



उत्पाद मैनुअल
कन्वेयर और एलिवेटर टेक्सटाइल बेल्टिंग
भाग 5 सतह अनुप्रयोग के लिए अग्नि प्रतिरोधी पट्टा
आईएस 1891 (भाग 5): 1993

PRODUCT MANUAL FOR
Conveyor and Elevator Textile Belting
Part 5 Fire Resistant Belting for Surface Application
ACCORDING TO IS 1891 (Part 5): 1993

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 1891 (Part 5): 1993
	शीर्षक Title	:	Conveyor and Elevator Textile Belting Part 5 Fire Resistant Belting for Surface Application
	संशोधनों की संख्या No. of amendments	:	01
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	NA
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer ANNEX – A
c)	नमूने का परिमाण Sample Quantity	:	2 m
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	:	• Carcass Construction • Fabric type • Materials of Carcass Construction • Belt Construction • Belt type

			- No. of Plies - Width - Length
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	Please refer ANNEX – B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	:	As per IS 1891 (Part 5) i. Construction – Cl 5 ii. Breaking strength – Cl. 7.1 iii. Elongation at break – Cl. 7.1 iv. Drum Friction test – Cl. 9.1 v. Flame Test – Cl. 9.2 vi. Electrical Surface Resistance Test – Cl. 9.3 As per IS 1891 (Part 1) i. Length – Cl. 13.1 ii. Width – Cl. 13.2 iii. Tolerances on belt thickness – Cl. 13.3 iv. Cover Thickness – Cl. 8 v. Repairs – Cl 9 vi. Edge – Cl 10 vii. Transverse Fabric Joints in Multiply Type Belting – Cl. 11 viii. Longitudinal Joints in Multiply Type Belting – Cl. 12
6.	लाइसेंस का दायरा /Scope of the Licence:		
“License is granted to use Standard Mark as per IS 1891 (Part 5): 1993 with the following scope:			
Name of the product		Rubber Conveyor and Elevator Textile Belting Part 5 Fire Resistant Belting for Surface Application	
Carcass Construction		Woven Fabric / Solid Woven Fabric	
Fabric type		Cotton / Polyamide / any other synthetic or combination (as declared by the manufacturer)	
Material of covers of carcass construction		Fire resistant rubber / Fire resistant PVC	
Belt construction		Fused / Vulcanized	
Belt Type		As per Table 4 of IS 1891 (Part 1): 1994	
No. of Plies			
Width		As per Table 3 of IS 1891 (Part 1): 1994 or as agreed between manufacturer and user	
Length		To be declared by the manufacturer	

ANNEX -A
Grouping Guidelines

1. The variety of Fire Resistant Belting for Surface Application are classified based on the following:
 - i. Carcass Construction
 - ii. Fabric Type
 - iii. Material of covers of carcass construction
 - iv. Belt construction
 - v. Belt type
 - vi. No. of Plies
 - vii. Width
 - viii. Length
2. For considering GoL / CSoL, sample from each of the variety of Fire Resistant Belting for Surface Application specified above shall be tested. However, the following relaxation may be considered:

Fire Resistant Belting for Surface Application having belt type of highest tensile strength and maximum width of any length shall be tested to cover belt type upto and including the belt tested in the scope of the licence.
3. The Scope of License 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 the varieties covered in the License are tested in rotation, to the extent possible.

ANNEX- B**List of Test Equipment & Documents****Major test equipment required to test as per the Indian Standard**

Sr No	Tests used in with clause reference	Test equipment
	As specified in IS 1891 (Part 5)	
1.	Tensile strength, Elongation – Cl. 7.1	Tensile testing Machine with extensometer, Sample Cutting Die and punching machine
2.	Tensile strength, Elongation (for Rubber cover) – Cl. 7.2	Tensile testing Machine with extensometer, Sample Cutting Die and punching machine, heating / conditioning chamber
3.	Adhesion, Cl. 8	Heating Chamber with timer, Tensile testing machine
4.	Drum Friction test, Cl. 9.1	Drum friction apparatus with weight, Anemometer, Tachometer and Temperature Indicator
5.	Flame Test, Cl. 9.2	Flame test apparatus with temperature indicator, Bunsen burner, Stop Watch
6.	Electrical Surface Resistance Test (Anti- static Test), Cl 9.3	Megger, Brass Electrodes, PEG Solution
	As specified in IS 1891 (Part 1)	
7.	Length, Cl. 13.1	Length measuring counter, Measuring Tape
8.	Width, Cl. 13.2	Measuring Tape
9.	Belt thickness, Cl. 14.4	Thickness Gauge apparatus
10.	Cover thickness, Cl. 8	Optical Micrometer/Travelling microscope
11.	Full thickness breaking strength, Cl. 15.2.1	Tensile testing Machine, Sample Cutting Die, Extensometer
12.	Abrasion Loss, Cl. 7.4	Abrasion tester, Abrasive sheet, Reference compound, sample punching die, Weighing balance, Distilled water, Density meter.
13.	Troughability, Cl. 17	Troughability Tester

