

भारतीय मानक ब्यूरो  
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*Draft for comments only*

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भारतीय मानक मसौदा

वस्त्रादि — जलरोधक कवर — विशिष्टि

( आई एस 14354 का पहला पुनरीक्षण )

*Draft Indian Standard*

**TEXTILES — WATERPROOF COVERS — SPECIFICATION**

(First Revision of IS 14354 )

ICS: 59.080.40

Made-up Textiles (Including Ready-Made Garments)

last date for receipt of comments is

Sectional Committee, TXD 20

23 November 2024

**FOREWORD**

*(Formal clauses will be added later)*

The Water proof covers described in this specification are made from Cloth Duck Rip Stop, Cotton, OG 610 g waterproof and intended to cover Stores/Vehicles lying in the open to protect them from sun and rain. This standard was first published in 1996. This standard has been revised again to incorporate the following:

- Tolerance to ends and picks per dm has been specified;
- Tolerance to mass, g/m<sup>2</sup> has been incorporated;
- References to Indian Standards have been updated; and
- Marking clause has been updated.

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, 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.

## 1 SCOPE

This standard specifies constructional and performance requirement for waterproof covers made from cotton fabric.

## 2 REFERENCES

The standard listed in Annex A contain provisions which through references in the text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subjected 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 indicated in Annex A.

## 3 MATERIALS

3.1 The waterproof covers shall be manufactured from following materials conforming to standards indicated against them:

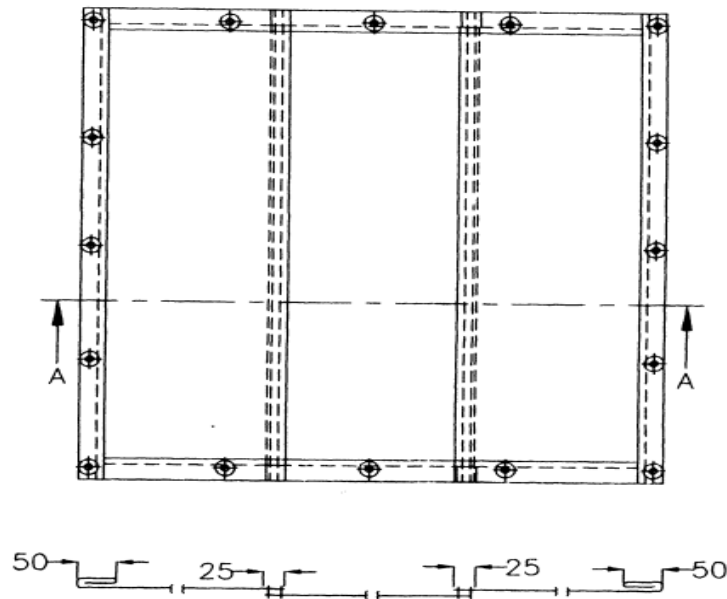
SI No.	Material	Specification
(1)	(2)	(3)
i)	Cloth duck rip stop, cotton, OG, 610g	Annex B
ii)	Polypropylene rope	IS 5175
iii)	Cotton sewing thread	IS 1720
iv)	Chemically passivated aluminium eyelets, Size No. 28 and 30	IS 4084

## 4 MANUFACTURE

4.1 The covers shall be fabricated from olive green waterproof and rot proof cotton duck, rip stop.

4.2 The covers shall be machine sewn with cotton sewing thread conforming to variety number 42 of IS 1720. The stitching shall be of even tension throughout with all loose ends securely fastened. The number of stitches shall not be less than 2 per cm and the needle used for stitching shall not be too large to leave holes through which water may leak.

