

भारतीय मानक

वस्त्रादि – व्यक्तिगत वेब उपकरणों के लिए कॉटन वेबिंग – विशिष्टि
(चौथा पुनरीक्षण)

Indian Standard

**TEXTILES — COTTON WEBBING FOR PERSONAL WEB EQUIPMENT —
SPECIFICATION**
(Fourth Revision)

ICS 59.060.10

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भारतीय मानक ब्यूरो

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Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee, TXD 39

FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Technical Textiles for Clothtech Applications including Narrow Fabrics and Braids Sectional Committee had been approved by the Textile Division Council.

This standard was first published in 1972 and subsequently revised in 1975, 1987 and 1999. The current revision has been made in the light of experience gained since its publication and to incorporate the following major changes:

- a) Title of the standard has been modified.
- b) BIS certification marking clause has been modified; and
- c) References to Indian Standard given in Annex A has been updated.

The composition of the Committee responsible for the formulation of this standard is given in Annex C

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

TEXTILES — COTTON WEBBING FOR PERSONAL WEB EQUIPMENT —
SPECIFICATION
(*Fourth Revision*)

1 SCOPE

This standard prescribes the constructional particulars and other requirements of various types of cotton webbing. The standard covers webbing used in the manufacture of personal web equipment, carrier manpack, waterproof capes, snow shoes, map cases, holdalls, ammunition carriers, and stretcher bags, etc.

2 REFERENCES

The Indian Standards listed at Annex A contain provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards.

3 MANUFACTURE

3.1 Yarns

The yarns used for manufacture of webbing shall conform to IS 171. The yarn shall be bleached or dyed as required and given a moisture resistant finish by a suitable treatment. Direct dyes shall not be used in dyeing.

3.2 Webbing

The webbing shall be uniformly woven and reasonably free from weaving and finishing defects. The selvages shall be firm and straight. Webbing may be grey (undyed) or dyed. The dyed webbing shall have a uniform depth of shade. Sulphur dyes shall not be used.

3.2.1 The webbing may be woven on needle looms if agreed to between the buyer and the manufacturer. However, selvages of the needle loom woven webbings shall be made secure using one of the systems given in Fig.1.

4 REQUIREMENTS

4.1 The webbing shall conform to the physical requirements specified in Tables 1 to 3.

4.2 The webbing shall also conform to the chemical requirements specified in Table 4.

5 PACKAGING

The webbing shall be delivered in clean and dry condition. It shall be made into rolls of 25 m length each or multiples thereof and supplied without joints. A 5 percent variation is, however, permissible in roll length. Lengths below specified lengths shall be classified as short lengths. Thirty percent of a consignment may be made up of rolls containing a maximum of 3 joints subject to individual piece lengths not being less than 5 m.

6 MARKING

6.1 Each roll of webbing shall be legibly marked with the following information:

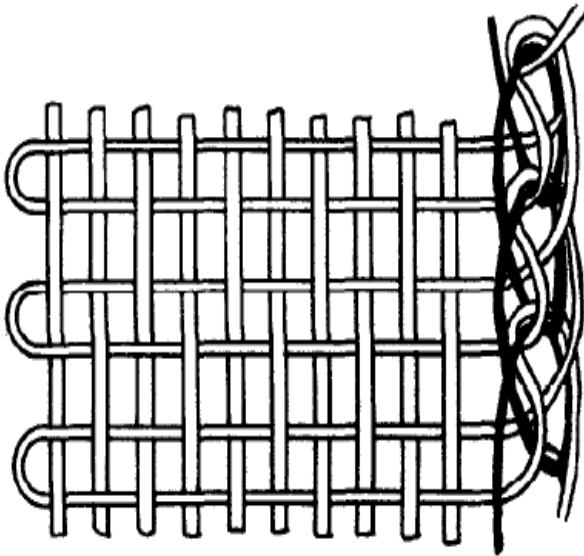
- a) Name of the material,
- b) Width in millimetres,
- c) Length, in metres,
- d) Month and year of manufacture,
- e) Manufacturer's name, initials or trade-mark; if any; and
- f) Any other information as required by the law in force.

