



उत्पाद मैनुअल | PRODUCT MANUAL
वायर रोप स्लिंग और स्लिंग लेग्स | WIRE ROPE SLINGS AND SLING LEGS
भा. मा. 2762: 2009 के अनुसार | ACCORDING TO IS 2762: 2009

इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-I के अंतर्गत प्रमाणन के संचालन में कार्यप्रणाली की सुसंगतता और पारदर्शिता सुनिश्चित करने हेतु संदर्भ सामग्री के रूप में किया जाएगा। इस दस्तावेज़ का उपयोग बीआईएस प्रमाणन लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदक भी कर सकते हैं।

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 license/certificate.

1.	भारतीय मानक / Indian Standard	:	IS 2762: 2009
	शीर्षक / Title	:	Wire Rope Slings and Sling Legs
	संशोधनों की संख्या / No. of Amendments	:	Nil
2.	नमूनाकरण दिशानिर्देश / Sampling Guidelines:		
a)	कच्चा माल / Raw material	:	a) Steel Wire Rope conforming to IS 2266 as per Cl. 3.1 of IS 2762: 2009 b) Ferrules as per IS 10942 c) Thimbles as per IS 2315 d) Hooks- High Tensile steel hooks as per IS 2759 or Mild steel hooks conforming to IS 2758 e) Mild steel or High steel Master Links (Rings) as per IS 2760 Mild steel ring material- as per Cl. 3.3.1 of IS 2762
b)	समूहीकरण दिशानिर्देश / Grouping guidelines	:	Please refer ANNEX – A
c)	नमूने का आकार / Sample Size	:	8 m
3.	परीक्षण उपकरण की सूची / List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की योजना / Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण / Possible tests in a day :		All tests except Durability Test by Pulsatory Loading (Endurance Test) (6.1 (b) of IS 10942 & 9.1.2 of IS 5245-2)
6.	लाइसेंस का दायरा / Scope of the Licence		
	“Licence is granted to use Standard Mark as per IS 2762:2009 with the following scope:		
	Name of the product		Wire Rope Slings and Sling Legs

	Type	Single Part Sling/ Double Part Endless Sling/ Double Part Grommet Sling
	Sling Features	With soft eyes/ reinforced eyes with thimbles/ hooks/ Master Links (Rings)
	Method of Splicing	Hand Splicing / Mechanical Splicing
	Number of sling legs	One/two/three/four
	Safe working load of complete assembly and of individual sling legs	Up to and including tonne (t)

ANNEX--A

GROUPING GUIDELINES

1. IS 2762: 2009 covers specification for “Wire Rope Slings and Sling Legs” which are classified into different varieties based on the following:
 - a) Type - Single Part Sling/ Double Part Endless Sling/ Double Part Grommet Sling
 - b) Sling Features – With soft eyes/ reinforced eyes with thimbles/ hooks/ Master Links (Rings)
 - c) Method of Splicing – Hand Splicing / Mechanical Splicing
 - d) No. of legs- One/two/three/four
 - e) Safe working load of complete assembly and of individual sling legs
2. Considering the above, the following grouping guidelines shall be followed for GoL/CSoL:
 - i) Sample of each type of sling shall be drawn and tested for all the requirements.
 - ii) Separate samples of Wire Rope slings with each method of splicing shall be tested for all the requirements.
 - iii) Separate samples of each sling feature described above shall be tested for all the requirements to cover that feature in the scope of license.
 - iv) For two, three and four leg slings, Sample of complete assembly of highest safe working load from the offered range of slings shall be drawn to cover all slings with lower safe working load, provided that the type, sling features, method of splicing and number of legs and their safe working load remains the same.
 - v) For One leg slings, sample of highest safe working load from the offered range of slings shall be drawn to cover all slings with lower safe working load, provided that type, sling features, method of splicing remain the same.
3. The Firm shall declare the Varieties of various Wire Rope Slings and Sling Legs they intend to cover in the Licence along with the parameters as above for each variety. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
4. During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

ANNEX--B
List of Test Equipment

Indicative list of major test equipment required to test as per the Indian Standard (For guidance only)

