

भारतीय मानक

IS 3255 : 2024

Indian Standard

**वस्त्रादि — वायु आकाशिय प्रयोजनों के
लिए अभिमार्जित या रंजित सूती टेप —
विशिष्टि**

(दूसरा पुनरीक्षण)

**Textiles — Scoured or Dyed Cotton
Tapes for Aerospace Purposes —
Specification**

(Second Revision)

ICS 59.080.30

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भारतीय मानक ब्यूरो

BUREAU OF INDIAN STANDARDS

मानक भवन, 9 बहादुर शाह ज़फर मार्ग, नई दिल्ली - 110002

MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG

NEW DELHI - 110002

www.bis.gov.in

www.standardsbis.in

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Price Group 5

Textile Materials for Aeronautical and Related Products Sectional Committee, TXD 13

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Textile Materials for Aeronautical and Related Products Sectional Committee had been approved by the Textile Division Council.

This standard was first published in 1965 and subsequently revised in 1979. This revision has been made in the light of experience gained since its last revision and to incorporate the following major changes:

- a) The requirements for cotton tapes woven on needle loom have been incorporated;
- b) Packing and marking clauses have been updated; and
- c) References to Indian Standards have been updated.

The composition of the Committee responsible for the formulation of this standard is given in [Annex B](#).

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 or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

**TEXTILES — SCoured OR DYED COTTON TAPES FOR
AEROSPACE PURPOSES — SPECIFICATION**

(Second Revision)

1 SCOPE

1.1 This standard covers scoured or dyed cotton tapes of width 12.7 mm, 19.0 mm, 25.0 mm, 28.5 mm, 31.7 mm, 38.0 mm, 44.4 mm, 50.0 mm, 57.0 mm, 63.5 mm, 75.0 mm, 89 mm and 102 mm used mainly in supply dropping parachutes.

1.2 This standard specifies the requirements for cotton tapes woven on both shuttle loom and needle loom.

2 REFERENCES

The standards listed in [Annex A](#) contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions, indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards.

3 MATERIAL

3.1 Unsized 3 ply cotton yarn free from spinning defects given in IS 171 may be found suitable.

3.2 The cotton tape shall be supplied in loomstate or scoured or scoured dyed.

4 TYPES

Based on the type of loom, the cotton tapes are classified as follows:

- a) *Type I* — Cotton tapes woven on shuttle loom; and
- b) *Type II* — Cotton tapes woven on needle loom.

5 REQUIREMENTS

5.1 The tape shall meet the physical requirements given in [Table 1](#).

5.2 The tape shall also meet the chemical requirements given in [Table 2](#).

5.3 The tapes shall be uniformly woven with firm selvages in 2×2 twill weave and be free from weaving defects and also from sizing and finishing materials.

5.4 In respect of the requirements not covered in this standard the tapes shall not be inferior to the sealed sample agreed to in the contract or order.

6 PACKING

Each roll shall be wrapped in kraft paper; further packing of rolls in the case or carton shall be as detailed in the contract or order.

7 MARKING

7.1 Each roll shall carry the following information:

- a) Name and variety of material;
- b) Length/roll (m) and mass of roll (g);
- c) Width of tape (mm);
- d) Type;
- e) Month and year of manufacture in suitable code;
- f) Name of the manufacturer/trade-mark; and
- g) Any other information as required by the buyer or the law in force.

7.2 BIS Certification Marking

The scoured or dyed cotton tape rolls conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the scoured or dyed cotton tape rolls may be marked with the Standard Mark.

7.3 Each case/carton shall be marked with the details of the consignment as provided in the contract or order in addition to marking given in [7.1](#).

