



उत्पाद मानुयल
व्यक्तिगत फॉल एरेस्ट प्रणाली - विशिष्टि
भाग 8 लचीली क्षैतिज जीवनरक्षक प्रणाली
3521 (भाग 8) : 2021 के अनुसार

PRODUCT MANUAL FOR
Personal Fall Arrest Systems - Specification
Part 8 : Flexible Horizontal Lifeline Systems
According to IS 3521 (Part 8) : 2021

भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम 2018 की स्कीम-I के तहत यह उत्पाद मानुयल प्रमाणीकरण के प्रचलन में रीति और पारदर्शिता के सुसंगत सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों एवं लाइसेंस धारियों द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस लाइसेंस/प्रमाण पत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

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 licence/certificate.

1.	उत्पाद Product	:	IS 3521 (Part 8) : 2021
	शीर्षक Title	:	व्यक्तिगत फॉल एरेस्ट प्रणाली विशिष्टि भाग 8 : लचीला क्षैतिज जीवन रेखा प्रणाली Personal fall arrest systems — Specification Part 8 : Flexible Horizontal Lifeline Systems
	संशोधनों की संख्या No. of Amendments	:	0 Nil
2.	नमूनाकरण दिशा निर्देश Sampling Guidelines:		

a)	कच्चा माल Raw material	:	Each type of Material shall comply to the requirements of relevant clause of IS 3521 (Part 8) : 2021.
b)	समूहिकरण दिशा निर्देश Grouping guidelines	:	Not Applicable, Samples of Each Variety/Design/Configuration shall be tested
c)	नमूने का परिमाण Sample Size	:	कृपया Annex-A देखें Please see Annex – A
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया Annex-B देखें Please see Annex – B
4.	निरीक्षण व परीक्षण स्कीम Scheme of Inspection and Testing	:	कृपया Annex-C देखें Please see Annex – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day :		Since testing facility is not available in any BIS/BIS recognized lab, complete testing has to be carried out in the Factory for certification and during surveillance. 3 days inspection required for complete testing.
6.	लाइसेन्स का कार्यक्षेत्र/Scope of the Licence :		
	IS 3521 (PART 8): 2021 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेन्स निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है Licence is granted to use Standard Mark as per 3521 (Part 8) : 2021 with the following scope:		
	उत्पाद का नाम Name of the product		Personal fall arrest systems - Part 8 : Flexible Horizontal Lifeline Systems
	Type of Configuration		Single Span Multiple Span Multiple Span with Provision of Directional Change
	Lifeline Type		Wire Rope/Webbing/Fibre Rope Based Horizontal lifeline
	Span Length		Minimum & Maximum Span Length
	Suitable for Number of User		Single/ Two/Three User

Annex –A

Sample Size

Dynamic Performance Test	03 Nos. for Single Span of each Variety/Configuration 03 Nos. for Multiple Span (Systems having Intermediates) each Variety/Configuration 02 Nos. for Systems having Provision for Directional Change each Variety/Configuration
Static Residual Strength	01 Sample for each Span which is/are having greatest Peak Force during dynamic Performance
Lifeline Fitting Static Strength	01 Sample for each component used in Horizontal Lifeline
Intermediate Anchor Connector Strength	01 Sample of each Variety
Corrosion Resistance Test	01 Sample of each component used in Horizontal Lifeline

ANNEX B

LIST OF TEST EQUIPMENTS
Personal Fall Arrest Systems
Part 8 : Flexible Horizontal Lifeline Systems
According to IS 3521 (Part 8) : 2021

Major test equipment required to test as per the Indian Standard

Sr. No.	Test Equipment	Tests used in with Clause Reference
1	Salt Spray Chamber as per ISO 9227, Ph Meter, Sodium Chloride Distilled or deionized water Stop Watch Weighing Scale,	Corrosion Resistance Clause 5.6
2	Test Structure/Test Venue as per Clause 6.1.4, Test Masses (as applicable as per number of user) as per clause 6.1.1, Quick release device as per clause 6.1.2, Force measurement system as per clause 6.1.3	Dynamic Performance Clause 5.2
3	Static strength test apparatus /Appropriate dead weight as per clause 6.1.1 Stop Watch	Static Residual Strength Clause 5.3
4	Tensile Test Machine, Stop Watch, Steel Scale	Lifeline fitting static Strength Clause 5.4
5	Tensile Test Machine, Stop Watch, Steel Scale	Intermediate Anchor Connector Strength Clause 5.5

