



उत्पाद मैनुअल
“भूरे लोहे की ढलाइयाँ”
IS 210: 2009 के अनुसार

Product Manual for
“Grey Iron Casting”
According to IS 210: 2009

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 210:2009
	शीर्षक Title	:	Grey Iron Castings
	संशोधनों की संख्या No. of amendments	:	01
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific raw material 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	:	Each grade has to be tested for GoL
c)	नमूने का परिमाण Sample Quantity	:	For Chemical Test: 5 test pieces of 5 cm x 5 cm size/ 50 g drillings. For Mechanical Test: 3 test bars

			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	:	Grades of Grey Iron Casting 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 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 210:2009 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 210:2009 with the following scope:		
7.	उत्पाद का नाम Name of the product		Grey Iron Castings
	Grade		FG 150,...
	Condition of Delivery		Heat treated,...

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

ANNEX-A
TO PRODUCT MANUAL FOR
Grey Iron Castings
According to IS 210:2009

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	Microscope 100X	Microstructure (9)
2	Universal Tensile Testing Machine 0-600kN, LC-10N	Tensile Strength (14)
3	Brinell Hardness Tester (along with tungsten indenter of appropriate size, measuring device) 0-300 BHN	Hardness (16)
4	Test arrangement for Transverse Test	Transverse Test (17)
5	Dial Vernier Caliper Outside Micrometre	Castings Dimensions (7.2)
6	Spectrophotometer	Chemical composition (6)

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: The castings of same ladle or heat and manufactured under similar conditions of production 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 each casting 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 210:2009 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			
6	Chemical Composition	6.1, 6.2	IS 210:2009	One	Each Cast/Heat	If required by purchaser.
7	Workmanship and Finish	7.1, 7.2	IS 210:2009 IS 5519	Two	Each Cast/Heat	—
9	Microstructure	9.1, 9.1.1	IS 210:2009 IS 7754	Adequate inspection as agreed to between the purchaser and the manufacturer		If required by purchaser.
10	Freedom from Defects	10.1, 10.2	IS 210:2009 IS 5139	10% of the castings	Each Cast/Heat	—
14, 15	Tensile Test	11, 13, 14, 15, 19, Table 2 and 3	IS 210:2009 IS 1608 Pt.1	One	Each Control Unit	—
16	Hardness Test	16, 19 Table 3	IS 210:2009 IS 1500 Pt.1	25% of the castings	Each Control Unit	—
17	Transverse Test, if required	17, 19, Annex E	IS 210:2009	One	Each Control Unit	As and if required by purchaser.
18	Hydrostatic Test	18	IS 210:2009	As agreed between the purchaser and the manufacturer		

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

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

Test Certificate for Grey Iron Castings
According to IS 210:2009
TEST CERTIFICATE NO. _____

To M/s _____

Dated _____

It is certified that the material described below fully conforms to IS 210:2009 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 210:2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Nom Size	Control Unit No.	Grade	Tolerances [@]	Quantity (in tonnes)	Chemical Composition [@]	Mechanical Properties			Hydrostatic test [#]	Micro structure [#]	Condition of delivery [@]	Remarks
							Tensile Test	Hardness	Transverse test [#]				

If required by purchaser

@ As agreed between the purchaser and the manufacturer

Remarks
Wagon No.
Truck No.

FOR XYZ IRON COMPANY

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