

भारतीय मानक ब्यूरो
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भारतीय मानक मसौदा

वस्त्रादि – हथकरघा सूती ड्रिल्स – विशिष्टि

(आई एस 1451 का दूसरा पुनरीक्षण)

Draft Indian Standard

TEXTILES — HANDLOOM COTTON DRILLS — SPECIFICATION

(Second Revision of IS 1451)

ICS 59.080.30

Handloom and khadi sectional committee, TXD 08

Last date for receipt of comment is
21 March 2025

FOREWORD

(Formal clauses will be added later)

Handloom cotton drills are strong, tightly woven cotton fabrics, commonly used for workwear, upholstery, and other demanding applications. Known for their distinctive diagonal weave, these fabrics offer enhanced strength and durability, making them ideal for items such as trousers, uniforms, and jackets. Handloom cotton drills are breathable, comfortable, and built to endure heavy use. Additionally, their handmade production process makes them eco-friendly and sustainable.

This standard was originally published in 1959 and was revised in 1979. This standard has been again revised to incorporate the following changes:

- a) Method for fiber identification has been incorporated;
- b) Marking clause has been modified;
- c) Sampling clause has been modified;

- d) Ends/cm for variety no. 1 of cotton drills has been modified;
- e) Weave of the cotton drills for variety no. 3 and 4 has been modified;
- f) Requirement of colour fastness for bleaching has been modified; and
- g) References to Indian Standards have 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

1.1 This standard prescribes the constructional particulars and other requirements of four varieties of handloom cotton drills, bleached or dyed.

1.2 This standard does not specify the general appearance, feel, finish, shade, etc, of the cloth (*see also 4.3*).

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this 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 encourage to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 MANUFACTURE

3.1 Yarn

The cotton yarn used in the manufacture of cloth should be satisfactory in evenness and reasonably free from neps and spinning defects. The yarn shall conform to the requirements of IS 171.

3.2 Cloth

The cloth shall be free from dressing and filling materials and from substances liable to cause subsequent tendering.

4 REQUIREMENTS

4.1 The constructional particulars of cloth shall conform to those given in Table 1.

4.2 The colour fastness ratings and other requirements of the cloth shall conform to those given in Table 2.

4.3 Sealed Sample

If, in order to illustrate or specify the indeterminable characteristics, such as general appearance, lustre, feel and shade of the cloth, a sample has been agreed upon and sealed, the supply shall be in conformity with the sample in such respects. The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

Table 1 Constructional Particulars of Handloom Cotton Drills

(Clause 4.1)

Sl No.	Variety No.	Count of Yarn (<i>see Note 3</i>) Cotton Count (Universal Count)		Ends/ cm	Pick/ cm	Length m	Width m	Weave (<i>see Note 2</i>)
		Warp	Weft (<i>see Note 1</i>)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	1	20s /2 (30 tex × 2)	10s (59 tex)	28	17	20 or as agreed	70 or as agreed	2/1 Twill
ii)	2	30s /2 (20 tex × 2)	10s (59 tex)	32	18			
iii)	3	30s /2 (20 tex × 2)	10s (59 tex) or 12s (50 tex)	35	20			
iv)	4	40s /2 (14.5 tex × 2)	30s /2 (20 tex × 2)	44	20			
Tolerance, percent		—	—	± 5	± 5	—	± 2	—
Method of Test, Ref to		IS 3442		IS 1963		IS 1954		Visual
NOTES								
1 The use of two-fold weft yarn, whose equivalent count is equal to the count of single weft yarn given in the table for varieties No. 1 and 2, is permissible.								
2 The warp yarn of varieties No. 1 and 2 shall be drawn 3 in a dent and of varieties No. 3 and 4 shall be drawn 4 in a dent.								
3 Count of yarn is given for guidance only.								

Table 2 Requirements of Handloom Cotton Drills

(Clause 4.2)

SI No.	Characteristic	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Colour fastness to (<i>see</i> Note 1): a) Light b) Washing Test 4 c) Bleaching (<i>see</i> Note 2)	5 or better 4 or better 2 or better	IS/ISO 105-B01 or IS/ISO 105-B02 IS/ISO 105-C10 IS/ISO 105-N01
ii)	Dimensional change, percent, <i>Max</i>	4	IS 9
iii)	Scouring loss, percent, <i>Max</i>	2.5	IS 1383
iv)	pH value of aqueous extract: a) olive green and khaki shades b) other shades	6.0 to 10.0 6.0 to 8.5	Annex B
v)	Fiber identification	100 percent cotton	IS 667
NOTES			
1 The colour fastness ratings specified are in accordance with IS 6906.			
2 This test shall not be carried out in case the cloth is dyed with iron and chromium salts in olive green and khaki shades.			

5 INSPECTION

5.1 The cloth when visually inspected should be reasonably free from the following defects:

- a) More than two adjacent ends running parallel, broken or missing and extending beyond 20 cm;
- b) Weft crack or more than two missing picks across the width of the material;
- c) Prominently noticeable weft bar due to the difference in raw material, count, twist, lustre, etc;
- d) Noticeable selvage defects;
- e) Noticeable warp or weft float in the body;
- f) Noticeable oil or other stains;
- g) Noticeable hole, cut or tear up to 3 mm size;
- h) Smash rupturing the texture of the fabric;
- j) Undressed snarls noticeable throughout the piece;
- k) Conspicuous gout due to foreign matter, usually lint or waste woven into cloth;
- m) Conspicuous broken pattern; and
- n) Any other flaw which would mark the appearance or affect the serviceability and/or durability of the cloth.