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

ANNEX-C
SCHEME OF INSPECTION AND TESTING FOR
Personal Fall Arrest Systems Part 8 : Flexible Horizontal Lifeline Systems
According to IS 3521 (Part 8) : 2021

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS –The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. PACKING AND MARKING – The Standard Mark, as given in the Schedule of the licence, shall be clearly and indelibly marked on each Flexible Horizontal lifelines, provided always that material to which this mark is thus applied, conform to every requirement of the specification.

3.1 Marking – Each Flexible Horizontal lifeline systems shall be clearly and indelibly marked to give the information as per clause 7.2 of IS 3521 (Part 8). In addition, the following details shall be marked legibly and indelibly:

a) BIS Licence No. CM/L..... and

b) BIS website details i.e. – “For details of BIS certification please visit www.bis.gov.in” (in case of space constraints, may be marked only on the package).

3.2 Instructions for general use, marking, packaging and maintenance shall also be provided as per the provisions of the Indian Standard

4. CONTROL UNIT – For the purpose of this scheme, Flexible Horizontal lifeline systems of the same Design/Variety manufactured from the same consignment of raw material in a day shall constitute one control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

5.1 All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

6. REJECTIONS–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
LEVELS OF CONTROL

Test Details				Levels of Control			
Cl.	Requirement	Test Methods		Test equipment requirement R: Required (or) S: Sub Contracting permitted	No. of Samples	Frequency	Remarks
		Clause	Reference				
4.1	General	4.1	IS 3521 (Part 8) : 2021	R	All	Each Control unit	
4.2	Flexible Horizontal lifelines						
4.2.1	Wire Rope Lines	4.2.1	IS 3521 (Part 8) : 2021	S	1 sample	Each Consignment	If ISI marked or accompanied by TC, no further testing is required
4.2.2	Webbing Lines	4.2.2	IS 3521 (Part 8) : 2021	S	1 sample	Each Consignment	
4.2.3	Fibre Rope Lines	4.2.3	IS 3521 (Part 8) : 2021	S	1 sample	Each Consignment	
4.3	Anchor Connectors		IS 3521 (Part 8) : 2021				
4.3.1	End Anchor Connector	4.3.1	IS 3521 (Part 8) : 2021	R	1 Sample of each variety/Design	Each Control Unit /Each Lot	If procured from outside, the same to be tested in house as per the requirement of ISS. If ISI marked no further testing is required
4.3.2	Intermediate Anchor Connector	4.3.2	IS 3521 (Part 8) : 2021	R	1 Sample of each variety/Design	Each Control Unit/ Each Lot	
4.4	Mobile Attachment devices	4.4	IS 3521 (Part 8) : 2021	R	1 Sample of each variety/Design	Each Control Unit/ Each Lot	
4.5	Lifeline Energy Absorber	4.5	IS 3521 (Part 8) : 2021	R	1 Sample of each variety/Design	Each Control Unit/ Each Lot	
5.2	Dynamic Performance	6.2.2	IS 3521 (Part 8) : 2021	R	As per Annex A of the Standard	Each Control Unit	-
5.3	Static Residual Strength	6.2.3	IS 3521 (Part 8) : 2021	R	As per Annex-A of the Standard	Each Control Unit	-
5.4	Lifeline Fitting Static Strength	6.3	IS 3521 (Part 8) : 2021	R	As per Annex-A of the Standard	Each Control Unit	-
5.5	Intermediate Anchor Connector Strength	6.4	IS 3521 (Part 8) : 2021	R	As per Annex-A of the Standard	Each Control Unit	-
5.6	Corrosion Resistance	6.5	IS 3521 (Part 8) : 2021	R	1 Sample of each variety/Design	Each Control Unit	-

Note 1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau.

Note 2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification to BO head.

Note-3: Each consignment of material, used in manufacture of Flexible Horizontal Lifeline has to be accompanied with supplier's test certificate or test report issued by a third party laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau or In house factory testing to be done. No testing is required if the material is ISI marked.

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