

MASTER COPY

ADRDE/SPECN/1992/... 36

16

GOVERNMENT OF INDIA
MINISTRY OF DEFENCE

S P E C I F I C A T I O N
FOR
CORD COTTON BRAIDED VARIOUS
FOR AERONAUTICAL PURPOSES.

CTC
Dr
(B. Ramay) (Tech. Officer D-
BY DIRECTOR
आयुध विभाग कञ्जलवा
Aerial Delivery Sec. & Insp. (A) (A) (A) (A) (A)
1/2 वेस्ट गेट 51, सिरोहा रोड, आगरा कान्टनमेंट
P. O. No. 11, Siroha Road, Agra Cantt-202001

ISSUED BY

HAWAI VITRAN ANUSANDHAN AVAM VIKAS SANSTHAPAN
RAKSHA MANTRALAYA
AGRA CANTT-282001

RECORD OF AMENDMENTS

Sub heading to which amendment pertains	Authority	Incorporated by (Name and Rank in block letters)	Initials
---	-----------	--	----------

CONTENTS

Sl.No.	Content	Page No.
0	Foreword	0 - 1
1	Scope	0 - 1
2	Related specifications	0 - 2
3	Materials	0 - 3
4	Manufacture	0 - 3
5	Dimensions and other Details	0 - 3
6	Workmanship and finish	0 - 3
7	Marking	0 - 4
8	Quality	0 - 4
9	Pre-Inspection of Stores/Consignment	4 - 5
10	Sampling	5 - 6
11	Criteria for conformity	0 - 6
12	Inspection	0 - 6
13	Warranty	0 - 6
14	Packing	0 - 7
15	Defence store catalogue No.	0 - 7
16	Suggestions for Improvement	0 - 8
17	APPENDIX - A	0 - 9

- 0.1 **FOREWORD** This specification has been prepared by a special committee at ADRDE and approved by DIRECTOR, ADRDE, Agra Cantt.
- 0.2 This specification would be used for manufacture, inspection and procurement of Cord, Cotton, Braided, Coreless, 355 N, Red; Cord, Cotton, Braided, Coreless, 390 N, U/D; Cord, Cotton, Braided 530 N, Red; Cord, Cotton, Braided, 590 N, U/D and Cord, Cotton, Braided, 1225 N, U/D for Aeronautical purposes.
- 0.3 In case of any discrepancy between this specification and any sample or pattern, this specification will be taken as correct.
- 0.4 Enquiries regarding this specification, in relation to any contractual condition, should be addressed to the Inspecting Authority named in the tender or contract. Other enquiries will be referred to Director, ADRDE, Agra Cantt.
- 0.5 Copies of this specification can be obtained on payment from :-

"Aerial Delivery Research & Development Estt.
Post Box No. 51, Station Road, AGRA CANTT - 282001"

or

The concerned Inspecting Authority.

1. **SCOPE**

- 1.1 This specification covers the requirements of undermentioned materials :-

Type I - Cord, Cotton, Braided, Coreless, 355 N, Red
Type II - Cord, Cotton, Braided, Coreless, 390 N, U/D
Type III - Cord, Cotton, Braided, 530 N, Red
Type IV - Cord, Cotton, Braided, 590 N, U/D
Type V - Cord, Cotton, Braided, 1225 N, U/D

30
58, 28
125

h

2. RELATED SPECIFICATIONS

- 2.1 Reference is made in this specification to :-
- 2.1.1 IS : 2 Rules for rounding off numerical values.
- 2.1.2 IS : 1402-1979 Braided Cotton Cord for Aerospace purpose.
APPENDIX 'A' A-2 : Determination of strands in Braid.
A-4 : Determination of Plaits.
- 2.1.3 IS : 1383 Methods for determination of scouring loss in grey and finished cotton textile materials.
- 2.1.4 IS : 2454 Methods for determination of colour fastness of textile materials to artificial light. (xenon lamp)
- 2.1.5 IS : 687 Colour fastness to washing : Test-I.
- 2.1.6 IS : 4905 Methods for random sampling.
- 2.1.7 IS : 1390 Methods for determination of pH value of Aqueous Extracts of Textile Materials (cold method)
- 2.1.8 IS : 7071 Ropes and Cordages - Methods of Physical Tests.
Part - I : General,
Part - II : Determination of Mass, linear density and length
Part - III : Breaking Load and Elongation at Break.
- 2.2 All the specifications/drawings referred to in this specification for any tender or contract shall mean the edition current on the date of such tender or contract.
- 2.3 Indian Standard specifications are issued by the Bureau of Indian Standard Institution and are obtainable on payment from the Sales Section, Bureau of Indian Standard, Manak Bhawan, 9 Bahadur Shah Zafar Marg, New Delhi - 110002 or their regional offices.

