



उत्पाद मैनुअल
रबर कन्वेयर और एलिवेटर टेक्सटाइल बेल्टिंग
भाग 2 हीट रेसिस्टेंट बेल्टिंग
आईएस 1891 (भाग 2): 1988

PRODUCT MANUAL FOR
Rubber Conveyor and Elevator Textile Belting
Part 2 Heat Resistant Belting
ACCORDING TO IS 1891 (Part 2): 1988

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 2): 1988
	शीर्षक Title	:	Rubber Conveyor and Elevator Textile Belting Part 2 Heat Resistant Belting
	संशोधनों की संख्या No. of amendments	:	03
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	:	- Materials - Grades - Carcass Construction

	Test Request		• Ply type • Belt Type • No. of Plies • Grades of Rubber Cover • Type of Adhesion between the cover and the plies and between the individual 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 2) i. Breaking strength – Cl. 3.1 ii. Elongation at break – Cl. 3.1 iii. Hardness of rubber cover– Cl. 3.1 iv. Hardness (IRHD) – Cl. 3.4 As per IS 1891 (Part 1) i. Construction – Cl. 5 ii. Length – Cl. 13.1 iii. Width – Cl. 13.2 iv. Tolerance on Belt Thickness Across the Width – Cl. 13.3 v. Cover Thickness – Cl. 8 vi. Repairs – Cl 9 vii. Edge – Cl. 10 viii. Transverse Fabric Joints in Multiply Type Belting – Cl. 11 ix. 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 2): 1988 with the following scope:			
Name of the product		Rubber Conveyor and Elevator Textile Belting Part 2 Heat Resistant Belting	
Materials		Lump materials / Powdered materials	
Grades		Grade T-1 / Grade T-2	
Carcass Construction		Slab belting / Solid Woven Belting / Mono-ply belting / Duo-ply belting / Multi-ply belting	
Ply type		Step ply / Reverse Step Ply	
Belt Type		As per Table 4 of IS 1891 (Part 1): 1994	
No. of Plies			

Grades of Rubber Cover	M-24 / N-17
Type of Adhesion between the cover and the plies and between the individual plies	Cotton Duck /Synthetic Plies
Width	As per Table 3 of IS 1891 (Part 1): 1994 or as agreed between manufacturer and user

ANNEX -A
Grouping Guidelines

1. The variety of Heat Resistant Belting are classified based on the following:
 - i. Materials
 - ii. Grades
 - iii. Carcass Construction
 - iv. Ply type
 - v. Belt type
 - vi. No. of Plies
 - vii. Grades of Rubber Cover
 - viii. Type of Adhesion between the cover and the plies and between the individual plies
 - ix. Width
2. For considering GoL / CSoL, sample from each of the variety of Heat Resistant Belting specified above shall be tested. However, the following relaxation may be considered:

Heat Resistant Belting 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 2)	
1.	Breaking Strength, Elongation at Break and hardness of rubber cover, Cl. 3.1	Tensile testing Machine with extensometer, Sample Cutting Die and punching machine.
2.	Adhesion Strength between the cover and the plies and between the individual plies Cl. 3.2	Tensile testing machine
3.	Heat Resistance, Cl. 3.3.1	Heating Chamber with timer, Tensile testing Machine with extensometer, Sample Cutting Die and punching machine
4.	Adhesion, Cl. 3.3.2	Heating Chamber with timer, Tensile testing machine
	As specified in IS 1891 (Part 1)	
5.	Length, Cl. 14.1	Length measuring counter, Measuring Tape
6.	Width, Cl. 14.2	Measuring Tape
7.	Belt thickness, Cl. 14.4	Thickness Gauge apparatus
8.	Cover thickness, Cl. 14.3.1	Optical Micrometer/Travelling microscope
9.	Full thickness breaking strength, Cl. 15.2.1	Tensile testing Machine, Sample Cutting Die, Extensometer
10.	Elongation at reference load, Cl. 15.2.2	Tensile testing Machine with extensometer, Sample Cutting Die and punching machine.
11.	Rubber Cover Tensile Strength & Elongation at break (Top & Bottom Cover), Cl. 7.1 & Cl. 7.2	Tensile testing Machine with extensometer, Sample Cutting Die and press, Thickness gauge
12.	Change in Rubber Cover Tensile Strength & Change in Elongation at break (Top & Bottom Cover), After ageing Cl. 7.3	Hot air oven Tensile testing Machine with extensometer, Sample Cutting Die and punching machine, Thickness gauge
13.	Abrasion Loss, Cl. 7.4	Abrasion tester, Abrasive sheet, Reference compound, sample punching die, Weighing balance, Distilled water, Density meter.
14.	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: *Heat Resistant Belts 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 Heat Resistant Belts provided always that the belts so marked conforms to each requirement of the specification.

3.1 Marking on Heat Resistant Belts 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 Heat Resistant Belts:

- 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				
3.1	Breaking strength	3.1	IS 1891 (Part 2) IS 3400 (Part 1)	R	One	Each control unit	
	Elongation at break						
	Hardness of rubber cover						
3.2	Adhesion	Table 1 App-F	IS 1891 (Part 2) IS 1891 (Part 1)	S	One	Once in every three month	For each of the variety manufactured during that period
3.3	Heat Resistance						
3.3.1	Rubber Cover	3.3.1	IS 1891 (Part 2) IS 3400 (Part 4)	S	One	Once in every three month	For each of the variety manufactured during that period
3.3.2	Adhesion	3.3.2	IS 1891 (Part 2) IS 3400 (Part 4)	S	One	Once in every three month	For each of the variety manufactured during that period
3.4	Hardness (IRHD)		IS 3400 (Part 2)	R	One	Each control unit	
5	Construction	5	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		
6	Fabric	6	IS 1891 (Part 1)	R			
7 7.1 7.2	Cover Properties Tensile Strength, Elongation at Break		IS 3400 (Part 1) / ISO 37	R	One	Each control unit	
7.4	Abrasion Loss		IS 3400 (Part 3)	S	One	Once in every three month	For each of the variety manufactured during that period
7.3	After ageing – Cover Properties (Tensile Strength, Elongation at Break)		IS 3400 (Part 4) / ISO 188	S	One	Once in every three month	For each of the variety manufactured during that period
8	Cover Thickness	8	IS 1891 (Part 1)	R	Firm to have adequate in-process controls to check compliance of this		

9	Repairs	9	IS 1891 (Part 1)	R	parameter as per the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
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	One	Each control unit	
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 Breaking 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 every three month	For each of the variety manufactured during that period