6.2 BIS Certification Marking

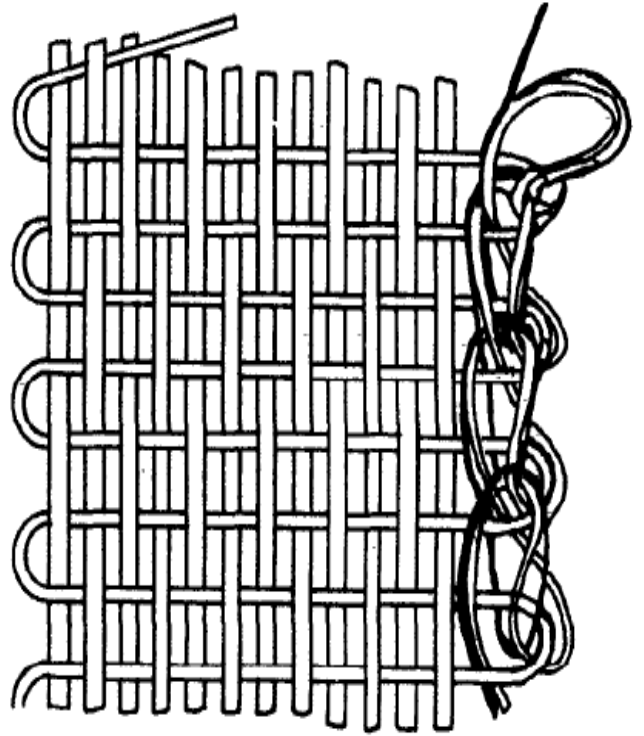
The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

7 PACKING

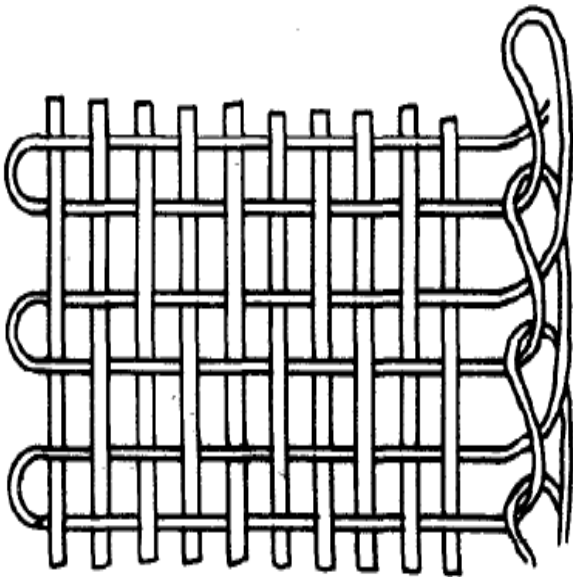
Unless otherwise agreed between the buyer and the seller, a suitable number of rolls shall be arranged in the form of cylindrical bundles and shall be secured by twine to form a pack. A suitable number of such packs shall be arranged and wrapped with polyethylene film (*see IS 2508*). The wrapped bundles shall be placed on a layer of heavy tee cloth or some other equivalent hessian cloth to form a rectangular bale having an approximate gross mass of 37 kg. The bale shall be properly stitched and provided with ears at the corners for ease in lifting.



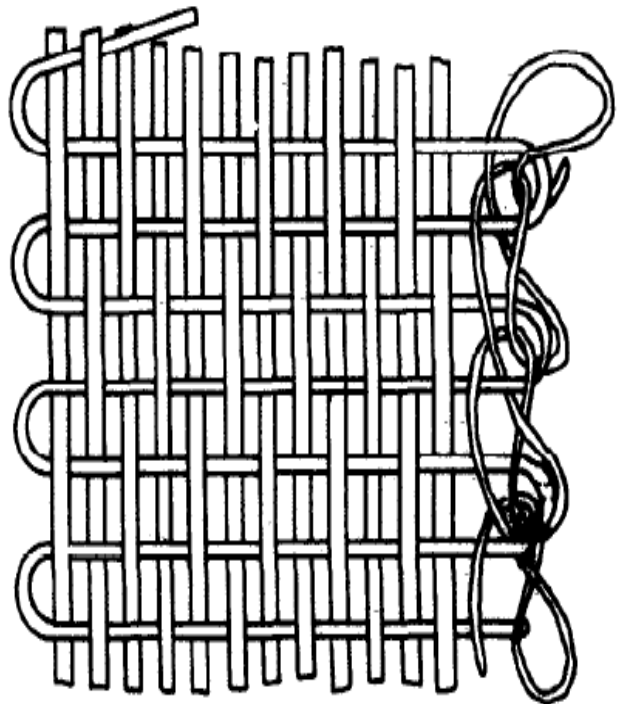
System 1



System 2



System 3



System 4

8 SAMPLING AND CRITERIA FOR CONFORMITY

8.1 Unless otherwise agreed, the number of rolls to be selected at random shall be as given in Table 5.

8.2 Criteria for Conformity

The lot shall be considered as conforming to the requirements of the standard if the following

