



**GOVERNMENT OF INDIA
MINISTRY OF DEFENCE**

JOINT SERVICES SPECIFICATION

ON

**DRILL COTTON DISRUPTIVE PATTERN
(VAT PRINTED) FOR BANDOLIERS**

(DS CAT No 8315-000423)

**JSS 8315-08:2011
Revision No. 1**

**DIRECTORATE OF STANDARDISATION
DEPARTMENT OF DEFENCE PRODUCTION
MINISTRY OF DEFENCE
'H' BLOCK, NIRMAN BHAVAN PO
NEW DELHI - 110 011**

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LIST OF MEMBERS ASSOCIATED WITH REVISION/REAFFIRMATION OF THE STANDARD

1. This Joint Services Specification has been approved by Dr. S.Kumar, Sc 'G', Director, Directorate of Materials (R&D Organisation), Chairman, Material Standardisation Sub Committee during the 39th Material Standardisation Sub Committee meeting held on 15th Jun 2010.
2. The following members have been present/consulted in approving the document.

<u>Sl. No.</u>	<u>Name & Designation</u>	<u>Organisation</u>
1.	Dr. C.J.Ahluvalia, DDGAQA	DGAQA
2.	Dr.S.R.Vadera, Sc 'G'	DLJ
3.	Dr. A.K.Tripathi, Addl. Director	Dte of Materials
4.	Dr. R.K.Tewari, Sc'E'	DMSRDE
5.	Sh. A.K.Khanna, SQAQO	CQA(Met)
6.	Col Sunil Bhatia	DGEME
7.	Cdr Hanish Sharma	DQA(N)
8.	Cdr N.K.Sharma	DGNAI
9.	Sh. Ajeya Sagraya, Joint Director	DGAQA
10.	Sh. Aqbal Ali, Deputy Director	DONA
11.	Dr. R.C.Verma, SSO-I	Dte of Stdn
12.	Sh. N.P.Rao, JSO	CQA(ME)
13.	Sh. S.N.Tyagi, JTOS(S)	Dte of Stdn
14.	Nb Subedar Satish Kumar	Stdn Cell Army
	<u>Secretary</u>	
15.	Sh. S.K.Saxena, NSO	Dte of Stdn

RECORD OF AMENDMENTS

Amendment		Amendment Pertains to: Sl. No./ Para no./ Column no.	Authority	Amended by	Signature & Date
No	Date			Name & appointment (IN BLOCK LETTERS)	

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0. FOREWORD

0.1 This specification has been prepared by the Material Standardisation Sub Committee on the authority of the 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 This specification is prepared on Specification No IND/ME/975 (Prov).

0.4 This specification would be used for manufacture, quality assurance and procurement of Drill Cotton Disruptive Pattern (Vat Printed) for Bandoliers.

0.5 Quality Assurance Authority for the item covered by this specification is the Controller, Controllerate of Quality Assurance (Military Explosives) Aundh Road, Khadki Pune-411020 for Army, Navy and Air Force respectively. Enquiries regarding this specification shall be addressed to the Quality Assurance Authority named in the tender or contract. Other enquiries shall be referred to: -

The Director,
Directorate of Standardisation,
Ministry of Defence, 'H' Block
Nirman Bhavan PO, New Delhi-110011

0.6 Copies of this specification can be obtained on payment from: -

The Director,
Directorate of Standardisation,
Ministry of Defence,
Standardisation Documents Centre,
Room No. 5 'J' Block, Nirman Bhavan PO,
New Delhi – 110 011

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

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1. SCOPE

1.1 This specification is meant to govern manufacture, supply and quality assurance of Drill Cotton Disruptive Pattern (Vat printed), suitable for making bandoliers.

