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(Revision No. 2)

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मंत्रालय द्वारा अंगीकृत SSC
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Coordinated dated



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रक्षा मंत्रालय
MINISTRY OF DEFENCE
ज्वाइंट सर्विस स्पेसिफिकेशन
JOINT SERVICES SPECIFICATION
ON

TAPE, NYLON, DYED / UNDYED
(DS cat No.8315 - 000 257 to 000 268)

मानकीकरण निदेशालय
रक्षा उत्पादन विभाग
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0. **FOREWORD**

0.1 This specification has been prepared by the Stores Standardisation Sub Committee on the authority of Standardisation Committee, Ministry of Defence.

0.2 This specification has been approved by the Ministry of Defence and is mandatory for use by the Defence Services.

0.3 (a) This JSS was prepared in the year Dec 1981.

(b) First revision was done in the year 1998 & Reaffirmed - 2008.

(c) This specification is a revision of JSS 8315 - 06 : 1998 (Revision No.1), Reaffirmed - 2008 and supersedes the same.

0.4 This specification would be used to Guide, Design, Manufacture, Quality Assurance and Procurement of the item.

0.5 Quality Assurance Authority for the item covered by this specification is CQA (T & C), Kanpur and DQAS (Aero), New Delhi for Army and Air Force respectively. Enquiries regarding technical parameters shall be addressed to the Quality Assurance Authority, while other enquiries shall be referred to :

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' Block, Nirman Bhavan PO,
New Delhi - 110 011

0.6 Non - registered users can obtain the following on payment :

(a) **Copies of IS from :**

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(b) **Copies of JSS / JSG from :**

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0.8 This specification holds good only for the supply order for which it is issued.

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1. **SCOPE**

1.1) This specification covers the requirements of Tape, Nylon, Dyed / Undyed in various sizes used in the manufacture of personnel parachutes and other aerial delivery equipments.

2. **RELATED SPECIFICATIONS**

2.1) Reference is made in this specification to :

Sl. No.	Specification / Document No.	Nomenclature
(a)	IS / ISO 105 - C 10 : 2006	Textiles - Tests for Colour Fastness : Part C10 : Colour Fastness to Washing with Soap or Soap and Soda
(b)	IS 832 : 1985 (First Revision) Reaffirmed - 2010 Amd - 2	Methods for Determination of Twist in Yarn
(c)	IS 1315 : 1977 (First Revision) Reaffirmed - 2010 Amd - 1	Method for determination of linear density of yarns spun on cotton system
(d)	IS 1390 : 1983 (First Revision) Reaffirmed - 2009	Methods for determination of pH value of aqueous extracts of textile materials
(e)	IS 1398 : 1982 (Second Revision) Reaffirmed - 2009 Amd - 1	Specification for Packing Paper Water Proof, Bitumen - Laminated
(f)	IS 1912 : 1984 (Second Revision) Reaffirmed - 2011 Amd - 1	Specification for Country Jute Twine
(g)	IS 1954 : 1990 (Second Revision) Reaffirmed - 2007	Determination of Length and Width of Woven Fabrics - Methods

Sl. No.	Specification / Document No.	Nomenclature
(j)	IS 1963 : 2004 (Second Revision) Reaffirmed - 2008	Methods for Determination of Threads per Unit Length in Woven Fabrics
(k)	IS 1964 : 2001 (Second Revision) Reaffirmed - 2010	Textiles - Methods for determination of Mass per unit length and mass per unit area of fabrics
(l)	IS 1969 : 1985 (Second Revision) Reaffirmed - 2010 Amd - 1	Methods for Determination of Breaking load and Elongation of Woven Textile Fabrics
(m)	IS 2454 : 1985 (First Revision) Reaffirmed - 2013 Amd - 1	Methods for determination of colour fastness of textile materials to artificial light (xenon lamp)
(n)	IS 2500 : Part 1 : 2000 (Third Revision) Reaffirmed - 2011 Amd - 1	Sampling Procedure for Inspection by Attributes : Part 1 : Sampling schemes Indexed by Acceptance Quality Limit (AQL) for Lot - by - Lot Inspection
(o)	IS 2508 : 1984 (Second Revision) Reaffirmed - 2008 Amd - 3	Specification for Low Density polyethylene Films
(p)	IS 2771 : Part 1 : 1990 (Second Revision) Reaffirmed - 2008 Amd - 3	Corrugated Fibreboard Boxes - Specification : Part 1 : General Requirements
(q)	IS 4905 : 1968 Reaffirmed - 2011 Amd - 1	Methods for random sampling
(r)	IS 10106 : Part 3 / Sec 1 : 1984 Reaffirmed - 2009	Packaging code : Part 3 : Ancillary materials : Section 1 : Cushioning materials
(s)	JSS 8135 - 10 : 2004 (Revision No. 1) Reaffirmed - 2011 Amd - 1	Polypropylene Strapping, 12 mm wide