5.1.1 A reference may be made to IS 14466 for details of these defects.

6 SAMPLING

6.1 The quantity of handloom cotton drills of the same variety delivered to a buyer against a despatch note shall constitute a lot.

6.2 To ascertain the conformity of the lot to the requirements of this standard, samples shall be drawn and inspected from each lot separately.

6.3 The number of pieces to be selected at random for inspection shall be in accordance with Table 3.

Table 3 Sample Size and Permissible Number of Non-Conforming Pieces
(Clause 6.3 and 6.4)

Sl No.	Lot Size	Sample Size	Permissible No. of Non-Conforming Pieces	Sub Sample Size
(1)	(2)	(3)	(4)	(5)
i)	Up to 90	5	0	3
ii)	91 to 150	8	0	3
iii)	151 to 500	13	1	5
iv)	501 to 1200	20	1	5
v)	1201 to 10000	32	2	8
vi)	10001 to 35000	50	3	8
vii)	35001 to 500000	80	5	13
viii)	500001 and above	125	7	13

6.4 Number of Tests and Criteria for Conformity

Sl No.	Characteristics	Number of Tests	Criteria for Conformity
(1)	(2)	(3)	(4)
i)	Visual inspection, ends, picks, length and width	According to col (3) of Table 3	Permissible number of non-conforming piece does not exceed the corresponding number given in col (4) of Table 3
ii)	Dimensional change, scouring loss, pH value, colour fastness, and fiber identification	According to col (5) of Table 3	All the test specimens shall meet the corresponding requirements

7 MARKING

7.1 The cloth shall be suitably marked or labelled with the following information:

- a) Name of the material;
- b) Manufacturer's name, initials or trade-mark;
- c) Length and width of the cloth;
- d) Count of warp, and weft yarn;
- e) Indication of the source of manufacture; and
- f) Other declarations required as per law in force.

7.2 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.

8 PACKING

Unless otherwise agreed between the buyer and the seller, the cloth shall preferably be packed in bales or cases in conformity with the procedure laid down in IS 1347 or IS 293.

ANNEX A
(Clause 2)

LIST OF REFERRED STANDARDS

<i>IS No.</i>	<i>Title</i>
IS 9 : 2019/ ISO 675 : 2014	Textiles — Woven fabrics — Determination of dimensional change on commercial laundering near the boiling point (<i>third revision</i>)
IS 171 : 1993	Textiles — Ring spun grey cotton yarn for weaving — Specification (<i>fourth revision</i>)
IS 293 : 1980	Code for seaworthy packaging of cotton yarn and cloth (<i>third revision</i>)
IS 667 : 1981	Methods for Identification of Textile Fibres (<i>first revision</i>)
IS 1070 : 2023	Reagent Grade Water — Specification (<i>fourth revision</i>)
IS 1347 : 1972	Specification for inland packaging of cotton cloth and yarn (<i>first revision</i>)
IS 1383 : 2023	Methods for determination of scouring loss in grey and finished cotton textile materials (<i>second revision</i>)
IS 1954 : 2024/ ISO 22198 : 2006	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 3442 : 2023	Textiles — Method for Determination of Crimp and Linear Density of Yarn Removed from Fabric (<i>second revision</i>)
IS 14466 : 1997/ ISO 8498 : 1990	Fabrics — Description of defects — Vocabulary
IS/ISO 105-B01 : 2014	Textiles — Tests for colour fastness — Part B01 Colour fastness to light: Daylight
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/ISO 105-N01 : 1993	Textiles — Tests for colour fastness — Part N01 Colour fastness to bleaching: Hypochlorite

ANNEX B

(Table 2)

METHOD FOR DETERMINATION OF *pH* VALUE OF AQUEOUS EXTRACT

B - 1 APPARATUS

B - 1.1 Erlenmeyer Flask

B - 1.2 Reflux Condenser

B - 2 REAGENTS

B - 2.1 Distilled Water — *see* IS 1070.

B - 2.2 Indicator *pH* Papers

B - 3 PROCEDURE

B - 3.1 Draw from each piece in the test sample, at least two test specimens each weighing 5 g.

B - 3.2 Rinse the Erlenmeyer flask with distilled water. Take one test specimen and cut it into small bits. Put the bits in the Erlenmeyer flask and add 50 ml of distilled water. Boil the contents for one hour under the reflux condenser. Stopper the flask and cool the contents. Decant the supernatant extract in a test-tube.

B - 3.3 Take the *pH* indicator paper. Dip it in the extract and compare the colour of the moistened indicator paper with those printed on the booklet or dispenser containing the indicator paper. Designate the number written on a particular colour shade with which the moistened indicator paper matches, as *pH* of the extract.

B - 3.4 Similarly, test the remaining test specimen(s).

B - 4 REPORT

B - 4.1 Report the *pH* value of the extract as determined above.