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Table 1 Physical Requirements for Cotton Tapes

([Clause 5.1](#))

SI No.	Width,	Tolerance	Length per Roll	Mass, <i>Max</i>		Ends in Full Width	Picks per cm, for Type I	Picks per cm, for Type II	Warpway Breaking Load (20 cm × Full Width), <i>Min</i> (<i>see Note</i>)		
	mm			g/m	kg/100 m Roll, Net				kN	kgf	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	
i)	12.7 ± 1.5	± 1.5	100 m unless otherwise specified	8	0.8	38	+ 4 - 0	12 ± 1	24 ± 2	0.54	55
ii)	19.0 ± 1.5			12	1.2	56				0.84	86
iii)	25.0 ± 1.5			16	1.6	74				1.22	125
iv)	28.5 ± 1.5			18	1.8	84				1.24	127
v)	31.7			20	2.0	94				1.38	141
vi)	38.0			24	2.4	112				1.81	185
vii)	44.4			28	2.8	130				1.96	200
viii)	50.0			31	3.1	148				2.45	250
ix)	57.0			36	3.6	168				2.50	255
x)	63.5			40	4.0	186				2.78	284
xi)	75.0	± 2		47	4.7	222	+ 6 - 0			3.68	375
xii)	89			55	5.5	258				3.90	398
xiii)	102			63	6.3	294				4.46	455
xiv)	IS 1954			IS 1964		IS 1963			IS 1969		

NOTES

- 1 The test specimens shall be conditioned for 48 hours at 27 °C ± 2 °C and 65 percent ± 2 percent RH before testing for breaking strength.
- 2 The tolerance of ± 10 percent shall be allowed in linear density of yarn.
- 3 Linear density of weft yarn shall be half and picks/dm shall be double in case of tapes woven on needle loom.
- 4 In case of cotton tapes woven on needle loom two weft yarns per single pick shall also be allowed.

Table 2 Chemical Requirement for Cotton Tapes

(Clauses 5.2 and Table 4)

SI No.	Characteristic	Requirement	Method of Test
(1)	(2)	(3)	(4)
i)	pH value	6.5 to 8.5	IS 1390
ii)	Scouring loss, percent, <i>Max</i>	3	IS 1383 (Severe method)
iii)	Colour fastness:		
	a) Light	5 or better	IS/ISO 105-B01 or IS/ISO 105-B02
	b) Washing	4 or better	IS/ISO 105-C10 [Test number A (1)]
iv)	Water solubles, percent, <i>Max</i>	1	IS 3456

NOTE — Sulphur dyes shall not be used in production of dyed tapes.

8 SAMPLING

8.1 Lot

The quantity of nylon tape of the same type and width in a consignment shall constitute a lot.

8.2 Unless otherwise specified in the contract or order, the sampling plan given in Table 3 shall be followed.

8.2.1 Rolls shall be selected at random (*see* IS 4905).

8.2.2 Sub-sample rolls specified in col (4) of Table 3 shall be drawn from the sample rolls selected according to col (3) of the Table 3.

9 NUMBER OF TEST SPECIMENS AND CRITERIA FOR CONFORMITY

Number of test specimens and criteria for conformity shall be as given in Table 4.

Table 3 Scale of Sampling

(Clause 8.2)

SI No.	No. of Rolls in the Lot	Sample Size	Sub-Sample Size
(1)	(2)	(3)	(4)
i)	Up to 25	3	3
ii)	26 to 100	5	4
iii)	101 to 150	8	5
iv)	151 to 300	13	7
v)	301 to 500	20	8
vi)	501 to 1 000	50	9
vii)	Above 1 000	80	10

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Table 4 Number of Test Specimens and Criteria for Conformity
(Clause 9)

Sl No.	Characteristics	Number of Samples	Criteria for Conformity
(1)	(2)	(3)	(2)
i)	Length, linear density width, mass, ends, picks and plies	According to col (3) of Table 2	All the test specimens shall pass the tests
ii)	Breaking load, pH value, scouring loss, water solubles and colour fastness	According to col (4) of Table 2	All the test specimens shall pass the tests for sample size below 300 One defect is allowed for the sample size between 301 to 1 000 Two defects are allowed for sample size above 1 000

ANNEX A

(Clause 2)