Table 1 Physical Requirements of Cotton Thick and Thin Webbing
(Clauses 4.1 and B-1.1)

Sl No.	Width	Nominal Count of Yarn		Ends (Full Width)		Picks/cm		Mass g/m		Breaking Load on Full Width × 20 cm Between Grips N		Weave	
		Warp	Weft	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin	Thick	Thin
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
i)	13±1.0	60 tex × 5 (or 10 ⁵ /5)		46	22	12	6	21	10	1060	570	Double Plain/ Double oxford	Plain/ oxford
ii)	19±1.5			64	33			32	15	1490	860		
iii)	25±1.5			88	44			41	20	2060	1100		
iv)	32±1.5			110	—			50	—	2570	—		
v)	38±2.0			130	66			62	30	3020	1670		
vi)	44±2.0			—	77			—	35	—	1960		
vii)	51±2.0			196	88			90	40	4560	2210		
viii)	57±2.0			202	100			99	45	4720	2490		
ix)	63±2.0			222	110			105	50	5190	2900		
x)	70±2.0			264	122			122	55	6150	3050		
xi)	76±3.0			318	134			146	60	7430	3310		
xii)	82±3.0			328	144			152	65	7640	3540		
xiii)	89±3.0			340	158			158	70	7940	3970		
xiv)	95±3.0			—	167			—	75	—	4170		
xv)	102±30			—	176			—	80	—	4410		
xvi)	108±30			404	—			186	—	9410	—		
xvii)	114±30			450	—			192	—	10480	—		
Tolerances	—	—	—	±5		±5		±10		±10		—	—
Method of Test	—	IS 1954		IS 1963				IS 1964		IS 1969		Visual	

Table 2 Physical Requirements of Extra-Wide Thin Webbing
(Clauses 4.1 and B-1.1)

Sl No.	Width (mm)	Nominal Count of Yarn		Ends/cm	Picks/cm	Mass (g/m)	Breaking Load on Full Width × 20 cm Between Grips N		Weave
		Warp	Weft				Warp	Weft	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	115±3.0	60 tex × 5 (or 10 ³ /5)	18	6	88	2210	—	Plain/ Oxford	
ii)	120±3.0				93		—		
iii)	127±3.0				98		—		
iv)	130±3.0				101		—		
v)	135±3.0				106		—		
vi)	140±3.0				110		—		
vii)	145±3.0				116	—			
viii)	290±4.0				235	690			
ix)	300±4.0				240				
x)	320±4.0				253				
xi)	325±4.0				257				
xii)	345±4.0				270				
xiii)	710±6.0				560				
xiv)	915±6.0				720				
Tolerances	—	—	±5	±5	±10		±10	±10	—
Method of test	—	IS 1954	IS 1963	IS 1964	IS 1969	Visual			

Table 3 Physical Requirements of Coarse Cotton Webbing and Cotton Webbing for Ammunition Carriers and Other Similar — Purposes
(Clause 4.1)

Sl No.	Width mm	Nominal Count of Yarn		Ends in Full Width Min	Picks/dm Min	Mass g/m ² Max	Breaking Load on Full Width × 20 cm Between Grips N (see Note 1)	Weave
		Warp	Weft					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>a) Particulars of Coarse Cotton Webbing (see Notes 2.3 and 4):</i>								
i)	25±1.5	59 tex × 5 (or 10 ^s /5)	108 tex × 2 (or 5.5 ^s /2)	72	28	49	1990	Plain
ii)	38±1.5			108		73	2980	
iii)	44±1.5			126		85	3480	
iv)	50±3.0			144		98	3980	
v)	63±3.0			180		122	4980	
vi)	75±3.0			216		146	5970	
vii)	100±3.0			288		196	7960	
viii)	125±3.0			360		244	9970	
<i>b) Particulars of Cotton Webbing for Ammunition Carriers and Other Similar Purposes</i>								
i)	25 ⁺² ₋₀	59 tex (10 ^s)	59 tex (10 ^s)	120	180	11	900	Plain
Method of test	—	IS 1954		IS 1963		IS 1964	IS 1969	Visual
NOTES 1 1 N is approximately equal to 0. 1 kgf. 2 Nominal thickness for coarse cotton webbing is 4 mm, Min. 3 For needleloom woven webbings approximate count of weft yarn shall be two times finer than the specified. 4 For needleloom woven webbings, number of pick per dm shall be 56 minimum since two threads work as one.								

