



उत्पाद मैनुअल
गढ़ित स्टील, सॉकेट - वेल्डिंग फिटिंग के लिए विशिष्ट
IS 4712: 1984 के अनुसार

**Product Manual for
Specification for Forged Steel, Socket-Welding Fittings
According to IS 4712: 1984**

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 4712:1984
	शीर्षक Title	:	Specification for Forged Steel, Socket-Welding Fittings
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The Steel from which forged steel socket welding fitting is made shall conform to appropriate requirements of IS 4712 Cl 4.1 to 4.3. 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	:	Mechanical Test: 3 Pieces and test bar

	Sample Quantity		Chemical test: 5 pcs of 5cm x 5cm (for OES) or 50 gm drillings for testing by chemical method 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	:	Type (e.g. 90 ⁰ ELBOW, CROSS, TEE etc.), Designation, Size of the fittings (Nominal pipe 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		
	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 4712: 1984 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 4712: 1984 with the following scope:		
7.	उत्पाद का नाम Name of the product		Forged Steel, Socket-Welding Fittings
	Type		90 ⁰ ELBOW, CROSS, TEE etc.
	Designation		Class 20/Class 40
	Size of the fittings		Nominal Pipe Size e.g. 6mm, 8mm, 10mm

ANNEX-A
TO PRODUCT MANUAL FOR
Specification for Forged Steel, Socket-Welding Fittings
According to IS 4712:1984

GROUPING GUIDELINES

1. The steel pipe fittings covered by IS 4712:1984 are designated as Class 20 and Class 40 depending on the nominal, ambient non-shock working pressure of the fittings in N/mm². The size of the fittings shall be identified by the 'Nominal pipe size' given in table 1 of IS 4712:1984. The Nominal Pipe Sizes as specified in the standard are from 6mm to 100mm.
2. The types of fittings specified in Table 1 of IS 4712:1984 are 90⁰ Elbow, 45⁰ Elbow, Cross, Tee, Coupling and Half-Coupling.
3. The steel pipe fittings shall be grouped in to following groups based on sizes:
Group 1- Size 6 mm to 32 mm
Group 2- Size 40 mm to 100 mm
4. For the purpose of grant of licence and/or change in scope of licence, the following grouping guidelines shall apply:
 - a) Sample of each Type of lowest and highest size from each group to be tested to cover all sizes in that group. Each Class to be tested separately. However, if Class 40 is tested then Class 20 may be included in scope.
5. However, it shall be ensured that the firm is having all the necessary manufacturing and testing facilities for manufacturing/testing of all the varieties covered in the scope of the licence.
6. During the operation of the licence, BOs shall ensure that all varieties covered in the scope of the licence are drawn for independent testing in 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
1	Dimensions (Table 1 and Cl 5)	Vernier caliper gauge or any other suitable device, Steel scale, micrometer (screw) gauge/Bevel Protactor
2.	Hydraulic Test (6.2 & 6.3) if required.	Hydrostatic Test Equipment
3.	Tensile Test (4.2 & 6)	Universal Testing Machine (UTM)
4.	Hardness (Cl 4.2)	Hardness Tester
5.	For chemical composition (Cl 4.1)	Chemical testing lab/Spectrophotometer

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: one shift production of one size, type & class fittings shall constitute one 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 steel pipe fittings and/or the package containing fittings, 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 fittings:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) Any other requirement not specified in the Indian Standard

4. 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			
4.1	Chemical Composition	4.1	IS 4712:1984	One	Each Heat/Cast	No testing is required if the material is ISI marked and is received with test certificate
4.2	Tensile Test	6	IS 4712:1984 IS 1608	One	Each Heat/Cast	—
4.2	Hardness	6	IS 4712:1984 IS 1500 IS 150 IS 1586	One	Each Heat/Cast	—
Table 1 & Cl 5	Dimensions & Tolerances	5	IS 4712:1984	Three	One hour production of each type & size of fitting at each machine	—
6.2	Hydraulic Test	6.2	IS 4712:1984	As per agreement between the manufacturer and the purchaser		