LIST OF REFERRED STANDARDS

IS No.	Title	IS No.	Title
IS/ISO 105-B01 : 2014	Textiles — Tests for colour fastness: Part B01 Colour fastness to light: Daylight	IS 1963 : 1981	Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>)
IS/ISO 105-B02 : 2014	Textiles — Tests for colour fastness: Part B02 Colour fastness to artificial light: Xenon arc fading lamp test	IS 1964 : 2001	Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (<i>second revision</i>)
IS/ISO 105-C10 : 2006	Textiles — Tests for colour fastness: Part C10 Colour fastness to washing with soap or soap and soda	IS 1969 (Part 1) : 2018/ ISO 13934-1 : 2013	Textiles — Tensile properties of fabrics: Part 1 Determination of maximum force and elongation at maximum force using the strip method (<i>fourth revision</i>)
IS 171 : 1993	Textiles — Ring spun grey cotton yarn for weaving — Specification (<i>fourth revision</i>)	IS 2500 (Part 1) : 2000/ ISO 2859-1 : 1999	Sampling procedure for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection (<i>third revision</i>)
IS 1383 : 2023	Methods for determination of scouring loss in grey and finished cotton textile materials (<i>second revision</i>)	IS 3456 : 2022	Method for determination of water-soluble matter of textile materials (<i>first revision</i>)
IS 1390 : 2022/ ISO 3071 : 2020	Textiles — Determination of pH of aqueous extract (<i>third revision</i>)		
IS 1954 : 2024/ ISO 22198 : 2006	Textiles — Fabrics — Determination of width and length (<i>third revision</i>)		

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ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Textile Materials for Aeronautical and Related Products Sectional Committee, TXD 13

<i>Organization</i>	<i>Representative(s)</i>
Aerial Delivery Research and Development Establishment, Agra	DR MANOJ KUMAR (Chairperson)
Aerial Delivery Research and Development Establishment, Agra	SHRI GAURAV SINGH SHRI PRASANTA KUMAR MALLIK (<i>Alternate</i>)
Atul Aakash Merchants Pvt Ltd, Mumbai	SHRI K. C. J. MODY SHRI ATUL K. MODY (<i>Alternate</i>)
Defence Materials and Stores Research and Development Establishment, Kanpur	SHRI BISWA RANJAN
Directorate General of Civil Aviation, New Delhi	SHRI LALIT GUPTA SHRI HILLOL BISWAS (<i>Alternate</i>)
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S R F Limited, Chennai	SHRIMATI ANGELINA DIVYA SHRI ANKUR SHARMA (<i>Alternate</i>)
Thanawala & Co, Mumbai	SHRI HEMAL M. THANAWALA SHRI VIVAAN THANAWALA (<i>Alternate</i>)
The Synthetic and Art Silk Mills Research Association, Mumbai	DR MANISHA MATHUR SHRI ASHWINI SUDAM (<i>Alternate</i>)

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Todi & Company Ltd, Mumbai

SHRI S. P. TODI
SHRI ADARSH TODI (*Alternate*)

UP Textile Technology Institute, Kanpur

DR MUKESH KUMAR SINGH
PROF PRASHANT (*Alternate*)

Urja Products Limited, Ahmedabad

SHRI ANSHUL J. NANAVATY
SHRI JANAK G. NANAVATY (*Alternate*)

Vardhman Yarn and Threads Ltd, Gurugram

SHRI ANU HANDA

Vikram Sarabhai Space Centre, Thiruvananthapuram

DR SANTHOSH B.
SHRI ANIL PENULY (*Alternate*)

Viraj Syntex Pvt Limited, Kanpur

SHRI AMIT SINGH

BIS Directorate General

SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND
HEAD (TEXTILES) [REPRESENTING DIRECTOR
GENERAL (*Ex-officio*)]

Member Secretary
SHRI BANOTHU RANGA
SCIENTIST 'B'/ASSISTANT DIRECTOR
(TEXTILES), BIS

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002

Telephones: 2323 0131, 2323 3375, 2323 9402

Website: www.bis.gov.in

Regional Offices:

	Telephones
Central : 601/A, Konnectus Tower -1, 6 th Floor, DMRC Building, Bhavbhuti Marg, New Delhi 110002	{ 2323 7617
Eastern : 8 th Floor, Plot No 7/7 & 7/8, CP Block, Sector V, Salt Lake, Kolkata, West Bengal 700091	{ 2367 0012 2320 9474
Northern : Plot No. 4-A, Sector 27-B, Madhya Marg, Chandigarh 160019	{ 265 9930
Southern : C.I.T. Campus, IV Cross Road, Taramani, Chennai 600113	{ 2254 1442 2254 1216
Western : Manakalya, 4 th Floor, NTH Complex (W Sector), F-10, MIDC, Andheri (East), Mumbai 400093	{ 283 25838

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