



**PRODUCT MANUAL  
FOR INDUSTRIAL SAFETY BELTS AND HARNESSSES  
ACCORDING TO IS 3521:1999**

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.	<b>Product</b>	:	<b>IS 3521:1999</b>
	<b>Title</b>	:	<b>INDUSTRIAL SAFETY BELTS AND HARNESSSES</b>
	<b>No. of Amendments</b>	:	2
2.	<b>Sampling Guidelines:</b>		
a)	Raw material	:	Webbing, threads for sewing, rivets and washers, life line/safety line, metal components shall be as per requirements given in Cl 5.2 material of IS 3521
b)	Grouping guidelines	:	Not applicable (Sample of each class as per Cl. 4 of IS 3521 shall be drawn and tested)
c)	Sample Size	:	6 Nos
3.	<b>List of Test Equipment</b>	:	Please refer Annex – A
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer Annex - B
5.	<b>Possible tests in a day :</b>		
	TEST		TEST METHODS
1.	Performance Test		Annex-B of IS 3521
2.	Determination of Static Test		Annex-C of IS 3521
3.	Determination of Dynamic Test		Annex-D of IS 3521
4.	Webbing Width and Thickness		IS 3521
5.	No of stitches		IS 3521
6.	Breaking Load of Life line/Safety Line, Hooks and fittings and length of lanyard		IS 3521
7.	Metal component and Thickness of Chromium plating		IS 3521
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 3521:1999 with the following scope:		
	Name of the product	INDUSTRIAL SAFETY BELTS AND HARNESSSES	
	Class	A,D,E,L,P	
	Any other aspect required as per the Standard	Categories of Burning Behaviour , FV-0/FV-1/FV-2	

**ANNEX-A**  
**LIST OF TEST EQUIPMENTS**  
**Major test equipment required to test as per the Indian Standard**

SI No.	Test Equipment	Tests used in with Clause Reference
1	Flammability Fume Hood (cup board), vertical burning behavior test apparatus	Flammability Resistance Test Cl.5.2.1, Annex-A.
	Technical Grade Methane Gas	
	Ring Stand with clamps	
	Room air conditioner for maintaining Room temperature of $27 \pm 2^{\circ}\text{C}$ and $65 \pm 5\%$ RH	
	Humidity Chamber	
	Stop watch	
	Full Draught thermostatic Air circulating oven (repetition)	
	Desicators	
	Steel Scale	
	Thermometer	
	Bunsen Burner	
	Surgical Cottons	
	Seizure	
2	Vernier Calipers	
3	Coating Thickness gauge	Thickness of chromium plating, Cl.5.2.5
	Thickness gauge	Thickness of webbing, Cl.5.2.1 Thickness of strap Cl – 5.1
4	Tensile testing Machine	Breaking load of Life line/Safety Line , Cl.5.2.4 and Strength of Hooks and load bearing metal parts and fittings, Cl.5.3.1
5	Static Strength test machine along with rigid test frame and a winch	Static Load, Cl. 5.3.3 and Annex-C
6	Drop testing tower fitted with motorised winch and quick release device,/Harness apparatus (Cl D-3.1)	Performance Test, Cl.5.3.2.1 and Annex-B
	Human Dummy	Determination Dynamic Load,
	Weighing Balance	Cl.5.3.4 and Annex-D
	Steel Tape	Length of Lanyard, Cl – 5.2.4.1

**The list above is indicative and may not be taken as exhaustive**

ANNEX – B

**SCHEME OF INSPECTION AND TESTING  
FOR INDUSTRIAL SAFETY BELTS AND HARNESSSES  
ACCORDING TO IS 3521:1999**

**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 license and shall be incorporated clearly and indelibly on each belt and harness, provided always that the product thus marked and packed conforms to all the requirement of the specification.

**3.1** Marking and packing shall be done as per the provisions of the Indian Standard. In addition In addition, the following details shall be mentioned on each container/package:

a) BIS Licence No. CM/L \_\_\_\_\_.

b) BIS website details i.e –“For details of BIS certification please visit [www.bis.gov.in](http://www.bis.gov.in)”

**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, the quantity of the belts and harnesses of the same class, and produced from the same materials in a day shall constitute a single 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  
(Scheme of Inspection and Testing)**

(1)				(2)	(3)		
Test Details				Test equipment requirement R:required (or) S: Sub-contracting permitted	Levels of Control		
Clause	Requirements	Test Method			No. of Samples	Frequency	Remarks
		Clause	Reference				
5	Design & construction	Visual		R	Each belt/harness	NA	
5.1	Width and Strength of strap a) Width b) thickness	5.1	IS 3521:1999	R	One	Each lot	See Note 3
5.2	Materials						
5.2.1	Material of Webbing	5.2.1	IS 3521:1999	S	As per Annex E	Each lot	See Note 3
5.2.1	Flammability test for webbing	5.2.1, ANNEX-A	-do-	S	As per Annex E	-do-	-do-
5.2.2	Thread for sewing -Physical and Chemical Properties	5.2.2	-do-	S	As per Annex E	Each lot	-do-
5.2.2	Thread for sewing -No. of stitches and colour	5.2.2	-do-	R	As per Annex E	-do-	-do-
5.2.3	Rivets and Washers	5.2.3	-do-	S	As per Annex E	-do-	-do-
5.2.4	Breaking load of Life Line/Safety Line	5.2.4	-do-	S	As per Annex E	-do-	-do-
5.2.4.1	Length of lanyard	5.2.4.1	-do-	R	As per Annex E	-do-	
5.2.4.2	Length of lifeline	5.2.4.2	-do-	R	As per Annex E	-do-	
5.2.5	Visual inspection of Metal	5.2.5	IS 3521:1999	R	As per Annex E	-do-	

	Components						
5.2.5	Thickness of Chromium plating or powder coating		IS 3203 IS 101 (Pt 3/ sec 2)	S	As per Annex E	-do-	-do-
5.3	Requirements						
5.3.1	Breaking load of metal parts and fittings	5.3.1	IS 3521:1999	R	As per Annex E	Each control unit	
5.3.2	Attachment means	5.3.2	IS 3521:1999	R	As per Annex E	-do-	Visual
5.3.2.1	Performance tests	Annex B	IS 3521:1999	R	As per Annex E	Once in a month for one control unit/lot	
5.3.3	Static load test	ANNEX-C	-do-	R	As per Annex E	Each control unit	
5.3.4	Dynamic load test	ANNEX-C	-do-	R	As per Annex E	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 for approval to BO head.

Note-3: Sampling of raw materials and components shall be done as per Annex E of IS 3521:1999 (Sample size may be chosen according to table 3 or 4 depending in whether non-destructive or destructive methods of test are chosen). Conformity of materials and components to the requirement of the specification may be established through either of the following or a combination of the same (No testing is required if the material is ISI marked):

- i. Test report from a laboratory recognized by the Bureau or Government laboratories empaneled by the Bureau
- ii. Material manufacturer's test certificate
- iii. In house factory test report