2. RELATED SPECIFICATIONS/DOCUMENT

2.1 The following specifications have been referred to in the preparation of this specification.

<u>Sr. No.</u>	<u>Specification No.</u>	<u>Nomenclature</u>
1.	IS/ISO 105 : Part C10 : 2006	Textiles - Tests for Colour Fastness - Part C10 : Colour Fastness to Washing with Soap or Soap and Soda
2.	IS 138:1992 (Third revision) Reaffirmed 2004 Amds 1	Ready Mixed Paint, Marking, for Packages and Petrol Containers - Specification.
3.	IS 199:1989 (Third Revision) Reaffirmed 2005	Textiles- Estimation of moisture, total size or finish, ash and fatty matter in grey and finished cotton textile materials
4.	IS 1390:1983 (First revision) Reaffirmed 2004	Methods for determination of pH value of aqueous extracts of textile materials.
5.	IS 1954:1990 (Second revision) Reaffirmed 2007	Determination of Length and Width of Woven Fabrics – Methods
6.	IS 1963:1981 (Second revision) Reaffirmed 2004	Methods for Determination of Threads per Unit Length in Woven Fabrics

<u>Sr. No.</u>	<u>Specification No.</u>	<u>Nomenclature</u>
7.	IS 1964:2001 (Second revision) Reaffirmed 2006	Textiles - Methods for Determination of Mass Per Unit Length and Mass Per Unit Area of Fabrics.
8.	IS 1969:1985 (Second Revision) Reaffirmed 2006 Amds 1	Method for Determination of Breaking load and Elongation of Woven Textile Fabrics.
9.	IS 2102 (Part 1): 1993 (Third Revision) Reaffirmed 2008	General tolerances Part 1 Tolerances for linear and angular dimensions without individual tolerance indications.
10.	IS 2454:1985 (First revision) Reaffirmed 2006 Amds 1	Method for determination of colour fastness of textile materials to artificial light (Xenon lamp).
11.	IS 2977:1989 (First revision) Reaffirmed 2005 Amds 1	Fabrics (Other than Wool) - Methods for Determination of Dimensional Changes on Soaking in Water.
12.	IS 3456:1966 Reaffirmed 2005	Method for determination of water soluble matter of textile materials.
13.	IS 4655:1968 Reaffirmed 2004 Amds 1	Methods for determination of iron and chromium in textiles.
14.	IS 5088: 1982 (First Revision) Reaffirmed 2007 Amds 2	Specification for Cotton Textiles for Ammunition.
15.	JSG 0114: 1994	Methods of tests for textiles used in ammunition.

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2.2 Copies of the Indian Standards are obtainable on payment from: -

Bureau of Indian Standards,
Manak Bhavan,
9, Bahadur Shah Zafar Marg,
New Delhi-110 002.

Or

their regional / branch offices

2.3 Copies of the Joint Services Guide are obtainable on payment from: -

The Director,
Directorate of Standardisation,
Ministry of Defence,
Standardisation Documents Centre,
Room No. - 5 'J' Block, Nirman Bhavan PO,
New Delhi – 110 011

3. STANDARD PATTERN

3.1 The standard pattern of the store held in custody of CQA (ME), Aundh Road, Khadki, Pune – 411 020 shall constitute the standards as regards any particular properties not defined in this specification.

4. MATERIAL

4.1 DESCRIPTION

4.1.1 The drill cotton disruptive pattern (vat printed) shall be free from dressing and filling materials and substances liable to cause tendering. The cloth shall be dyed with suitable dyes to shades agreed to between the purchaser and contractor. In case of Khaki shade, the cloth shall be dyed with Iron and chromium salts (Mineral Khaki) in suitable proportions to achieve the required shade. The cloth shall be dyed with vat dyes in conjunction with the iron and chromium salts. It shall be mercerised and preshrunk and shall be free from spinning, weaving and other processing defects.

NOTE: - 1) Sulphur dyes, shall not be used for dyeing cloth.

5. MANUFACTURE

5.1 The drill cotton disruptive pattern shall be manufactured by a process, which has received authoritative approval. The Quality Assurance Officer shall be informed regarding the process used and shall be informed with prior notification any proposed deviation therefrom. All the deviations from the approved process shall be recorded immediately and all the material affected shall be set aside pending the decision of the Quality Assurance Officer /Quality Assurance Authority.

