

4

SPECN NO. ADRDE/SPECN/~~1986~~/<sup>1987/31</sup>.....

~~1986~~  
1987

GOVERNMENT OF INDIA  
MINISTRY OF DEFENCE

SPECIFICATION  
FOR  
CORD NYLON BRAIDED 345 NEWTONS CORELESS  
FOR  
AMMUNITION PARACHUTES

ISSUED BY

DIRECTOR

AERIAL DELIVERY RESEARCH AND DEVELOPMENT ESTT.

MINISTRY OF DEFENCE

POST BOX NO.-51, STATION ROAD

AGRA CANTT- 282001

1987 | 3 |  
ADRDE/SPECN/.....

RECORD OF AMENDMENTS

Amendment No.	Sub-heading to which amendment pertains.	Authority	Incorporated by (Name and Rank in Block letters)	Initials
------------------	--	-----------	--	----------

CONTENTS

<u>S.No.</u>	<u>CONTENT</u>	<u>Page No.</u>
0.	FOREWORD	4
1.	SCOPE	4
2.	RELATED SPECIFICATIONS	4
3.	MATERIAL	4
4.	MANUFACTURE	5
5.	DIMENSIONS AND OTHER DETAILS	5
6.	WORKMANSHIP AND FINISH	5
7.	MARKING	5
8.	QUALITY	5
9.	PRE-INSPECTION OF STORE/CONSIGNMENT	6
10.	SAMPLING	6
11.	CRITERIA FOR CONFORMITY	7
12.	INSPECTION	7
13.	WARRANTI	7
14.	PACKAGING	7
15.	DEFENCE STORES CATALOGUE NUMBER	8
16.	SUGGESTIONS FOR IMPROVEMENT	8
17.	TABLE 'APPENDIX'A'.	

: 4 :

0. FOREWORD :

0.1 This specification has been prepared by a special committee at ADRDE, Agra Cantt. *and approved by Director, ADRDE, Agra Cantt.*

0.2 This specification would be used for manufacture, inspection and procurement of cord nylon braided 345 Newtons against defence requirement.

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 Conditions, should be addressed to the Inspecting Authority named in the tender or contract. Other enquiries will be referred to the issuing authority viz. Director, ADRDE. Agra Cantt.

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

The Director  
Aerial Delivery Research & Development Estt.  
P. Box No. -51, Station Road,  
AGRA CANTT- 282001

OR

The concerned inspecting authority.

1. SCOPE :

1.1 This specification covers the requirements of coreless cord nylon braided 345 Newtons Breaking load undyed used as rigging lines in *illuminating* parachutes.

2. RELATED SPECIFICATIONS :

2.1 Reference is made in this specification to :-

(i) IS : 1390 : Method for determination of PH value of aqueous extract of textile materials.

(ii) IS : 4437 : Nylon Breaking cords for personnel parachutes.

2.2 All specifications referred to in this specification for any tender or contract shall mean the current edition of that specification on the date of such tender or contract.

2.3 Indian standards specifications are obtainable on payment from the sales section, Indian Standards Institution Manak Bhawan, 9, Bahadurshah Zafar Marg, New Delhi-110002 or their regional offices.

3. MATERIAL :-

3.1 The Nylon yarn used in the manufacture of the cord shall be of 23 tex (210 denier) bright high tenacity multi-filament type 66 or 6 .

: 5 :

4. MANUFACTURE :

- 4.1 The yarn shall first be suitably twisted and doubled to the requirement given in clause 5 below under uniform tension. The braiding machine shall be so adjusted that it gives a firm & light braiding without putting any non-uniform and undue tension on the yarns.
- 4.2 The cordage shall essentially be smooth to handle and shall have uniform diameter throughout the round section.
- 4.3 The cords shall not be more than one year old from the date of manufacture to the date of delivery.

5. DIMENSIONS & OTHER DETAILS.

- 5.1 The cord shall conform essentially to the particulars given in the table (Appendix 'A').

6. WORKMANSHIP AND FINISH:

- 6.1 The cord shall be free from manufacturing flaws. The braiding ends shall be free from knots, slubs and stains. There shall be no broken threads throughout the length of the cord.

7. MARKING :

- 7.1 Each hank/ball shall be tied with a cord-board label 75mm X 40mm which shall be marked with the contractor's name, Trade mark, date of manufacture, length of the hank/ball cat No. and nomenclature of the store.