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File of Directorate of Standardization

3. **STANDARD PATTERN**

3.1 The Standard pattern of Tape, Nylon, Dyed / Undyed held in the custody of the Controllerate of Quality Assurance (Textiles & Clothing), Post Box No. 294, Kanpur - 208 004 shall constitute the standard as regards any particulars or properties not noted or defined in this specification.

4. **MATERIAL**

4.1 The basic material of yarn shall be Nylon type '6' or '66'. The yarn for both wrap and weft shall be bright, multifilament of high tenacity and of 23 tex.

5. **MANUFACTURE**

5.1 The single and folded yarns shall be evenly twisted. The tape shall be evenly woven under suitable tension. The edges of the tape shall be firm and regular.

5.2 The dyed tapes shall be manufactured either by use of dyed yarn in the weaving or by dyeing the tapes. The yarn or tapes shall be dyed with disperse or acid type dye. Metallised or chromic dyes shall not be used.

5.3 The yarns used for both wrap and weft shall be twisted together (plied) in one operation.

6. **DIMENSIONS AND OTHER DETAILS**

6.1 Tape, Nylon, dyed / undyed shall conform to the essential particulars given in Appendix 'A'.

7. **WORKMANSHIP AND FINISH**

7.1 The Tape shall be free from weaving defects. When laid on a flat even surface, the tape shall be in a straight line without any application of tension.

8. **MARKING**

8.1 Each roll shall be suitably attached with a label. The label shall legibly and indelibly marked with the manufacture's name, initials or recognised trade mark, year of manufacture, length of roll, nomenclature and the DS Cat Number of the store.

9. QUALITY ASSURANCE

9.1 Examination of the samples taken from any portion of a consignment shall show that the tapes conform to the following requirements when tested as per method mentioned against each :

Sl. No.	Tests	Requirements	Methods(Refer to)
(1)	(2)	(3)	(4)
(a)	Length	100 m or as ordered	IS 1954 : 1990
(b)	Width	As per Col. 2 of Appendix 'A'	IS 1954 : 1990
(c)	Thickness	As per Col.3 of Appendix A	Appendix 'B'
(d)	Mass in 'g' per 100 m	As per Col 8 of Appendix 'A'	IS 1964 : 2001
(e)	Picks per dm	As per Col.5 of Appendix 'A'	IS 1963 : 2004
(f)	Total No. of end in full width, Min	As per Col.4 of Appendix 'A'	IS 1963 : 2004
(g)	No. of folds of yarn Warp Weft	As per Col.6 of Appendix 'A' As per Col.7 of Appendix 'A'	IS 1315 : 1977
(h)	Turns per metre	100	IS 832 : 1985
(j)	Breaking load (on full width x 20 cm)	As per Col.9 of Appendix 'A'	IS 1969 : 1985
(k)	Elongation at break, percent, Min	18	IS 1969 : 1985
(l)	pH value of aqueous extract	6.0 to 8.5	IS 1390 : 1983 (cold method)
(m)	Dye fastness (i) To light (ii) To washing	Class 5 or better Rating 4 or better	IS 2454 : 1985 IS / ISO 105 - C 10 : 2006
(n)	Linear density of yarn	As per Col.12 & 13 of Appendix 'A'	IS 1315 : 1977

10. PRE - INSPECTION OF STORES / CONSIGNMENT

10.1 Manufacturers / contractors must satisfy themselves that the stores are in accordance with the terms of the contract and fully conform to the required specification by carrying out a thorough pre - inspection of each lot before actually tendering the same for inspection to the Quality Assurance Officer nominated under the terms of the contract. A declaration by the contractor that necessary pre - inspection has been carried out on the stores tendered, will be submitted alongwith the challan. The declaration will also indicate the method followed in carrying out pre - inspection showing the features checked / tested and will have the test certificate attached to the challan / declaration.