hmk

3. MATERIALS

- 3.1 Mercerized 2 fold (untwisted), evenly spun cotton yarn free from leaf particles, neps, snarls and slubs, and of count as specified in contract or order, shall be used in the manufacture of cord.

4. MANUFACTURE

- 4.1 The yarn shall first be suitably twisted and plied to the requirement, given in clause 5 below, under uniform tension. The braiding machine shall be so adjusted that it gives a firm and tight braiding without putting any non-uniform and undue tension on the yarn.

5. DIMENSIONS AND OTHER DETAILS

- 5.1 The Cords shall conform to the essential particulars given in table at Appendix 'A'.
- 5.2 The Cords shall not be more than one year old from the date of manufacture to the date of delivery.

6. WORKMANSHIP AND FINISH

- 6.1 The Cord shall be free from manufacturing flaws. The core and braiding ends shall be free from knots, slubs and stains. There shall be no broken core threads throughout the length of cords Type III, Type IV and Type V. The finished cord shall be free from slackless of sheath, and tendency for core threads to penetrate the sheath when tested in accordance with the method described in Appendix 'D' to IS : 4437.
- 6.2 The Cords shall have uniform diameter with round cross section and shall be smooth to handle. This shall be free from all manufacturing flaws.

Handwritten signature

7. MARKING

7.1 Each hank/ball shall be tied with a cardboard label 75mm x 45 mm, which shall be marked with the contractor's name, trade mark, date of manufacture, length of the hank/ball, D.S. Cat. No. and nomenclature of the store.

8. QUALITY

8.1 Any portion of the samples drawn from a consignment, on examinations, shall show its conformity to the particulars furnished in the Table at Appendix 'A' in addition to the following, when tested in accordance with the standard methods.

<u>Tests</u>	<u>Requirement</u>
i) pH (by cold method)	6 - 8.5
ii) Colour fastness to daylight	Rating - 5
iii) Colour fastness to washing	Rating 4 or better
iv) Slackness of sheath	3 mm (max) displacement of the mark
v) Core looping tendency	No sign of penetration of sheath by the core threads

9. PRE-INSPECTION OF STORES/CONSIGNMENT

9.1 Manufactures/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 thorough pre-inspection of each lot before actually tendering the same for inspection to the Inspecting 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 shall 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.

3
--
ts
--
ar

hch
hch

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

10. SAMPLING

10.1 The manufacturer/supplier shall tender the store duly numbered serially and arranged in such a way that all the units are easily accessible to the Inspector.

10.2 For carrying out full laboratory tests, the hanks/balls selected as in column 2 of the table given below shall constitute the test samples.

10.2.1 The Inspector shall draw samples for full tests from the bulk lot at random using the technique of simple random sampling as given in IS : 4905.

10.2.2 The length of the samples for subjecting to full tests shall be 5 m.

10.3 The remaining hanks/balls of the lot shall be subjected to breaking load test only.

10.3.1 The length of the samples for breaking load test shall be 3 m.

10.4

TABLE

LOT SIZE

No. of Units (In hanks/balls)	Sample size for full tests
Up to 25	5 or lot size, whichever is less.
26 to 50	8
51 to 90	13
91 to 150	20
151 to 280	32
281 to 500	50
501 to 1200	80
1201 and above	125

hmk

10.5 The hanks/balls shall be supplied in continuous length of 500 metre or more. However, shorter length of the hanks/balls as given below may be accepted.

