

TC-5
GOVERNMENT OF INDIA
(MINISTRY OF DEFENCE)

PROVISIONAL SPECIFICATION
NO. DMSRDE/T&GS/88/349(b)

SPECIFICATION

FOR

CLIMBING ROPE NYLON, GLACIER REGION

CAT PART No. A3/4020-001860

1. THIS SPECIFICATION CONSISTS OF FIVE PAGES.
 2. THIS SPECIFICATION IS INTENDED TO GUIDE PURCHASE, INSPECTION AND MANUFACTURE OF CLIMBING ROPE NYLON, GLACIER REGION AGAINST DEFENCE REQUIREMENT.
 3. THIS SPECIFICATION OR ANY OTHER INFORMATION ISSUED IN CONNECTION THERE WITH SHALL ONLY BE USED FOR SPECIFIC ORDER PLACED BY A COMPETENT AUTHORITY. IT IS NOT TO BE USED FOR ANY OTHER PURPOSE ~~WHAT~~ SO EVER WITHOUT THE EXPRESS WRITTEN SANCTION OF APPROPRIATE AUTHORITY.
 4. ALL CLAUSES IN THIS SPECIFICATION SHALL BE COMPLIED WITHIN EVERY RESPECT IRRESPECTIVE OF THE SOURCE OF SUPPLY OF THE MATERIAL.
 5. IN CASE OF ANY DISCREPANCY BETWEEN THIS SPECIFICATION AND SAMPLE LOANED FOR ANY PURPOSE, THIS SPECIFICATION ALONGWITH OTHER CONNECTED SPECIFICATION SHALL BE TAKEN AS CORRECT AT THE TIME OF FINALISATION OF A CONTRACT.
 6. WHEREVER A REFERENCE TO ANY OTHER SPECIFICATION OCCURS IN THIS SPECIFICATION, IT SHALL BE TAKEN AS A REFERENCE TO THE LATEST VERSION OF THAT SPECIFICATION EXISTING AT TIME OF FINALISATION OF A CONTRACT.
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ISSUED BY
THE DIRECTOR
DEFENCE MATERIALS AND STORES
RESEARCH & DEVELOPMENT ESTABLISHMENT
DMSRDE PO
G.T. ROAD, KANPUR - 208013

B. S. B. B.

SCOPE

This specification covers the requirement of Climbing Rope Nylon Glacier Region. The rope is intended to be used as an aid in climbing difficult cliffs/steep slopes in glacier region.

RELATED SPECIFICATION & AVAILABILITY

The following are the related specifications:

- | | | |
|-------|----------|--|
| 2.1.1 | IS:687 | - Method for determination of colour fastness of textile materials to washing test No. 1 |
| 2.1.2 | IS:2454 | - Method for determination of colour fastness of textile materials to artificial light |
| 2.1.3 | IS: 6590 | - Braided nylon rope for mountaineering purpose |
| 2.1.4 | IS:1397 | - Kraft Paper |
| 2.1.5 | IS:1912 | - Cotton Yarn Twine |
| 2.1.6 | IS:3751 | - Heavy 'C' Cloth |
| 2.1.7 | IS:2508 | - Low Density Polyethylene Film |

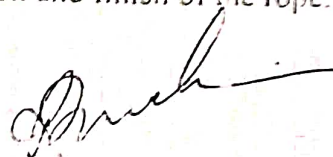
Indian standard specifications are obtainable on payment from the Secretary (Administration), BIS Manak Bhawan 9, Bahadur Shah Zafar Marg, New Delhi or from their regional or branch offices.

SEALED SAMPLE

The climbing rope shall conform in every respect to the terms of this specification. In workmanship, finish and in all other respects not defined in this specification, it shall conform to the sealed sample held in the custody of controlling authority.

MATERIALS

The rope shall be made from continuous 140 Tex (1260 d) high tenacity nylon 6 or 66 multi-filament yarn and be given heat treatment. The required breaking strength of the rope may be achieved by use of nylon yarn having tenacity 63 g/tex (7 g/d). Count/denier of the yarn can be varied suiting to the construction and finish of the rope.



