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 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- A
4.	**निरीक्षण और परीक्षण की स्कीम** **Scheme of Inspection and Testing**	:	Please refer to Annex- B
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 713:2026 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 713:2026 with the following scope:		
7.	**उत्पाद का नाम** **Name of the product**		Zinc-Aluminium Alloy Ingots Intended for Foundry and Die Castings

	Grade	ZnAl4, ZnAl4LM, ZnAL4Cu1……

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

ANNEX – A

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	Optical Emission Spectrometer with requisite channels and CRMs, Sample Polishing Machine, Grinding Machine, Inductively coupled optical emission spectrometer, Reagents (as per IS 2600 (Part 5))	Chemical Composition, Cl 7 Pb, Cd, Fe, Cu, Sn, Al, Mg, Ni
2	**By Spectrophotometric Method:** Analytical Balance ,Ammonium hydroxide, citric acid, separating funnel, sodium diethyi dithiocarbamate, chloroform, EDTA Solution -5 percent (m/v), Ammonium hydroxide - rd = 0.90,Pure Copper (99.99%),nitric acid, Hot Plate, Volumetric Flask, Ammonium Citrate, Spectrophotometer **By Atomic Absorbtion Spectrophotometric (AAS) Method** Analytical Balance ,Hydrochloric Acid, Dilute Nitric Acid, Pure Copper (99.99%), Hot Plate, Volumetric Flask, separating funnel, Watch Glass, Atomic Absorption Spectrophotometric Method (AAS).	Copper, Cl 7
3	**By Spectrophotometric Method:** Analytical Balance ,Dilute Hydrochloric Acid, Methyl Isobutyl Ketone, Ascorbic Acid, o-Phenanthroline (Biffered),Glacial Acetic Acid, Ammonia Solution,Electrolytic Iron Wire, Conc. Hydrochloric Acid , separating funnel ,Hot Plate, Volumetric Flask, Spectrophotometer. **By Atomic Absorbtion Spectrophotometric (AAS) Method** Analytical Balance ,Hydrochloric Acid, Dilute	Iron, Cl 7

	Nitric Acid, Pure Iron (99.99%), Hot Plate, Volumetric Flask, separating funnel, Watch Glass, Atomic Absorption Spectrophotometric Method (AAS).	
4	**By Spectrophotometric Method:** Analytical Balance ,Citric Acid – Solid, Ammonium Persulphate-Solid, Ammonium Hydroxide, Hydroxylamine Hydrochloride, Dimethylglyoxamine, Chloroform. Dilute Hydrochloric Acid, Bromine Water, Pure Nickel, Conc Nitric Acid, separating funnel, Hot Plate, Volumetric Flask, Spectrophotometer	Nickel**,** Cl 7
5	**By Atomic Absorbtion Spectrophotometric (AAS) Method** Analytical Balance ,Hydrochloric Acid, Dilute Nitric Acid, Pure Lead (99.99%), Hot Plate, Volumetric Flask, separating funnel, Watch Glass, Atomic Absorption Spectrophotometric Method (AAS).	Lead, Cl 7
6	**By Atomic Absorbtion Spectrophotometric (AAS) Method** Analytical Balance ,Hydrochloric Acid, Dilute Nitric Acid, Pure Cadmium(99.99%), Hot Plate, Volumetric Flask, separating funnel, Watch Glass, Atomic Absorption Spectrophotometric Method (AAS).	Cadmium, Cl 7
7	**By Atomic Absorption Spectrometric Method** Hydrochloric Acid, rd = 1.16, Nitric Acid, rd = 1.4, lanthanum oxide (La2 O3), zinc (99.99 percent), aluminium (99.99 percent), watchglass, magnesium of purity at least 99.95 percent, volumetric flask, Aqua Regia, Analytical Balance, Hot Plate, Glasswares, Atomic Absorption Spectrometer	Magnesium, Cl 7

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

ANNEX- B
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, Material representing One Grade of Alloy produced in the same melt 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. 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 Ingot/each bundle of ingots/each bundle of small jumbos or each individually supplied jumbo (as applicable) or metal tag/sticker/label attached to these ingots/jumbos and on the test certificate accompanied 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 ingot or bundle 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 713:2026 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**			
5	Manufacture	5	IS 713	The Zinc alloy shall be manufactured from Zinc ingots or liquid zinc conforming to grade Zn99.995 or Zn99.99 of IS 209 with the addition of appropriate alloying elements or using master alloys (see Annex D of IS 713:2026) of Zn-Al. Materials that may cause contamination shall not be used. Manufacturer shall ensure that the alloys are manufactured in accordance with the specification. Wherever required appropriate records shall be maintained.		
7	Chemical Composition	7	IS 713 IS 2600 (Part-1) IS 2600 (Part-2) IS 2600 (Part-6) IS 2600 (Part-7) or by ICP-OES method specified in IS 2600 (Part-5), or any other established instrumental/chemical method	One	Each Heat	___

8	Shape, Size and Mass of Ingots	8	IS 713 IS 1817	The shape, size and mass of zinc alloy ingots shall be at the discretion of the supplier, unless a specific shape/size/mass is agreed between the purchaser and the supplier at the time of ordering. Manufacturer shall exercise adequate in-process controls to ensure that the material conforms to the requirements of specification. However, wherever required, appropriate records shall also be maintained.

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

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

Test Certificate for Zinc-Aluminium Alloy Ingots Intended for Foundry and Die Castings
According to IS 713:2026
TEST CERTIFICATE NO._____

To M/s_____ Dated_____

We certified that the material described below fully conforms to IS 713:2026. 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 LicenceNo.CM/L_____are as indicated below against each order No.

(PLEASE REFER TO IS 713:2026 FOR DETAILS OF SPECIFICATION REQUIREMENTS)
TEST RESULTS

Order No. & Date	Grade	Shape, Size and Mass of Ingots	Control Unit No.	Qty. (in Tonnes)	Chemical Composition (%)									Remarks
					Al	Cu	Mg	Pb	Cd	Sn	Fe	Ni	Zn (remainder)	

Remarks
Wagon No.
Truck No.

FOR XYZ ZINC COMPANY

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