4.3 Joints, if any, shall be in the direction of the length of the cover and shall be made by laying two edges of the fabric one over the other with an overlap so that two rows of stitching, not less than 2.5 cm apart, pass through both layers of the fabric as shown in Fig. 1. All seams shall be lapped from the centre of each cover to the left and right that is the centre panel shall be laid on top to enable correct drainage of the cover when finished. However, cross seams at the rate of one in every third panel and one narrow width panel per cover may be allowed. In all cases, the end panels shall be of full width. In forming seams, the fell end seam method of joining shall be employed and allowing for 1.5 cm turn-in of the edge of the material and no piece less than 92 cm finished length shall be used for the purpose.



SECTION ON A-A SHOWING SEAMS & HEMS

All dimensions in millimetres.

FIG. 1 WATERPROOF COVERS

**4.4** The ends and sides of the covers shall be hemmed with a single row of stitching. The hem shall be 5 cm wide and turn-in shall be the full width of the hem. The hem is thus formed of three folds of the material at the sides and both ends and nine folds at the corners. These nine folds shall be reduced to five by cutting from each corner a piece of 10 cm square thus permitting the shanks of the eyelets to be securely set over the washers.

**4.5** Chemically passivated aluminium eyelets of size 28 and 30 as per IS 4084 shall be fitted in a line in the centre of the hem. The holes for the eyelets shall be made by punching with a small punch, the holes being brought to the required size by using a marline spike.

**4.6** The lashings shall be made from 8 mm polypropylene rope and shall be spliced to each corner eyelet. The free ends of the lashings shall be suitably heat sealed.

## 5 REQUIREMENTS

**5.1** The dimensions of covers and lashings shall conform to requirements specified in Table 1.

**5.1.1** However, a tolerance of  $\pm 1$  percent on length and width of a cover shall be permissible provided the average dimensions of all covers under test are not less than the specified values.

**Table 1 Requirements of covers and lashings**  
(Clause 5.1)

Sl No.	Size of Covers	Dimensions		Lashings			Eyelets		Number of Eyelets and Placement
		Length m	Width m	No.	Length m	Diameter mm	Size	Quantity	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
i)	10.0 × 7.6	10.0	7.6	4	1.25	8	30	38	One at each corner with 10 along long side and 7 along short side in between the corner eyelets at equal distances.
ii)	9.1 × 9.1	9.1	9.1	4	1.25	8	30	40	One at each corner with 9 along each side in between the corner eyelets at equal distances.
iii)	7.3 × 5.5	7.3	5.5	4	1.25	8	30	28	One at each corner with 7 along long side and 5 along short side in between the corner eyelets at equal distances
iv)	5.5 × 4.5	5.5	4.5	4	1.25	8	30	20	One at each corner with 5 along long side and 3 along short side in between the corner eyelets at equal distances
v)	3.7 × 3.0	3.7	3.0	4	1.25	8	30	14	One at each corner with 3 along long side and 2 along short side in between the corner eyelets at equal distances
vi)	3.0 × 1.8	3.0	1.8	6	1.25	8	30	6	One at each corner and one in centre of each long side
vii)	2.4 × 1.8	2.4	1.8	6	1.25	8	30	6	One at each corner and one in centre of each long side
viii)	2.0 × 2.0	2.0	2.0	4	0.91	8	28	4	One at each corner
ix)	1.7 × 1.2	1.7	1.2	4	1.25	8	28	4	One at each corner

## 6 MARKING

6.1 Each cover shall be legibly and indelibly marked with the following information:

- a) Name of material;
- b) Dimensions of cover;
- c) Indication of source of manufacture; and
- d) Month and year of manufacture.

6.2 Each bale containing waterproof covers shall be legibly marked by stencil using indelible marking ink/paint showing the following details:

- a) Quantity packed in the bale;
- b) Month and year of packing;
- c) Indication of source of manufacture;
- d) Lot number; and
- e) Gross mass of bale in kg.

### 6.3 BIS Certification Marking

The product 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 may be marked with the Standard Mark.

