

PURPOSE

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SPECIFICATION FOR MANUFACTURE AND TESTING OF FIBRE
GLASS SLEEVE USED IN MANUFACTURE OF PARACHUTES
FOR 105 mm IFG ILLUMINATING AMMUNITIONB) SIZE

- (i) Nominal bore of 5 or 6 mm with tolerance of $+ 0.4$
 $- 0.0$ mm
- (ii) Nominal wall thickness 0.3 mm with tolerance in thickness
 $\pm .025$ mm.
- (iii) Sleeve should be manufactured for low Alkali glass fibre yarn and be reasonably free from yarn and weaving defects. Sleeve should also be free from oil, grease, wrinkles, stains, other contaminations, distortions etc.

MATERIAL

Glass fibre used in the manufacture of sleeve should be of Aluminium boro Silicate composition with a guaranteed content of Alkali metal oxides not exceeding 0.5% and with glass content 95% minimum.

(D) PROPERTIES

Bore Size	:	5 or 6
Yarn count	:	150 $\frac{1}{2}$
No. of ends	:	2
No. of plaits per cm	:	15 \pm 3
Breaking strength (min) Kgf	:	65

(E) TEST METHODS(i) Thickness

The wall thickness of the un-varnished glass sleeve will be measured by means of bench type micrometer with a disc of 12.5 mm and specific pressure of 1.25 Kg., by flattening the sleeve. The observations will be taken at 5 points uniformly placed over the length of 1 Meter with an accuracy of 0.005 mm. Mean of these observations will be taken as double the wall thickness of the sleeve. The wrinkles should be avoided and the micrometer disc should uniformly press the sleeve, during measurement.

ii) Bore Diameter

The bore diameter will be measured by inserting mandrels of standard sizes. The mandrels used shall differ in dia from each other by 0.2 mm and shall have a tolerance of ± 0.02 mm.

(iii) Yarn Count and Number of Ends

For determination of yarn-count, the yarn shall be compared with standard yarn supplied by M/s Fibre Glass Pilkington. The number of ends shall be determined.

(iv) Breaking Strength

The breaking strength is determined on tensile testing machine of 1% accuracy within the test range. The rate of movement of lower grip is fixed at 150 ± 50 mm/min.

(v) The length of sleeve between the grips is set at 200 mm. In case of premature rupture inside the grips, the specimen is prepared and tested in the special manner described in clause (vi).

(vi) Prepare from the unvarnished glass braided sleeve a ring specimen of perimeter 300 mm, by joining the two ends of glass braided sleeve by twisting together and binding the joint suitably by cotton cord and impregnating it, if necessary. Test the specimen, keeping the rate of movement of lower grip as stated in clause (iv), on special grips, intended for the tensile testing of ring specimens of rubber (See IS:3400 (Part-I) - 1965).

(vii) Arithmetic mean of breaking loads of 5 specimens, ruptured outside the grips/joint, shall be taken as the breaking load of unvarnished glass braided sleeve. It is allowed to report the breaking load as " $>$ obtained Value" in case of rupture inside the grip, when thus obtained value is more than specified value given here.

(viii) Glass Content

Drive out lubricant at $400-450^{\circ}\text{C}$ for atleast 30 min. and determine the glass content on volatile free basis by beforehand drying the specimen at $100-110^{\circ}\text{C}$. Take mean of atleast 2 readings.

SAMPLE FOR TESTING

The supplier shall furnish a sample, atleast 4 metre in length of size ordered at the time of enquiry. The sample shall be manufactured in a similar manner as that of the material to be supplied.

The package containing the sample should be marked with the following information :

- (a) Sample reference
- (b) Sample description with reference to this Specn No.
- (c) Enquiry No.
- (d) Bore dia
- (e) Length of sample.

INSPECTION AND CERTIFICATE OF GUARANTEE

All the facilities shall be afforded to the customer to witness the testing of the material for its quality conforming to this specification at the manufacturer's works. The supplier shall furnish a guarantee to the effect that the material is as per this specification alongwith each consignment.

(H) PACKING & MARKING

Unvarnished glass sleeve shall be packed in rolls on a wooden shaft having side walls and roll shall be properly wrapped in water proof paper and finally packed in wooden cases; the minimum length of sleeve shall be specified in the purchase order.

Each package shall have the following information marked on it, with indelible ink :-

- (a) Name and address of the supplier.
- (b) Purchase order No.
- (c) Description of the material.
- (d) Thickness of the wall.
- (e) Size of roll i.e. length & bore dia of sleeve.
- (f) Nett and gross weight in Kg.
- (g) Date of manufacture.
- (h) Number of the lot.
- (j) Test Certificate No.

(J) REJECTION

AHSP or his authorised Inspector reserves the right to reject any material NOT conforming to this specification. The supplier shall replace any material free of cost if found defective and NOT conforming to this specification within the period of guarantee.

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