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IS : 9675 - 1980

Indian Standard

SPECIFICATION FOR
WOVEN COTTON TAPES, LIGHT, MEDIUM
AND HEAVY QUALITIES

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SPECIFICATION FOR WOVEN COTTON TAPES, LIGHT, MEDIUM AND HEAVY QUALITIES

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Indian Standard

SPECIFICATION FOR WOVEN COTTON TAPES, LIGHT, MEDIUM AND HEAVY QUALITIES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 31 December 1980, after the draft finalized by the Narrow Fabrics, Webbing and Braids Sectional Committee had been approved by the Textile Division Council.

0.2 This standard covers cotton tapes used mainly in the Indian Railways. Cotton tapes used in the Defence are covered in IS : 6117-1977*.

0.3 In the formulation of this standard, considerable assistance has been derived from BS 1625-6 and 4830 : 1972 'Specifications for woven cotton tapes: Light, medium and heavy qualities', issued by the British Standards Institution.

0.4 To familiarize the industry with the International System (SI) units, the recommended SI units for use in the textile industry are given in Appendix A.

0.4.1 The Standards of Weights and Measures Act, 1976 also stipulates use of SI units.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers light, medium and heavy qualities of cotton tapes used mainly in the Indian Railways.

*Specification for tapes, cotton (*first revision*).

†Rules for rounding off numerical values (*revised*).

2. MANUFACTURE

2.1 The tapes should be uniformly woven in plain weave.

2.2 Both the selvages of the tapes should be firm and straight.

2.3 The tapes shall be supplied in a clean condition, normally in the loomstate. If required to be processed, the processing shall be as stipulated in the contract or order.

2.3.1 If the tapes are required to be rot-proofed, the rot-proofing agent and the level of application shall be as stipulated in the contract or order.

2.4 The tapes should be free from cuts, tears, large floats, oil and greasy stains and other such defects that are likely to render them unserviceable.

2.5 The tapes should also be free from sizing and finishing materials.

3. REQUIREMENTS

3.1 **Constructional Particulars** — The loomstate constructional particulars of the tapes shall be as given in Table 1. Any deviation from the values given in the table resulting from processing shall be as specified in the contract or order.

3.1.1 *Tolerance on Width and Mass*

3.1.1.1 *Width* — The tolerance on width shall be ± 4 percent for loomstate and ± 6 percent for processed tapes, worked out to the nearest millimetre, with a minimum of ± 1 mm.

3.1.1.2 *Mass* — The tolerance on mass shall be ± 5 percent, worked out to the nearest centigram.

3.2 **Length** — Unless stipulated otherwise in the contract or order, the tapes shall be supplied in 50-m rolls for widths over 10 mm and in 1 000-m reels for widths of 10 mm and 5 mm. The length of the tape in a roll/reel shall be not less than that declared plus the allowance for cut lengths (*see 3.2.3*) when tested as given in IS : 1954-1969*.

3.2.1 *Joints* — The number of joints shall not exceed 2 in case of 50-m rolls and 19 in case of 1 000-m reels with the cut lengths measuring not less than 5 m each.

3.2.2 Pins for other metal fastenings shall not be used to join any two lengths of the tape.

3.2.3 An additional length of 25 cm per cut length shall be supplied in excess of the declared length in each roll/reel.

*Methods for determination of length and width of fabrics (*first revision*).

TABLE 1 LOOMSTATE CONSTRUCTIONAL PARTICULARS OF TAPES

(Clause 3.1)

DESIGNATION	WIDTH	ENDS IN FULL WIDTH, Min	PICKS/cm Min	MASS	BREAKING LOAD ON FULL WIDTH \times 20 cm BETWEEN GRIPS, Min
(1)	(2)	(3)	(4)	(5)	(6)
	mm			g/m	N (kgf)
L I G H T					
L 5	5	13	8	0.65	45 (4.6)
L 10	10	21	9	1.15	75 (7.7)
L 15	15	33	10	1.90	115 (11.7)
L 20	20	45	11	2.50	160 (16.3)
L 25	25	61		3.45	220 (22.4)
M E D I U M					
M 5	5	17	12	0.95	70 (7.1)
M 10	10	29		1.60	135 (13.8)
M 15	15	41		2.30	180 (18.3)
M 20	20	55	14	3.10	245 (25.0)
M 25	25	73		4.20	310 (31.6)
M 30	30	87		5.05	375 (38.2)
M 35	35	101		5.90	425 (43.3)
M 45	45	129		7.45	535 (54.5)
M 50	50	147	8.50	625 (63.7)	
H E A V Y					
H 15	15	41	14	3.25	265 (27.0)
H 20	20	55		4.40	380 (38.7)
H 25	25	73		5.80	490 (50.0)
Method of Test	IS : 1954-1969*	IS : 1963-1969†	IS : 1964-1970‡	IS : 1969-1968§	

NOTE 1 — Cotton yarn of 30s/2 (20 tex \times 2) for warp and 24s (25 tex) for weft has been found suitable.