ANNEX C

Scheme of Inspection and Testing

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Control 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 Control system 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 2.5.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: *Fire Resistant Belts for Surface Application of same Belt type and width having same type of Carcass construction and Ply type manufactured from same type of materials under similar conditions in a day of continuous length shall constitute a control unit.*

1.3.2 As mentioned above, recommended levels of control are given in **Table 1 for guidance only.**

1.3.3 The tests as indicated in Table 1 and at the levels of control in column 3 of Table 1 or the Quality Assurance Plan as submitted by the manufacturer to BIS may be carried out on the whole production of the factory which is covered by this plan and records maintained in accordance with para 2.5.

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 where test equipment is required in house i.e “R” or whether it can be subcontracted as “S”. Subcontracting is permitted to BIS recognized/empanelled laboratory or any other laboratory having valid accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility is 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 (including foreign manufacturers) shall maintain an in-house laboratory, which shall be suitably equipped (as given in column 2 of Table 1) and staffed, 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 test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, these manufacturers can also utilize the provisions of Sharing of testing facilities as per the Annexure-X (Relaxation in test facilities) of the guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process)

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 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 marked legibly and indelibly on the Fire Resistant belts for Surface Application provided always that the belts so marked conforms to each requirement of the specification.

3.1 Marking on Fire Resistant belts for Surface Application shall be done as per Cl. 18 of IS 1891 (Part 1): 1994.

3.2 **Additional Marking requirements:** The following additional requirement shall also be marked on the packaging of the Fire Resistant belts for Surface Application:

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

3.3 All the production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark.

4. HYGIENIC CONDITIONS (if applicable) – NA.

5. REJECTION - 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

(1)				(2)	(3)		
Test Details				Test Equipment requirement R: Required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
6	Fabric	6	IS 1891 (Part 5)	R	One	Each Consignment	No further testing is required if accompanied with ISI mark or TC
5	Construction	5.2 5.2	IS 1891 (Part 5)	R	Firm to have adequate in-process controls to check compliance of this parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
7	Cover						
7.1	Before Ageing	7.1	IS 1891 (Part 5) IS 3400 (Part 1)	R	One	Each control unit	
	Breaking strength						
	Elongation at break						
7.2	After Ageing	7.2	IS 1891 (Part 5) IS 3400 (Part 4)	R	One	Once in a month	For each of the variety manufactured during that period
	Breaking strength						
	Elongation at break						
8	Adhesion	Table 2	IS 1891 (Part 5) ISO 252	S	One	Once in a month	For each of the variety manufactured during that period
9.1	Drum Friction Test	9.1 Annex - A	IS 1891 (Part 5)	R	One	Once in a month	For each of the variety manufactured during that period
9.2	Flame test	9.2 Annex - B	IS 1891 (Part 5)	R	One	Once a month	For each of the variety manufactured during that period
9.3	Electrical Surface Resistance Test (Anti-static Test)	9.3 Annex - C	IS 1891 (Part 5)	R	One	Once a month	For each of the variety manufactured during that period
	As per IS 1891 (Part 1)						
8	Cover Thickness	8	IS 1891 (Part 1)	R	Firm to have adequate in-process controls to check compliance of this parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
9	Repairs	9	IS 1891 (Part 1)	R			
10	Edges	10	IS 1891 (Part 1)	R	One	Each control unit	

11	Transverse Joints in Multiply Type Belting	11	IS 1891 (Part 1)	R	One	Each control unit	
12	Longitudinal Joints in Multiply Type Belting	12	IS 1891 (Part 1)	R			
13	Dimensions and Tolerances						
13.1	Length	13.1	IS 16755 : 2018 / ISO 16851 : 2012	R	Firm to have adequate in-process controls to check compliance of this parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
13.2	Width	13.2	IS 1891 (Part1)	R			
13.3	Tolerance on Belt Thickness Across the Width	13.3	IS 1891 (Part1)	R			
14	Full Thickness Tensile Strength And Elongation						
14.1 & Table 8	Full Thickness Tensile strength		ISO 283	R	One	Each control unit	
14.2.1	Elongation at reference Load		ISO 283	R	One	Each control unit	
14.2.2	Elongation at break		ISO 283	R	One	Each control unit	
15 Table 9 (or) Table 10	Adhesion Strength		IS 17071 / ISO 252	S	One	Once in every three month	For each of the variety manufactured during that period
16	Troughability		IS 17090 / ISO 703	S	One	Once in a month	For each of the variety manufactured during that period