5.2 The dyed Khaki fabric shall be printed with two colour disruptive designs. The disruptive design shall be obtained by repeats of the designs shown in drawings attached using fast vat dyes. The khaki dyed fabric shall be first printed with brown colour blotch design represented by drawing enclosed as Appendix 'A' and then over printed with green colour blotch design represented by drawing enclosed as Appendix 'B' to obtain complete pattern depicted by standard pattern. The individual shades of the fabric shall satisfy the requirements of the colourfastness and washing as mentioned in Test requirements.

5.3 The length of each piece shall be 20 metres or above or as ordered by the consignee.

6. DIMENSIONS

6.1 Dimensions shall conform to the shape, design and dimensions as given in the relevant drawings / specification.

6.2 Normal engineering tolerances as per IS 2102 (Part 1): 1993 shall be applicable on all dimensions, which are without specified tolerances.

7. WORKMANSHIP AND FINISH

7.1 The general workmanship and finish shall be of a high standard and similar to sealed sample / standard pattern held by AHSP.

8. MARKING

8.1 All the packages containing the material shall be durably and legibly marked with the following details.

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Nomenclature and specification number of the material.

Name and address of the consignee

A / T or S.O. no and date.

Lot / batch no.

Consignment number.

Gross and net mass.

Consecutive number of package and total number of packages in the consignment.

Date of supply.

Contractor's initials or recognised trademark.

8.2 In addition to above the Quality Assurance Officer /Quality Assurance Authority may suggest some more marking / identification suitable at the time of inspection.

8.3 The paint used for marking shall conform to IS 138: 1992 and to the satisfaction of the Quality Assurance Officer / Quality Assurance Authority.

9. PRE- INSPECTION OF STORES / CONSIGNMENT

9.1 Manufacturer / Contractor 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 contract. A declaration by the contractor that necessary pre-inspection has been carried out on the stores tendered will be submitted along with 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.

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

9.3 Tender Sample

9.3.1 The Contractor / Manufacturer shall submit a tender sample in duplicate measuring 2 metres length X full width (contracted width) free of all charges and conforming to this specification alongwith the test certificate.

10. QUALITY ASSURANCE

10.1 Inspection

10.1.1 The drill cotton disruptive pattern (vat printed) and the packages in which it is contained shall be subject to Quality Assurance and to the approval of Quality Assurance Officer / Quality Assurance Authority.

10.1.2 Samples of the material and of the packages may be taken from any portion of the batch /lot / consignment.

10.1.3 If on examination any sample be found not to conform to this specification, the whole batch/ lot / consignment shall be rejected.

10.1.4 The foregoing provisions shall equally apply to the prime contractor and sub-contractors, if any.

10.2 Testing

10.2.1 The samples taken from any portion of the batch/lot/consignment shall conform to the clause 4.1 above and in addition shall satisfy the following test requirements.

A) PHYSICAL REQUIREMENTS

<u>Sr. No.</u>	<u>Test</u>	<u>Passing standards</u>	<u>Test method</u>
1.	Count of Yarn Tex (approximate) Warp Weft	42 Tex 59 Tex	

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<u>Sr. No.</u>	<u>Test</u>	<u>Passing standards</u>	<u>Test method</u>
2.	Ends / cm % Min Max	41 43	IS 1963
3.	Picks / cm Min Max	18 20	--do--
4.	Mass g/sq-m Min Max	320 340	IS 1964
5.	Breaking Load in N on 20 X 5 cm Strips (Revelled strip method) with a rate of traverse 300 mm per minute Min Warp Weft	1275 775	IS 1969
6.	Weave	3/1 Warp faced twill	-----
7.	Width in cm	69 to 73 or as agreed between purchaser and contractor	IS 1954
8.	Shade pattern	As per drawings attached	Ref: Appendix 'A' & 'B' to this specification

B) CHEMICAL REQUIREMENTS

<u>Sr. No.</u>	<u>Test</u>	<u>Passing standard</u>	<u>Test method</u>
1.	Colour fastness to light	Rating 5 or better	IS 2454
2.	Washing (Khaki and printed Blotch)	Rating 4 or better	IS 3361