8. QUALITY

- 8.1 Any portion of the samples drawn from a consignment, on examination, shall show its conformity to the following particulars when tested in accordance with the methods described against each :-

TESTS :8.2 Breaking Load Test:

When tested in accordance with the method laid down in IS specification IS: 4437, the breaking load of any test specimen shall not be less than the minimum shown in the table. ~~xxxxxxx~~ (Appendix 'A')

8.3 Plaits Per Centimeter :-

When tested in accordance with the method laid down in IS specification IS: 4437 plaits per Cm shall not be less than that shown in the table (Appendix 'A').

8.4 Length Per Kg.:

When tested in accordance with the method laid down in IS specification IS:4437, length per Kg. shall not be beyond the limits shown in the table (Appendix 'A').

: 6 :

8.5 PH Value :

PH value of aqueous extract should be 6 to 8.5 when tested as per IS specification . IS : 1390 ( cold method).

8.6 Elongation at Break ( Percentage ) :-

When tested in accordance with the method laid down in IS specification IS : 4437, elongation at break ( percentage ) shall not be less than that shown in the table (appendix 'A) .

9. PRE-INSPECTION OF STORES/CONSIGNMENT :-

Before tendering the store to Govt. Inspection the supplier shall carryout 100% inspection of ~~each~~ each and every hank/ball to satisfy himself that the store fully conforms to the specification in all respects.

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 BS tests, samples from every roll offered shall be ~~drawn~~ drawn .

10.3 For carrying out fully laboratory tests, the rolls selected as in col-2 of the table given below shall constitute the test sample.

10.4 The length of the samples for subjecting to full laboratory tests shall be 5 meters and that for B.S. test shall be 3 metres.

10.5 The hanks/balls shall be supplied in continuous length of 500mtrs or above ( without joints). However, shorter length of the hank as given below may be accepted.

- 75% of the lot shall be of length 500 mts and above.
- 15% of the ~~ex~~ lot shall be of length 300mts and above.
- 10% of the lot shall be of length 200mtrs and above.

TABLE

<u>Lot Size</u>	<u>No. of units (in hanks/rolls)</u>	<u>Sample size for full tests</u>
	(1)	(2)
Upto 25		5
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 to 3200		125

@ <sup>or</sup> lot size whichever is less.

11. CRITERIA FOR CONFORMITY :

All the samples drawn as per clause 10 above 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 table (Appendix 'A') 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 :- The store supplied against the order shall be deemed to bear a warranty of the contractor against defective material, workmanship and performance for a period of 12 months from the date of receipt of stores at consignee's depot. If during this period the store supplied is 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.

14. PACKAGING:

14.1 Cordage Nylon Braided coreless 345 newton shall be supplied in hanks/balls of continuous length without joints, of 500 mtrs or as required by the procuring authority. Each hank/ball shall be packed in a polythene bag (150 gauge film) to form a unit pack. The appropriate number of unit packs shall be properly arranged in cases wood packing (CWP) provided with liners waterproof. The empty spaces 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 cases shall be nailed carefully so that the nails do not pierce into the contents of the cases. The gross mass of the package 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 cordage shall be delivered loose in firms returnable packs. After inspection the accepted supplies shall be packed by the inspection depot authorities as indicated in para 14.1 above.

: 8 :

14.3 Before despatch each CWP shall legibly and indelibly be marked showing the following details :-

- (a) Nomenclature and cat No. of the stores.
- (b) Quantity packed in each CWP.
- (c) Serial Number of CWP.
- (d) Month and year of packing.
- (e) Name and trade mark of the manufacturer.
- (f) Gross mass of CWP in Kg.\*
- (g) Name and address of consignee.
- (h) Inspection Note No. and date.

15. Defence Stores Catalogue No.

Not yet allotted.

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.

Sated 24<sup>th</sup> May 98

*Chakrabarti*  
*Chakrabarti*  
 Technical Officer  
 (M.K. Chakrabarti)  
 for Director

हवाई विभाग, अग्रा कान्ठ  
 Aerial Delivery Research & Development Establishment  
 आगरा कान्ठ/AGRA CANTT 282001



:09:

TABLE

ADDE/SPECN/ 1987 31

PARTICULARS OF CORD NYLON BRAIDED CORLESS 345 NEWTONS

S.No.	Nomenclature	Number of spindles	Total number of Yarns	yarn Count	Plaits per Centimeter	Length per Kg (Mtrs)	Breaking load (15 cms between grips) Newtons (Min)	Material	Percent elongation at Break % (Min)
1.	Cord Nylon Braided Corless 345 Newtons Corless	16	32	23 Tex	9 ± 1	1150±50	345 35 kg	Nylon 66 or Nylon 6	20%