Sr No	Tests used in with clause reference	Test equipment
1.	Minimum Length (Clause 4.1, 5.1, 6.2)	Measuring Tape
2.	Length of Matched Sets (Clause 4.1.1, Clause 5.1.1)	Measuring Tape
3.	Hand Splicing as per IS 5245 Part 1 (Clause 4.2.1, Clause 5.2.1, Clause 6.3)	Measuring Tape
4.	Mechanical Splicing as per IS 5245 Part 2 (Clause 4.2.2, Clause 5.2.2)	As below
i)	Proof Load Testing (Clause 7)	Tensile testing machine / Load Testing Machine of adequate capacity
ii)	Breaking Load Test to Destruction (Clause 9.1.1)	
iii)	Durability Test by Pulsatory Loading (Endurance Test) (Clause 9.1.2)	Pulsatory Load testing machine
iv)	Tensile Testing (Clause 9.2.1)	Tensile testing machine / Load Testing Machine of adequate capacity
v)	Dimensions	Vernier Calliper Micrometre Measuring Tape
5.	Effective Length (Clause 7.3)	Measuring Tape
6.	Testing (Clause 8)	Tensile testing machine / Load Testing Machine of adequate capacity

The above list is indicative only and may not be treated as exhaustive.

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 quantity of the wire rope slings and sling legs of same type, sling features, method of splicing, number of legs and safe working load, manufactured from same construction and grade of rope, from the same consignment of wire ropes and other used components under identical condition of production in a day.

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.

2.2 TEST CERTIFICATE- Every sling or batch of slings shall be provided with a test certificate issued by the manufacturer as per Cl. 11 of IS 2762: 2009. A template of test certificate is given in **Appendix- 1**.

3. PACKING AND MARKING - Packing and Marking shall be done as per IS 2762: 2009. The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on a tag attached to sling/assembly of slings, as applicable, provided always that the material so marked conforms to each requirement of the specification.

3.1 Additional Marking requirements: Additionally, the following shall also be marked on tag or package :

- a) "For BIS certification details please visit www.bis.gov.in"

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- For guidance only)

(1)				(2)		
Test Details				Levels of Control		
Clause	Requirement	Test Methods		No. of Sample	Frequency	Remarks
		Clause	Reference			
	Raw material/components					
3.1	Wire Ropes	3.1	IS 2762 IS 2266	One	Each Consignment	No testing is required if the material is ISI Marked or accompanied with a test certificate.
3.2	Ferrules	3.2	IS 2762 IS 10942			
3.2.2	Thimble	3.2.2	IS 2762 IS 2315			
3.2.3	Hooks	3.2.3	IS 2762 IS 2758 IS 2759			
3.3	Master links (Rings)	3.3	IS 2762 IS 2760			
	Tests of slings					
4.1, 5.1, 6.2	Minimum length	4.1, 5.1, 6.2	IS 2762	Manufacturer shall exercise adequate levels of control to ensure that entire production should conform to the Standard. Appropriate records of testing indicating conformity shall be maintained		
4.2, 5.2, 6.3	Fabrication	4.2, 5.2, 6.3				
7.3	Effective length	7.3				

9.1.1	Breaking Load Test to Destruction	9.1.1	IS 5245-2	One	Each Control Unit	
9.1.2	Durability Test by Pulsatory Loading (Endurance Test)	9.1.2	IS 5245-2	One	Once in a year	Testing shall be done to ensure that wire rope slings and sling legs of each type and each safe working load manufactured in one year period is tested at least once in a year
9.2.1	Tensile Testing	9.2.1	IS 5245-2	One	Each Control Unit	
8	Proof load testing	8	IS 2762	Each ring and hook before assembly		
				Each sling after fabrication		
				One rope	each consignment of wire rope	

APPENDIX- 1
(Para 2.2 of Scheme of Inspection and Testing)

Test Certificate
(Name of licensee with Address)



Issued to _____
M/s _____
Order No. _____

Test Certificate No. _____
Date _____

We certify that the Wire Rope Slings/ Sling Legs mentioned below conform to IS 2762:2009. Properties of the Product as tested in accordance with scheme of Inspection & Testing contained in BIS Certification Marks License No. CM/L_____.

{PLEASE REFER TO IS 2762:2009 FOR DETAILS OF SPECIFICATION REQUIREMENTS}

Test Results

Batch/ Control Unit No.	Date of test	Quantity	Description of Sling	Construction	Core of Wire Rope	Wire Rope grade	Safe Working Load of complete assembly	Safe Working Load of individual legs	Angle of usage	Tested to Proof Load	Size	Length	Breaking load of the sling sample/Wire rope used

Remarks, if any:

Authorized Signatory of the firm
(Designation)