## 7 PACKING

7.1 Each cover shall be delivered in a new, clean and dry condition.

7.2 All covers shall be packed in accordance with the details given in Table 2.

**Table 2 Packing of Waterproof Covers**  
(Clause 7.2)

Sl No.	Size of Waterproof Covers (m)	Unit Pack	Multiple Pack	Details of Wrapping
(1)	(2)	(3)	(4)	(5)
i)	10.0 × 7.6	1	1	The covers suitably folded shall be tied at two places with jute twine ( <i>see IS 1912</i> ) to form a bundle. The required number of bundles shall then be wrapped with single layer of heavy cee jute cloth ( <i>see IS 3751</i> ) or double layer of hessian ( <i>see IS 2818</i> )
ii)	9.1×9.1	1	1	
iii)	7.3 × 5.5	1	1	
iv)	5.5 × 4.5	1	2	
v)	3.7 × 3.0	1	4	
vi)	3.0 × 1.8	1	8	
vii)	2.4 × 1.8	1	10	
viii)	2.0 × 2.0	1	12	
ix)	1.7 × 1.2	1	20	

7.2.1 The bales shall be made up in such a way that its cross section is approximately rectangular in shape.

7.3 The seams of the bale shall be securely sewn with double jute twine with not less than 9 stitches

per 10.0 cm. While stitching the jute cloth, care should be taken to avoid piercing the covers during the stitching process. Sufficient jute cloth shall be pulled out at each corner to form 'ears' about 15.0 cm in length. The outside seams of the bale shall not be demurred unless specified by purchaser.

## 8 SAMPLING AND CRITERIA FOR CONFORMITY

### 8.1 Lot

The quantity of waterproof covers delivered to a buyer against a despatch note shall constitute a lot.

**8.2** The conformity of the lot to the requirements of the standard shall be determined on the basis of tests carried out on the sample selected from it. Unless otherwise agreed to between the buyer and the seller, the number of waterproof covers to be selected at random from a lot shall be according to Table 3. To ensure the randomness of selection, methods given in IS 4905 shall be followed.

**Table 3 Sampling and Criteria for Conformity**  
(Clause 8.2)

SI No.	Number of Waterproof Covers in the Lot	Sample Size	Number of Non-conforming Waterproof Covers	Sub-sample Size
(1)	(2)	(3)	(4)	(5)
i)	Up to 300	10	1	2
ii)	301 to 600	20	1	3
iii)	601 to 1 000	30	2	5
iv)	1 001 and above	50	3	8

**8.3** The sample size and criteria for conformity for various characteristics shall be as follows:

SI No.	Characteristics	Sample Size	Criteria for Conformity
(1)	(2)	(3)	(4)
i)	Dimensions of cover, number of lashings, length and diameter of lashing, number of eyelets and their placement	According to col (3) of Table 3	Non-conforming waterproof covers not to exceed corresponding number given in col (4) of Table 3
ii)	Cloth characteristics	According to col (5) of Table 3	All water-proof covers to satisfy the requirements specified in Annex B.