Table 4 Other Requirements of Cotton Webbing
(Clause 4.2)

SI No.	Characteristic(s)	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Colour fastness: a) Light	3 or better	IS/ISO 105-B02
	b) Washing: i) Change in colour ii) Standing of adjacent fabric	3 or better 3 or better	IS/ISO 105-C10
ii)	pH value	5.0 to 9.0	IS 1390
iii)	Water absorption, percent, <i>Max</i>	50	Annex B
iv)	Scouring loss, percent, <i>Max</i>		IS 1383
	a) Grey b) Dyed	5 2	

Table 5 Sampling
(Clauses 8.1 and 8.2)

SI No.	No. of Rolls in the Lot	Sample Size	Permissible Number of Defective Rolls	Sub-Sample Size
(1)	(2)	(3)	(4)	(5)
i)	Up to 100	8	0	3
ii)	101 to 300	13	1	4
iii)	301 to 500	20	2	5
iv)	501 to 1000	32	3	7
v)	1001 and above	50	5	10

ANNEX A
(Clause 2)

LIST OF REFERRED INDIAN STANDARDS

<i>IS No.</i>	<i>Title</i>
IS 171: 1993	Textiles — Ring spun grey cotton yarn for weaving — Specification (<i>Fourth Revision</i>)
IS 1383: 2023	Methods for determination of scouring loss in grey and finished cotton textile materials (<i>Second Revision</i>)
IS 1390: 2022	Textiles — Determination of ph of aqueous extract (<i>third revision</i>)
IS 1954: 2024	Textiles — Fabrics — Determination of width and length (<i>Third Revision</i>)
IS 1963: 1981	Methods for determination of threads per unit length in woven fabrics (<i>second revision</i>)
IS 1964: 2001	Textiles — Methods for determination of mass per unit length and mass per unit area of fabrics (<i>Second Revision</i>)
IS 1969 (Part 1) : 2018	Textiles —Tensile properties of fabrics —Part 1 Determination of maximum force and elongation at maximum force using the strip method (<i>Fourth Revision</i>)
IS 2508: 2016	Polyethylene films and sheets — Specification (<i>Third Revision</i>)
IS/ISO 105-C10 : 2006	Textiles — Tests for colour fastness — Part C10 : Colour fastness to washing with soap or soap and soda
IS/ISO 105-B02 : 2014	Textiles — Tests for colour fastness — Part B02 : Colour fastness to artificial light: Xenon arc fading lamp test

ANNEX B
[Table 4, SI No. (iii)]

METHOD FOR DETERMINATION OF WATER ABSORPTION OF WEBBING

B-1 TEST SPECIMENS

B-1.1 For the purpose of the test, cut pieces of webbings from all the test samples with the following dimensions:

- a) Length 10 cm
- b) Width Full width in the case of webbings covered in Table 1, and 6 cm frayed down to 5 cm in the case of webbings covered in Table 2.

B-2 EQUIPMENT

B-2.1 An apparatus as illustrated in Fig. 2 consisting of the following:

- a) A water tank (made of non-corrosive materials) having a dimension of approximately 40 cm × 20 cm × 20 cm or any other suitable size.
- b) A steel roller of approximately 7.5 cm diameter weighing about 18 kg.
- c) A vulcanized rubber pad of approximately 30 cm × 30 cm × 1.5 cm.
- d) Blotting paper having a thickness of 0.2 to 0.25 mm and a weight of 120 to 150 g/m². The blotting paper should be capable of absorbing 0.3 ml of water in 30 seconds
- e) A metallic sinker, preferably a rod, of approximately 1 cm diameter and 35 cm length.
- f) Wire hooks.