15 % of the lot shall be of length 300 m and above
10 % of the lot shall be of length 200 m and above

11. CRITERIA FOR CONFORMITY

11.1 All the sample units drawn as per cl.10 shall be tested/examined to the relevant specification requirements. If all the sample units are found to conform to the specified particulars as given in the specification, the supply shall be considered to be in conformity, otherwise not.

12. INSPECTION

12.1 If on examination, material from any portion of a consignment is found not conforming fully to the specification, the whole consignment is liable to be rejected.

12.2 If on examination of 20% of any delivery, 20% of those examined are found not conforming to this specification in any respect, then the whole consignment may be rejected.

12.3 All hanks/balls not fully in accordance with this specification shall be rejected.

13. WARRANTY

13.1 The store supplied against this order shall be deemed to bear a warranty of the contractor against defective material, workmanship and finish, for a period of 12 months from the date of receipt of stores at consignee's Depot. If during this period the store supplied are found by the consignee to be defective, the same shall be replaced immediately with store as per this specification by the contractor at site free of any charge or cost.

hmk

14. PACKING

- 14.1 The thread shall be supplied in hanks/balls of continuous length without joints, of 500 m or as required by the procuring authority. Each hank shall be packed in a polythene bag (150 gauge film) to form a unit pack. Appropriate number of unit packs shall be properly arranged in cases wood packing (CWP) provided with the liners waterproof. The empty space, if any, shall be filled-in with cushioning materials to prevent any movement of the contents inside the cases wood packing, and top lid of the case shall be nailed carefully so that the nails do not pierce into the contents of the cases. The gross mass of the CWP shall not exceed 40 Kg. Packing materials used should be of the best trade quality and previously approved by the inspecting officer.
- 14.2 If ordered for delivery to a local Inspection Depot, the Cords shall be delivered loose in firm's returnable packs. After inspection, the accepted supplies shall be packed by Inspection Depot authorities as indicated in para 14.1 above.
- 14.3 Before despatch, each cases wood packing (CWP) shall legibly and indelibly be marked showing the following details :-
- (a) Nomenclature and Cat. Part No. of the store
 - (b) Quantity packed in each CWP
 - (c) Serial Number of the CWP
 - (d) Month and year of packing
 - (e) Name and trade mark of the manufacturer
 - (f) Gross mass of each CWP in Kg.
 - (g) Name and address of the consignee
 - (h) Inspection Note No. and date

15. DEFENCE STORES CATALOGUE NO.

Not yet allotted

huk

16. SUGGESTIONS FOR IMPROVEMENT

16.1 Any suggestion for the improvement of this document shall be forwarded to the Director, Aerial Delivery Research & Development Establishment, Post Box No. 51, Station Road, Agra Cantt - 282001.

[Handwritten Signature]

DIRECTOR
(K.N. Krishnamoorthy)

17/11/72

CTC
[Handwritten initials]

(B. Goman) The Officer in Charge

to DIRECTOR

आर्सेल डिलिवरी रिसर्च अँड डेवेलपमेंट
Aerial Delivery Res. & Dev. Establishment
Post Box No. 51, Station Road, Agra Cantt - 282001

ARRR/specy 192/86

Appendix 'A'

PARTICULARS OF CORD COTTON BRAIDED VARIOUS

Type	ESSENTIAL PARTICULARS		SUGGESTED CONSTRUCTIONAL PARTICULARS						
	Mass per 100 m-gm (max)	Breaking load 'N' (15 cm bet. grips)	Elongation at break-% (max)	No. of Spindles	No. of Ends	Linear density of Yarn 'Tex'	Plaits per dm	No. of Ends	Linear density of Yarn 'Tex'
I	360	355+55 -35	20	16	48	30X2	40	-	-
II	475	390+60 -40	20	16	64	30X2	50	-	-
III	560	530+80 -50	20	16	32	30X2	60	10	30X3X3
IV	600	590+90 -60	20	16	32	30X2	60	11	30X3X3
V	960	1225+185 -120	20	40	40	10X6	90	18	105X3

Note :- The test specimens shall be conditioned for 48 hrs at 27 ± 2°C temperature and 65 ± 2 percent relative humidity, before testing.

Handwritten signature
(B. Gannay) Tech. Officer A.

TO THE DIRECTOR
Central Bureau of Sericulture
P. O. No. 87, Bangalore 2, India