**ANNEX A**  
(Clause 2)

**LIST OF REFERRED STANDARDS**

<i>IS No.</i>	<i>Title</i>
IS/ISO 105-B02 : 2014	Textiles — Tests for colour fastness — Part B02 Colour fastness to artificial light: Xenon arc fading lamp test
IS/ISO 105-C10 : 2006	Textiles — Tests for colour fastness Part C10 Colour fastness to washing with soap or soap and soda
IS 1422 : 1983	Specification for Cotton duck ( <i>third revision</i> )
IS 1720 : 1978	Specification for Cotton sewing threads ( <i>second revision</i> )
IS 1912 : 2023	Textiles — Country Jute Twine — Specification ( <i>third revision</i> )
IS 1963 : 1981	Methods of determination of thread 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 2818 : 2015	Textiles — Hessian — Specification ( <i>third revision</i> )
IS 3751 : 1993	Textiles — Heavy cee jute cloth ( <i>first revision</i> )
IS 4084 : 1978	Specification for Eyelets and washers (sail) ( <i>first revision</i> )
IS 4905 : 2015	Random Sampling and Randomization Procedures ( <i>first revision</i> )
IS 5175 : 2022	Fibre Ropes — Polypropylene Split Film, Monofilament and Multifilament (PP2) and Polypropylene High-Tenacity Multifilament (PP3) — 3-, 4-, 8- and 12- Strand Ropes ( <i>fourth revision</i> )
IS 7016 (Part3/Sec 1) : 1981	Methods of Test for Rubber or Plastics Coated Fabrics Part 3 Determination of Tear Resistance Section 1 Constant rate of tear methods ( <i>third revision</i> )
IS 7016 (Part7) : 2023	Methods of Test for Rubber or Plastics Coated Fabrics Part 7 Determination of Resistance to Penetration by Water ( <i>third revision</i> )
IS 13510 : 1992	Textiles — Duck, polyester/cotton blended, rip-stop — Specification ( <i>first revision</i> )

**ANNEX B**  
(Clause 3.1)

**REQUIREMENTS OF CLOTH DUCK RIP STOP, COTTON**

**B-1 GENERAL**

a) The fabric shall be woven from evenly spun 59 tex × 3 tex cotton thread in warp and 59 tex × 4 tex cotton thread in weft. It shall be uniformly woven in plain weave with firm selvages using two threads working as one after every 14 threads in warp and after every 7 threads in weft. It shall be free from spinning, weaving and processing defects.

NOTE — The count of the yarn is for guidance only.

b) The fabric shall be uniformly dyed olive green with any suitable dyestuff and shall be water and rot proofed.

**B-2 CONSTRUCTION AND OTHER PARTICULARS**

**B-2.1** The scoured or dyed fabric shall comply the requirements specified in Table 4.

**Table 4 Requirements of scoured or dyed fabric for waterproof covers**  
(Clause B-2.1)

Sl No.	Width	Mass	Ends/ dm	Picks/ dm	Breaking Strength on 5 cm × 20 cm Strip, Min		Tear Strength (Tongue Tear Method), Min	
					Warp	Weft	Warp	Weft
	cm	g/ m <sup>2</sup>			N	N	N	N
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	91 or as desired	610	165	102	1700	1700	200	250
ii)	Tolerance, percent	+5 -2.5	+5 -2.5	+5 -2.5				

**B-3** The finished waterproof and rot proof fabric shall conform to requirements specified in Table 5.

**Table 5 Requirements of finished waterproof covers**  
(Clause B-3)

Sl No.	Characteristics	Requirements	Tolerance, percent	Method of Test, Ref to
(1)	(2)	(4)	(3)	(5)
i)	Threads/dm Ends Picks	165 102	+5 -2.5	IS 1963



ii)	Mass, g/m <sup>2</sup>	700	+5 -2.5	IS 1964
iii)	Breaking strength, on 5 cm × 20 cm strip, N, <i>Min</i> Warp Weft	1 550 1 550	—	IS 1969 (Part 1)
iv)	Tear strength, N, <i>Min</i> Warp Weft	250 250	—	IS 7016 (Part 3/Sec 1)
v)	Colourfastness rating to a) Light b) Washing ( C 3)	4 or better 4 or better	—	IS/ISO 105-B02 IS/ISO 105-C10
vi)	Pressure head test (at 15 cm water head dia test area) a) Leakage b) Amount of wetting or outer surface	NIL No wetting	—	IS 7016 (Part 7)
vii)	Copper content, <i>percent</i>	0.5 to 0.8	—	
viii)	Proofing content, percent, <i>Max</i>	15	—	
ix)	The fabric shall confirm to IS 13510 in respect of following requirements: Relaxation shrinkage or elongation, <i>pH</i> value of aqueous extract, Cone test, and Bundesmann test.		—	