NOTE 2 — The test specimens for breaking load shall be conditioned for 48 hours in standard atmosphere (65 \pm 2 percent relative humidity and 27 \pm 2°C temperature) before testing.

*Methods for determination of length and width of fabrics (*first revision*).

†Methods for determination of threads per decimetre in woven fabrics (*first revision*).

‡Methods for determination of weight per square metre and weight per linear metre of fabrics (*first revision*).

§Methods for determination of breaking load and elongation at break of woven textile fabrics (*first revision*).

3.3 Chemical Requirements — The tapes shall meet the chemical requirements given in Table 2.

TABLE 2 CHEMICAL REQUIREMENTS OF TAPES

Sl. No.	CHARACTERISTIC	REQUIREMENT			METHOD OF TEST
		Grey Tape	Scoured/ Bleached Tape	Dyed Tape	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour fastness to:				
	a) light	—	—	3 or better	IS : 2454-1967*
	b) washing	—	—	-do-	IS : 764-1979†
ii)	Scouring loss, percent, Max	6	3	3	IS : 1383-1977‡ (Severe method)
iii)	pH value	←-----6.0 to 8.5-----→			IS : 1390-1961§

*Method for determination of colour fastness of textile materials to artificial light (xenon lamp).

†Method for determination of colour fastness of textile materials to washing: Test 3 (second revision).

‡Methods for determination of scouring loss in grey and finished cotton textile materials (first revision).

§Methods for determination of pH value of aqueous extracts of textile materials.

3.4 Sealed Sample — If in order to illustrate or specify general appearance, feel and such other characteristics of the tape, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects.

3.4.1 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

4. PACKING

4.1 Each roll/reel of tape shall be wrapped in polyethylene film (see IS : 2508-1977*) or waterproof packing paper (see IS : 1398-1968†). A suitable number of such rolls/reels shall then be packed in a carton or crate. Separators may also be used between rolls/reels.

5. MARKING

5.1 Each roll/reel shall carry a label in a secured manner, marked legibly with the following:

- a) Designation (see Table 1);
- b) Length (m) and net mass (g);

*Specification for low density polyethylene films (first revision).

†Specification for packing paper, waterproof, bitumen-laminated (first revision).

- c) Name and address or trade-mark of the manufacturer and/or packer;
- d) The expression 'loomstate', if applicable;
- e) Whether unproofed or rot-proofed;
- f) Colour, in the case of dyed tapes, and the expression 'grey', 'scoured' or 'bleached', as applicable, in the case of other tapes; and
- g) Date of packing, in suitable code.

5.1.1 The rolls/reels may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

5.2 Each carton/crate shall be marked with the number of rolls and/or reels contained in it in addition to the information given in **5.1**.

6. SAMPLING

6.1 Lot — The quantity of tape of the same designation (see Table 1) and finish in a consignment shall constitute a lot.

6.2 Unless specified otherwise in the contract or order, the number of rolls/reels to be selected at random from a lot shall be as given in Table 3. To ensure randomness of selection, IS : 4905-1968* may be followed.

TABLE 3 SAMPLE SIZE AND PERMISSIBLE DEFECTIVES

LOT SIZE	SAMPLE SIZE	PERMISSIBLE DEFECTIVES	SUB-SAMPLE SIZE
(1)	(2)	(3)	(4)
Rolls/Reels	Rolls/Reels	Roll(s)/Reel(s)	Rolls/Reels
Up to 100	8	0	3
101 ,, 300	13	1	4
301 ,, 500	20	2	5
501 ,, 1 000	32	3	7
Above 1 000	50	5	10

*Methods for random sampling.

6.3 For evaluating length, width, ends and picks, the rolls/reels selected as in col 2 of Table 3 shall constitute the test sample.

6.4 For evaluating breaking load, colour fastness, mass, pH value and scouring loss, the rolls/reels selected as in col 4 of Table 3 shall constitute the test sample; these rolls/reels may be drawn from those selected for the purpose of **6.3**.

6.5 Criteria for Conformity — The criteria for conformity of the tape in respect of various characteristics shall be as follows:

<i>Characteristic(s)</i>	<i>Criterion for Conformity</i>
Length, width, ends and picks	Number of defective rolls does not exceed the corresponding number given in col 3 of Table 3
Breaking load	'Mean - 0.6 range' \geq the specified value
Colour fastness	All the test specimens pass the tests
Mass and pH value	'Mean \pm 0.6 range' lie within the specified limits
Scouring loss	'Mean + 0.6 range' \leq the specified value

APPENDIX A

(Clause 0.4)