SECRET
S. 11

5. MANUFACTURE, WORKMANSHIP & FINISH

- 5.1 The rope shall be manufactured with braided sheath and twisted core. The core and the braiding shall be well formed and free from knots, slubs or stains. All constituent yarns of rope shall have proper tension during manufacture so as to obtain uniform diameter with round cross section and appropriate flexibility. Core shall not be in braided construction.
- 5.2 There shall be 12 undyed core ends and 24 spindles in sheath. Out of 24 spindles, 12 spindles shall be of fast bright yellow colour, 11 spindles of fast bright scarlet colour and one spindle of fast bright blue colour. Inter plaiting in sheath should be maintained in order of 1 scarlet and 1 yellow spindle alternatively. Like wise 23 spindles should be maintained and 24th spindle should be of blue colour to obtain the required pattern of braiding. Rope shall be smooth in feel and free from slackness of sheath and core looping tendency.
- 5.3 The rope shall be tendered in 49 m of continuous length. A length of 4 m from either end shall be cut and tested for characteristics given in clause 6 and 7 below. After examination of ropes which are strictly conforming to the required particulars shall be heat sealed.
- 5.4 In appearance, general workmanship, finish and in any other respects not defined in this specification, the rope shall match with the respective sealed sample held in the custody of Controlling Authority.

6. CONSTRUCTION PARTICULARS

- 6.1 The construction particulars of the rope shall be as under:-

i) Sheath

- | | |
|-------------------|--|
| a) No of spindles | - 24 (Yellow-12)
(Scarlet-11)
(Blue-1) |
| b) Count (Denier) | - 1260x4 |

ii) Core

- | | |
|--------------------|---|
| a) No of core ends | - 12 |
| b) Count (Denier) | - 1260 x 2 x 10 (Twisted together having |
| | i) No of strands in each core end-2 |
| | ii) No of Yarns in each strand -10
of core |
| | iii) Turns/dm - 15 (Min.) |

- 6.2 ✓ The construction details of the rope may be varied to suit the manufacturing conditions provided the finish and requirements as given in clause 7 are successfully met.

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TESTS

7.1 The rope shall satisfy the following tests:-

<u>Characteristics</u>	<u>Requirements</u>	<u>Method of Tests</u>
i) Length (m)	45±0.5 (see clause 5.3)	Clause A6 of IS:6590
ii) Diameter (mm)	10±0.5	Clause A4 of IS:6590
iii) Linear Density (mass/meter)(g)	60±5	Clause A3 of IS:6590
iv) Breaking Strength (N)	20000 - 10%	Clause A5 of IS:6590
v) Elongation at 20% (Approx) breaking load (%)	11±5	Clause A 5 of IS:6590
vi) Flexibility (Angle of sag). Deg	30 to 50	A7 of IS:6590
vii) Dye Fastness		
a) To washing	Rating 4 or better	IS:687
b) To light	Rating 5 or better	IS:2454

7.1.1 None of the breaks shall be deficient by more than 10% from that specified.

8. MARKING

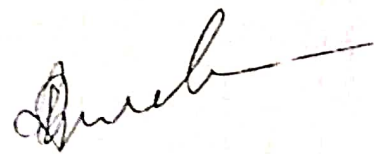
8.1 Each rope if found acceptable on inspection, shall be attached with a white cloth label marked with the supplier's name, initials or recognised trade mark, year of manufacture, nomenclature and catalogue number of the store using suitable ink duly approved by the Inspector with not less than 3 mm character.

9. PRE-INSPECTION

9.1 Before tendering the store to the Government Inspector, the supplier will carry out a thorough check/pre-inspection of each delivery to satisfy himself that the stores fully conform to this specification.

10. INSPECTION

10.1 The entire lot tendered by the supplier shall be examined 100 percent for visual examination i.e. knots, slubs, stains, slackness of sheath and core looping tendency. Ropes shall also be tested 100% for particulars given in clause 7. All ropes not strictly conforming to the specified particulars shall be rejected.