B-3 PROCEDURE

B-3.1 Rig up the equipment as illustrated in Fig. 2. Take 5 test specimens previously conditioned in an atmosphere of (65 ± 2) percent relative humidity and (27 ± 2) °C temperature for a period of 48 hours. Weigh these test specimens together to the nearest 1 g. This weight shall be W_1 .

B-3.2 Attach a wire hook to one end of each specimen and a length of thread to the other end as illustrated in Fig. 2. Keep the specimen immersed in the distilled water contained in the tank for 30 minutes at (27 ± 2) °C after attaching the metallic sinker to the hooks so that the specimens remain immersed in the vertical position as showing in Fig. 2. The ends of threads attached to the other ends of the specimen are passed over a suitable rod placed over the tank in order to keep the specimens steady in the vertical position during the period of immersion. The water in the tank should be sufficient so as to keep the top edges of the specimens about 5 cm below the water level. At the expiry

of 30 minutes, remove all the 5 specimens and after detaching the hooks and the threads, invert them by 180° so that the top edge becomes the bottom edge. Each edge of the specimen is then held in contact with the surface of a tray for about 10-20 seconds to drain off any adhering water. Take one test specimen and enclose it between the two layers of blotting papers on each side. The size of the blotting paper pieces should be such that they extend about 2 cm beyond each edge of the specimen. Place the specimen enclosed by blotting papers on the rubber pad and roll over it a steel roller without exerting any additional pressure beyond the weight of the roller, the roller being rolled once with its length parallel to the long side of the specimen. Remove the pieces of blotting papers from the test specimen and put in between a set of fresh blotting papers as before and roll it over with the roller as before. Remove the test piece from the blotting paper pieces and place it in a beaker (without spout) covered with a lid.

B-3.3 Repeat the process on all the remaining specimens. Remove the test specimens from the beaker and weigh them collectively to the nearest 10 mg and this weight shall be W_2 .

B-4 CALCULATION

B-4.1 The difference between W_1 and W_2 is the amount of water absorbed by the specimen and is expressed as percentage of the original weight of the specimens. Thus:

$$\text{Percentage absorption} = \frac{W_2 - W_1}{W_1} \times 100$$

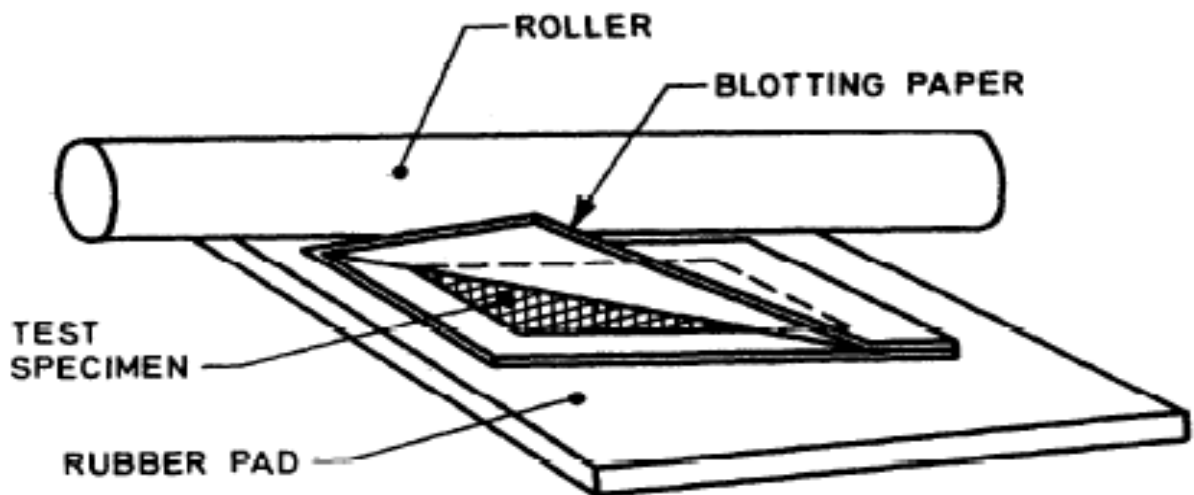
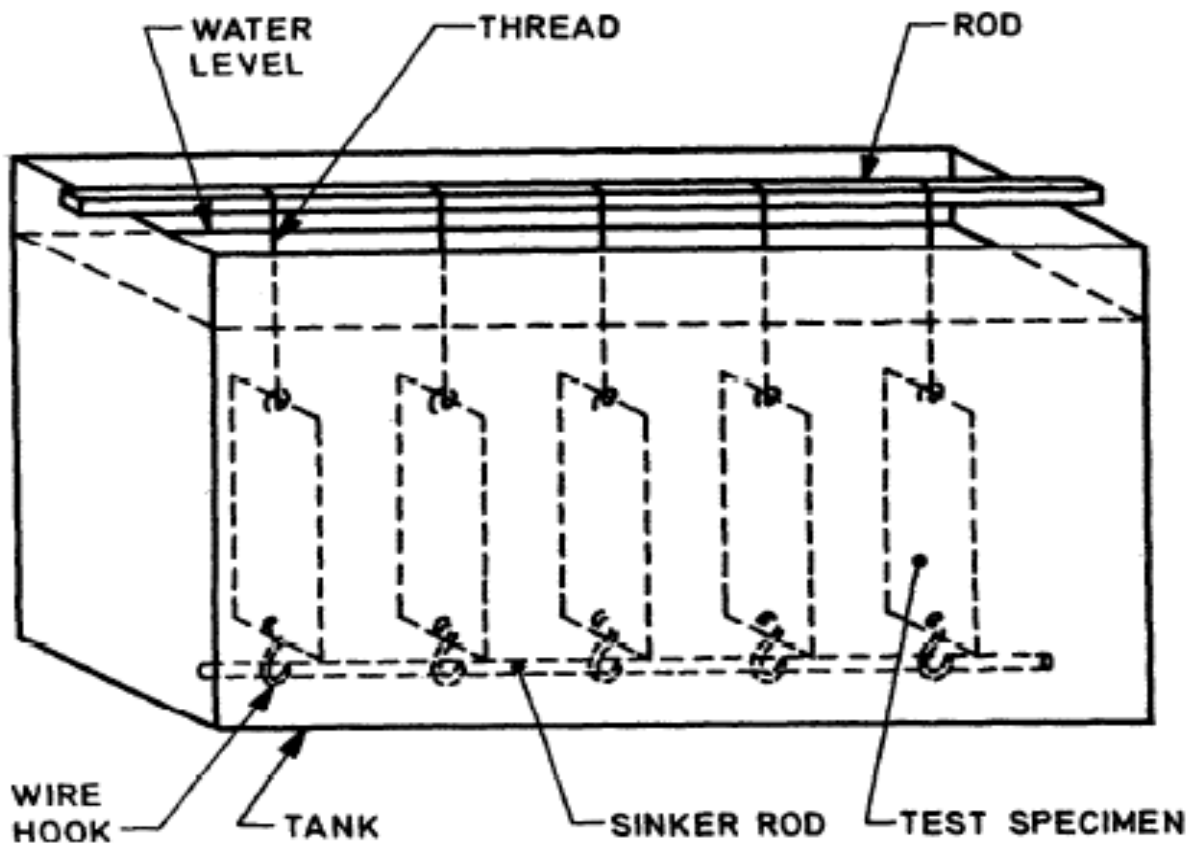


FIG. 2 EQUIPMENT FOR TESTING MOISTURE ABSORPTION

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Technical Textiles for Clottech Applications including Narrow Fabrics and Braids Sectional
Committee, TXD 39

Organization

Additional Controller CQA (General Stores), DGQA, Ministry of Defence
ICAR - Central Institute for Research on Cotton Technology, Mumbai
Federation of Indian Chambers of Commerce and Industry
Indian Technical Textile Association, Mumbai
M K U Limited, Kanpur
Motilal Dulichand Pvt Ltd, Kanpur
National Textile Corporation, New Delhi
Ordnance Parachute Factory, Kanpur
Office of Textiles Commissioner, Mumbai
SGS Limited, Gurugram
S L Banthia Textiles Industries Pvt Ltd
Shipra International, Kanpur
Sky Industries Ltd, Navi Mumbai
Synthetic and Art Silk Mills Research Association, Mumbai
Thanawala & Co., Mumbai
The Bombay Textile Research, Association, Mumbai
U P Textile Technological Institute, Kanpur
Universal Yarn & Tex Pvt Ltd, Kanpur
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DR T SENTHILKUMAR (*Alternate*)
SHRI ANU HANDA
DR ANUP RAKSHIT
SHRI VIKRAM JAIN (*Alternate*)
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SHRI RAJIB PAL (*Alternate*)
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