RECOMMENDED SI UNITS FOR TEXTILES

Sl No.	CHARACTER- ISTIC	SI UNIT		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
1.	Length	Millimetre	mm	Fibres
		Millimetre, centimetre	mm, cm	Samples, test specimens (as appropriate)
		Metre	m	Yarns, ropes, cordages, fabrics
2.	Width	Millimetre	mm	Narrow fabrics
		Centimetre	cm	Other fabrics
		Millimetre, centimetre	mm, cm	Samples, test specimens (as appropriate)
		Centimetre, metre	cm, m	Carpets, druggets, DURRIES (as appropriate)
3.	Thickness	Micrometre (micron)	μm	Delicate fabrics
		Millimetre	mm	Other fabrics, carpets, felts
4.	Linear density	Tex	tex	Yarns
		Millitex	mtex	Fibres
		Decitex	dtex	Filaments, filament yarns
		Kilotex	ktex	Slivers, ropes
5.	Diameter	Micrometre (micron)	μm	Fibres
		Millimetre	mm	Yarns, ropes, cordages
6.	Circumference	Millimetre	mm	Ropes, cordages
7.	Threads in fabric			Woven fabrics (as appropriate)
		a) Lengthwise	Number per centimetre Number per decimetre	ends/cm ends/dm
		b) Widthwise	Number per centimetre Number per decimetre	picks/cm picks/dm
8.	Warp threads in loom	Number per centimetre	ends/cm	Reed:

Sl. No.	CHARACTERISTIC	SI UNIT		APPLICATION
		Unit	Abbreviation	
(1)	(2)	(3)	(4)	(5)
9.	Stitches in knitted fabric			Knitted fabrics (as appropriate)
	a) Lengthwise	Courses per centimetre Courses per decimetre	courses/cm courses/dm	
	b) Widthwise	Wales per centimetre Wales per decimetre	wales/cm wales/dm	
10.	Stitch length	Millimetre	mm	Knitted fabrics, made-up items
11.	Mass per unit area	Grams per square metre	g/m ²	Fabrics
12.	Mass per unit length	Grams per metre	g/m	Fabrics
13.	Twist	Turns per centimetre Turns per metre	turns/cm turns/m	} Yarns, ropes (as appropriate)
14.	Test or gauge length	Millimetre, centimetre	mm, cm	
15.	Breaking load	Millinewton	mN	Fibres, delicate yarns (individual or skeins)
		Newton	N	Strong yarns (individual or skeins), ropes, cordages, fabrics
16.	Breaking length	Kilometre	km	Yarns
17.	Tenacity	Millinewton per tex	mN/tex	Fibres, yarns (individual or skeins)
18.	Twist factor or twist multiplier	Turns per centimetre × square root of tex	turns/cm × $\sqrt{\text{tex}}$	} Yarns (as appropriate)
		Turns per metre × square root of tex	turns/m × $\sqrt{\text{tex}}$	
19.	Bursting strength	Newton per square centimetre	N/cm ²	Fabrics
20.	Tear strength	Millinewton	mN	} Fabrics (as appropriate)
		Newton	N	
21.	Pile height	Millimetre	mm	Carpets
22.	Pile density	Mass of pile yarn in grams per square metre per millimetre pile height	g/m ² /mm height	pile Pile carpets
23.	Elastic modulus	Millinewton per tex per unit deformation	mN/tex/unit deformation	Fibres, yarns, strands

INDIAN STANDARDS

ON

NARROW FABRICS, WEBBINGS AND BRAIDS

IS:

- 1718-1970 Cotton spindle tape (*first revision*)
- 1740-1977 Flat cotton wicks (*first revision*)
- 1895-1970 Cotton tape *NEWAR*, grey or dyed (*first revision*)
- 1923-1973 Cotton selvedge tape for electrical insulation purposes (*second revision*)
- 1974-1971 Cotton spindle tapes (for jute textile mills) (*first revision*)
- 2847-1964 Cotton selvedge tape for electric cables
- 4778-1968 Cotton laces for footwear
- 5351-1975 Woven polyester tape for electrical purposes (*first revision*)
- 5352-1974 Glass-fibre woven tape for electrical purposes (*first revision*)
- 5354-1969 Cotton stripping tape for electrical purposes
- 5656-1970 Cotton braid for sleeveings
- 6117-1977 Tapes, cotton (*first revision*)
- 6487-1972 Cotton tape, unproofed and proofed, for ammunition purposes
- 6488-1975 Cotton webbing for personal web equipment (*first revision*)
- 6672-1972 Mercerized cotton tapes for berets
- 6673-1972 Waxed cotton selvedge tape
- 6674-1972 Cotton webbing for use in packing aero-engines
- 7284-1973 Coarse cotton webbings
- 7298-1973 Cotton webbing, proofed and unproofed
- 7426-1974 Special cotton webbings
- 7427-1974 Cotton webbing for ammunition carriers and other similar purposes
- 7776-1975 Silk webbing
- 7777-1975 Cotton webbing, rolled edges
- 8302-1977 Braided tape for berets
- 8894-1978 Cotton tapes for slide fasteners



AMENDMENT NO. 1 JULY 1983

TO

IS:9675-1980 SPECIFICATION FOR WOVEN COTTON TAPES,
LIGHT, MEDIUM AND HEAVY QUALITIES

Alteration

[Page 5, Table 2, col 5, against SI No.(1)(a)
and (b)] - Substitute '4 or better' for '3 or better'.

(TDC 25)

Reprography Unit, ISI, New Delhi, India