10.2 If the Quality Assurance Officer finds that pre - inspection of the consignment as required above has not been carried out, the consignment is liable for rejection

11. SAMPLING

11.1 The supplier shall offer the store serially numbered and arranged in such a way that the entire lot is accessible to the Quality Assurance Officer.

11.2 The Quality Assurance Officer shall draw samples from the bulk lot at random using the technique of simple random sampling as given in IS 4905.

11.3 For evaluating length, width, ends in full width, picks per dm and folds of yarn the rolls selected as in col.2 of the following tables shall constitute the test sample. The sample so drawn shall be examined for shade, dyeing defects, weaving defects, length, width, ends in full width and picks per dm and it should not exceed the corresponding number given in col.3 of the table. In case of length, the value obtained for each roll shall be compared with its specified declared or marked length. The mean percentage of deficiency in length, if any, shall be determined as made applicable to the lot.

11.4 For evaluating other laboratory tests on the number of rolls specified in col.4 of the table shall constitute the test sample.

11.5 The length of the sample for subjecting to full tests shall be 5 metres. A 2 metre sample shall also be drawn from the remaining lot for breaking load test only. In case the store is required in the manufacture of Man dropping / Break parachutes. Samples from all the hanks length / rolls be tested for breaking load tests.

SAMPLING TABLE

As per Sampling plan AQL 4 % as per table I for visual inspection (Based on General Inspection level II) and table II for laboratory testing (Based on and S - 3) as per IS 2500 - Part I : 2000.

TABLE - I				TABLE - II
Sl. No.	Lot Size In roll's	No. of samples to be drawn by sampling officer for visual Examination (General Inspection Level II)		Sub Sample Size (No. of rolls to selected for lab)
		Sample Size (n)	Acceptance Number (Ac)	
(1)	(2)	(3)	(4)	(5)
(a)	Up to 25	5	0	3
(b)	26 to 50	8	1	3
(c)	51 to 90	13	1	5
(d)	91 to 150	20	2	5
(e)	151 to 280	32	3	8
(f)	281 to 500	50	5	8
(g)	501 to 1200	80	7	13

- NOTE :**
- (1) Sampling shall be done randomly as per IS 4905 : 1968.
 - (2) Inspection level S - 3 for laboratory tests.
 - (3) The Rejection number (Re) will always be one more than acceptance Number (Ac).
 - (4) When the Sample size equals or exceeds lot size 100 % inspection / non - destructive testing with zero acceptance number shall be carried out.

12. CRITERIA FOR CONFORMITY

12.1 All the sample units drawn shall be tested / examined to the relevant specification requirement. If all the sample units are found to conform to the requirements of this specification, the supply would be considered to be in conformity, otherwise not.

13. WARRANTY

13.1 Except as otherwise provided in the invitation to the tender, the contractor / seller hereby declares that the goods / stores, articles sold / supplied to the purchase under this contract shall be of the best quality and workmanship and new in all respect and shall be strictly in accordance with the specification and particulars contained / mentioned in the contract. The contractor / seller hereby guarantees that the said goods / stores / articles would continue to conform to the description and quality aforesaid for a period of 12 months from the date of delivery of the said goods / stores / articles to the purchaser or 15 months from the date of shipment / dispatch from the contractor work whichever is earlier and that notwithstanding the facts that the purchaser (QAO) may have inspected and / or approved the said goods / Stores / articles. If during the aforesaid period of 12 / 15 months the said goods / stores / articles be discovered not to be conform to the description and quality aforesaid or not giving satisfactory performance or have deteriorated and the decision of the purchaser in that behalf shall be final and binding on the contractor / seller to rectify / replace by acceptable goods / stores / articles or such portion or portions thereof as is found to be defective by the purchaser within a reasonable period not exceeding 03 months or as may be allowed by purchaser in his discretion on the application made thereof by the contractor / seller and in such an event the above mentioned warranty period shall apply to the goods / stores / articles rectified / replaced from the date of rectification / replacement thereof, otherwise the contractor / seller shall pay to the purchaser such compensations as determined by the purchaser as may arise by reason of the break of the warranty herein contained.