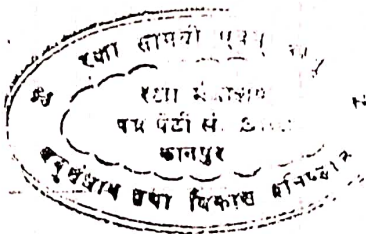
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H. PACKING

- 11.1 Each rope shall be neatly coiled and tied suitably with Twine jute 3 ply (conforming to IS:1912) and kept inside a bag of Polythene Film 0.04 mm(150 gauge) conforming to IS:2508. Ten such ropes shall then be wrapped with an inner layer of kraft paper (conforming to IS:1297) and an outer layer of Cloth 'C' Heavy (conforming to IS:3751) or an equivalent hessian cloth previously approved by the Inspector to form a bale. The bales shall be properly and securely stitched with a double Jute Twine 3 ply with not less than 5 stitches per dm taking care not to pierce the inner wrappings during stitching. Sufficient hessian cloth shall be pulled out at each corner to form "ears" of about 15 cm in length.
- 11.2 If ordered for delivery to a local Inspection Depot, the store shall be delivered loose in firm's returnable packs. After inspection, the accepted supplies shall be packed by the inspection Depot Authorities as described in para 11.1 above.
- 11.3 Before despatch each bale shall be marked by stencil showing the following details.
- I) Nomenclature and Cat. No. of the store.
 - II) Quantity packed in the bale
 - III) Lot and serial No. of bale
 - IV) Month and year of packing
 - V) Name and trade mark of the manufacturer
 - VI) Gross weight of the bale in Kg
 - VII) Name and address of the consignee
 - VIII) Inspection Note No. and date
 - IX) A/T/Extract No. and date

12. WARRANTY CLAUSE

- 12.1 The store supplied against any order shall be deemed to bear a warranty of the supplier against defective materials, workmanship and performance for a period of one year from the date of receipt of stores at consignee's end. If during this period, the stores supplied are found by the consignee to be so defective the same shall be replaced immediately with serviceable stores without any charges or cost.



Station : KANPUR

Dated: 05/12/2001

(Brahma Nand)
for DIRECTOR
DEFENCE MATERIALS & STORES
RESEARCH & DEVELOPMENT ESTABLISHMENT
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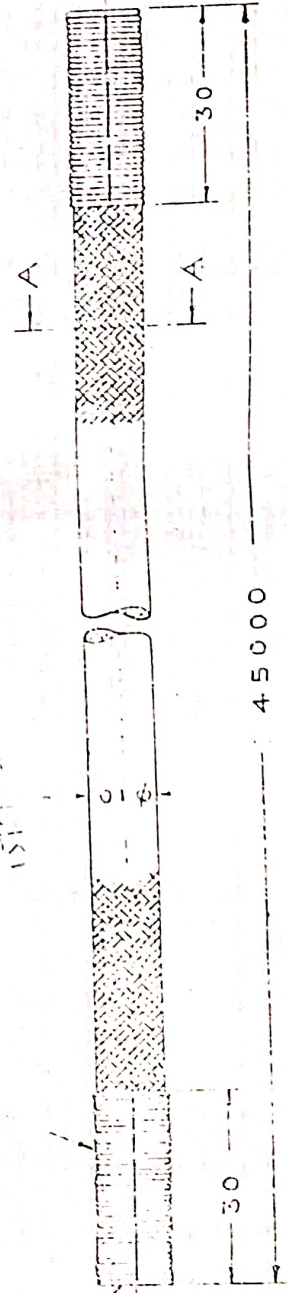
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CLIMBING ROPE IN ALPINE GLACIER REGION

EACH END HEAT SEALED TO PREVENT FRAYING

WHIPPED WITH NYLON YARN AND HAND STITCHING AT ENDS



SECTION A-A

12-CORE



12-YELLOW
11-SCARLET
01-BLUE

SCALE - DIMENSIONS IN MILLIMETRES