



उत्पाद मैनुअल
कंक्रीट के प्रयुक्त इस्पात सरियों के यांत्रिक संबंधन हेतु प्रबलन युग्मक के लिए
आई एस 16172:2023 के अनुसार

PRODUCT MANUAL
REINFORCEMENT COUPLERS FOR MECHANICAL SPLICES OF STEEL BARS IN
CONCRETE ACCORDING TO IS 16172:2023

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 16172 : 2023
	शीर्षक Title	:	Reinforcement Couplers for Mechanical Splices of Steel Bars in Concrete
	संशोधनों की संख्या No. of amendments	:	Nil
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Nil 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 to Annex-A

c)	नमूने का परिमाण Sample Quantity	:	- 15 numbers of assemblies of mechanical splices 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 (incase of market surveillance, effort may be made to procure therequired 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 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		
	- Static Tensile test - Workmanship & Finish 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 16172:2023 with the following scope:		
	Name of the product	Reinforcement Couplers for Mechanical Splices of Steel Bars in Concrete	
	Type of Reinforcement Coupler		
	Class of Coupler		
	Strength Grade of TMT Bar to be Spliced with Coupler		
	Nominal Size		

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ANNEX A

Grouping Guidelines

1. Reinforcement Couplers for Mechanical Splices of Steel Bars in Concrete as per IS 16172:2023 are classified as given below:
 - a) Type of Reinforcement Coupler:
 - Parallel Threaded Couplers
 - Upset Parallel Threaded Couplers
 - Tapered Threaded Couplers
 - Crimped Sleeve
 - Injected Sleeve
 - Shear Bolting
 - b) Class of Coupler: H & L
 - c) Strength Grade of TMT Bar to be Spliced with Coupler
 - d) Nominal Size: Internal diameter shall correspond to the nominal sizes of bars covered under IS 1786.
3. Based on the above classifications, the following grouping guidelines shall be followed for considering GoL/CSoL:
 - a) Each Type of Coupler shall be tested for all requirements to cover that particular Type.
 - b) Each Class of Coupler shall be tested for all requirements to cover that particular Class.
 - c) Highest strength grade of coupler shall be tested for all requirements to cover all the all the Strength Grades upto and including the Strength Grade tested.
 - d) Highest nominal size of coupler shall be tested for all requirements to cover all the nominal sizes upto and including the nominal size tested.
4. The Firm shall declare the varieties of reinforcement couplers they intend to cover in theLicence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the varieties covered in theLicence are tested in rotation, to the extent possible.

ANNEX B

List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S. No.	Tests used in with Clause Reference	Test Equipment
1.	Workmanship and Finish	- Thread Gauges - GO NO GO Gauges
2.	Static Tensile Strength	- Universal Testing Machine - Extensometer - Vernier Calliper
3.	Slip test	- Universal Testing Machine - Extensometer - Slip Measuring Device
4.	Low Fatigue Test	- Fatigue Testing Machine as per Cl E-4.2 of Annex-E
5.	High Cycle Fatigue	- Fatigue Testing Machine as per Cl E-4.2 of Annex-E
6.	Cyclic Tensile Test	- Tensile Testing Machine (having provision of cyclic load application)

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 reinforcement couplers of the same type, class, strength grade and nominal size produced in a day shall be considered as 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/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 the Schedule of the licence shall be incorporated indelibly and clearly marked on each reinforcement couplers provided always that the material so marked conforms to each 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 the packing boxes:

a) “For BIS certification details please visit www.bis.gov.in”

4. 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	Levels of Control		
Cl.	Requirement	Test Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
7	Workmanship and Finish	7	IS 16172	R	Manufacturer shall ensure that all his production confirms to the requirements of this clause.		
9.2	Static Tensile Strength	Annex B	IS 16172	R	One	Each Control Unit	-
9.3	Slip Test	Annex C	IS 16172	S	One	Once in a year from each variety produced	
9.4	Cyclic Tensile Test	Annex D	IS 16172	S	One	Once in five years from each variety produced	
9.5.1	Low Cycle Fatigue Test	Annex E	IS 16172	S	One	Once in five years from each variety produced	
9.5.2	High Cycle Fatigue Test	Annex E	IS 16172	S	One	Once in five years from each variety produced	