14. PACKAGING

14.1 The following materials shall be used for packing of Tape, Nylon dyed / undyed :

Sl. No.	Materials	Conforming to
(a)	Polyethylene film 0.04 mm thick	IS 2508 : 1984
(b)	Twine, jute, 3 ply	IS 1912 : 1984
(c)	Packing paper, waterproof bitumen laminated using Kraft paper having substance 60 g / m ² , Min)	IS 1398 : 1982 (Type I)
(d)	Triple walled corrugated fibreboard boxes(outer liners shall be laminated with polyethylene to provide waterproofness)	IS 2771 : Part 1 : 1990
(e)	Polypropylene Strapping, 12 mm wide	JSS 8135 - 10 : 2004
(f)	Cushioning material	IS 10106 : Part 3 / Sec 1 : 1984

15. **DEFENCE STORES CATALOGUE NUMBERS**

15.1 Tape, Nylon, dyed / undyed covered by this specification shall bear the following DS Cat numbers :

Sl. No.	DS Cat No.	Nomenclature Tape, Nylon, Undyed
(a)	8315 - 000 257	14 mm
(b)	8315 - 000 258	19 mm
(c)	8315 - 000 259	25 mm
(d)	8315 - 000 260	32 mm
(e)	8315 - 000 261	38 mm
(f)	8315 - 000 262	44 mm
		Nomenclature Tape, Nylon, Dyed
(g)	8315 - 000 263	14 mm
(h)	8315 - 000 264	19 mm
(j)	8315 - 000 265	25 mm
(k)	8315 - 000 266	32 mm
(l)	8315 - 000 267	38 mm
(m)	8315 - 000 268	44 mm

16. **SUGGESTIONS FOR IMPROVEMENT**

16.1 Any suggestion for improvement in this document may be forwarded to :

The Director,
Directorate of Standardisation,
Ministry of Defence,
'H' Block, Nirman Bhawan PO,
New Delhi - 110 011.

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 Textile and Apparel Development Council
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 香港中環皇后大道中 100 號 1006 室
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APPENDIX 'A'

Variety No.	Width in (mm)	Thickness in mm (under a pressure of 210 g/cm ²)	Ends in full width (min)	Picks per dm	Number of folds of yarn		Mass per 100 m in g (max)	Breaking load (full width x 20 cm)	Percentage elongation at break (min)	Weave	Linear density of yarn (Tex)	
					Wrap	Weft					Wrap	Weft
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1.	14 + 1	0.64 to 1.0	92	134	2	4	870	2260	18	*	23	23
2.	19 + 1 - 0	0.5 to 0.8	150	148	1	2	620	1900	18	@	23	23
3.	25 + 1 - 0	- do -	75	134	4	2	1120	3960	18	*	23	23
4.	32 + 1 - 0	- do -	94	134	4	2	1400	4970	18	*	23	23
5.	38 + 1.5 - 0	- do -	112	134	4	2	1675	5940	18	*	23	23
6.	44 + 1.5 - 0	- do -	132	134	4	2	1955	6920	18	*	23	23

* 2 up and 2 down herringbone twill with one reversal of twill in the centre.

@ 2 up and 2 down herringbone twill with one reversal of twill at the centre and 2 end woven as one

NOTE : Breaking Load - No individual reading should be less than specified.

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APPENDIX 'B'

B. METHOD FOR DETERMINATION OF THICKNESS

B.1 Prior to test, the test specimens shall be conditioned in a standard atmosphere of 65 ± 2 percent relative humidity and $27 \text{ }^\circ\text{C} \pm 2 \text{ }^\circ\text{C}$ temperature for at least 24 hours. Take a test specimen and determine the thickness under a pressure of 210 g/cm^2 at different places and calculate the average of these results.

NOTE : Breaking Load - No individual reading should be less than specified.