<u>Sr. No.</u>	<u>Test</u>	<u>Passing standard</u>	<u>Test method</u>
3.	pH of water extract Min Max	6.0} 8.5}	IS 1390 (Cold Water method)
4.	Shrinkage or Elongation % Max Warp Weft	2.0 2.0	IS 2977
5.	Water soluble chlorides as NaCl % Max	0.10	Method No. 7 (JSG : 0114)
6.	Water soluble Sulphates as Na ₂ SO ₄ % Max	0.50	Method No. 8 (JSG: 0114)
7.	Water soluble chromates % Max	0.10	IS 5449
8.	Soda soluble chromium Compounds as Na ₂ CrO ₄ % Min	0.07	Method No. 20 (JSG : 0114)
9.	Iron and Chromium Compounds as Fe ₂ O ₃ and Cr ₂ O ₃ %Min	1.5	Method No.18 JSG :0114
10.	Ash % Max	3.0 (Excluding Fe and Cr content)	JSG :0114
11.	Moisture Regain % Max	9.0	IS 199
12.	Water extractable Matter % Max	1.0	IS 3456

11. **SAMPLING**

11.1 The number of pieces to be selected for sampling shall be as follows: -

<u>LOT SIZE (No. of pieces)</u>	<u>No. of Samples</u>
Up to 50	3
51 to 150	8
<u>LOT SIZE (No. of pieces)</u>	<u>No. of Samples</u>
151 to 300	13
301 to 500	20
501 and above	32

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12. CRITERIA FOR CONFORMITY

12.1 If on examination, any sample be found not to conform to this specification, the whole batch / lot / consignment may be rejected.

12.2 The foregoing provisions shall equally apply to the prime contractors and sub contractor if any.

13. WARRANTY

13.1 The store supplied against the contract shall be deemed to be warranted against defective material and performance by the manufacturer / contractor for a period of 12 months from the date of receipt of the store at the consignee's end and if during this period any of the stores supplied is found defective, the same shall be replaced by the contractor / manufacturer free of all charges, at the consignee's premises.

14. PACKAGING

14.1 The material shall be delivered in bolt form, in required length, in new dry and clean condition. It should be packed as follows: -

Suitable number of bolts shall be placed side by side / one over the other and wrapped with an inner and outer layer of laminated hessian cloth to form a compact bale of rectangular shape as far as possible. The overlaps of inner layer's shall be at least 10 cm to ensure full protection of the contents of the bale. The overlaps of the outer layer shall be such that it can be properly and securely sewn around the bale. The polyethylene face of the laminated hessian cloth shall be kept on inner side. The bale shall be stitched with double 3ply jute twine with not less than 6 stitches per 10 cm taking care not to pierce the inner wrapping during stitching, sufficient cloth shall be pulled out at each corner to form ears of about 15 cm in length.

14.1.1 Slats of wood approximately 7cm wide and 1cm thick and free from rot or other harmful fungal or insect attack or alternatively bamboo strips duly preserved shall be placed length wise along the edges of the bale and finally bound with at least two bands of polypropylene strapping / metal hoops / wires. Each strapping / hoop /wire shall be one complete piece and the ends shall be sealed with machine using steel seals of suitable size.

14.1.2 The bales shall be bound with additional bands of polypropylene strapping / metal hoops, wires where the dimensions of the bales may exceed 60cm in any of the directions so that no two bands / hoops are more than 25cm apart.

14.1.3 The bale shall be of gross mass of 40 kg each. The bale shall finally be seamed by fastening polypropylene strapping / metal hoops or metal wires. In case of Ordnance Factories, maximum mass of the bale can be up to 150kg.

15. DEFENCE STORES CATALOGUE NUMBER

15.1 The stores shall bear the Defence Stores Catalogue Number before it is supplied/accepted in the Defence Services. Defence Stores Catalogue No. allotted to this store is 8315 – 000423.

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 Bhavan PO,
New Delhi-110011.