

No. U.II-98 (Spec.)/2015-16-Prov (WC-Dr) -1235  
भारत सरकार/Government of India  
गृह मंत्रालय/Ministry of Home Affairs  
पुलिस आधुनिकीकरण प्रभाग /Police Modernization Division  
संभरण-I डेस्क /Prov.I Desk

Jaisalmer House, 26 Man Singh Road,  
New Delhi, the 24 June, 2015

To,

Directors General  
ITBP & BPR&D

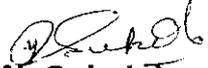
**Subject: QRs/Specification of Wool Cotton Drawer White.**

Sir,

The QRs/Specifications in respect of Wool Cotton Drawer White as per Annex-I has been accepted by the Competent Authority in MHA.

2. Henceforth, ITBP should procure the above item required by them strictly as per the laid down QRs/Specifications.
3. Concerned CAPF will be accountable for the correctness of the QRs/Specifications of Wool Cotton Drawer White.

Yours faithfully,

  
(M. N. Sukole)

Under Secretary to the Govt. of India  
Tel: 23381278

Encl: As above.

✓  
Copy forwarded to SO (IT), MHA, with the request to host the QRs of Wool Cotton Drawer White on the website of MHA (under the page Organizational Set-up - Police Modernization Division - Qualitative Requirements - Clothing Equipments), soft copy is being sent through email.

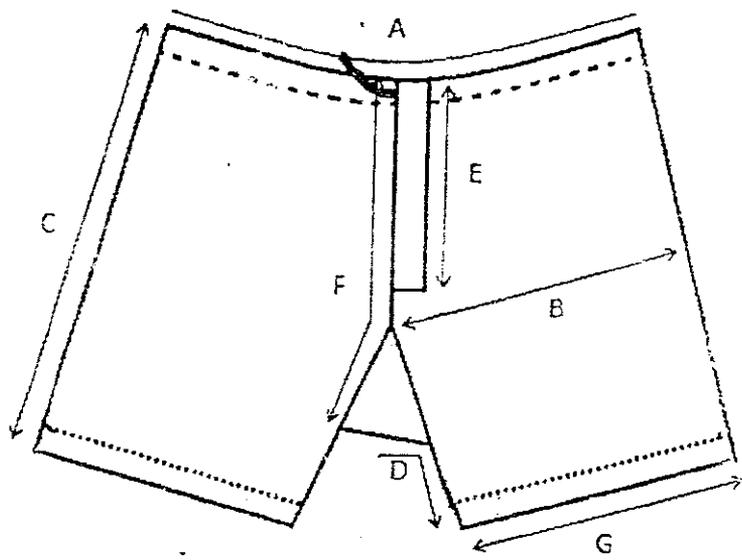
Copy to: DDG (Procurement), MHA.

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### SPECIFICATION FOR WOOL COTTON DRAWER WHITE



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## 1.0 SCOPE

- 1.1 The specification prescribes the requirements of "Wool Cotton drawer White (off white short)", herein refer as "Drawer"
- 1.2 This specification does not specify general appearance; feel etc of the "Drawer".

## 2.0 MANUFACTURE AND FINISH

- 2.1 **Knitted fabric:** Single jersey fabric shall be knitted using two types of yarns: First yarn- 14 counts 100% cotton hosiery and second yarn- 14 counts cotton and wool blended (50:50). The counts of the yarns are approximate and given for guidance only. The blend of the second yarn is also approximate and given for guidance. The blended second yarn should be selected in such a way that the final knitted fabric should have 78-80% cotton and remainder wool. These yarns may be fed in the machine at alternate needle. Weft knitting machine of 10-14 gauges or any appropriate gauge may be used to get the desired course/dm, wales/dm, weight (g/m<sup>2</sup>) etc. as given in the Table-1. The drawers shall be tailored out of well and evenly knitted fabric. The wales shall run along the length of the drawer.

At the bottom of the legs of the drawers, the raw edges of the knitted fabric shall be turned into a depth of 25 mm and shall be sewn to form a hem of 25 ± 5 mm width. The stitches of the hem shall be elastic and shall not give way when the leg of the drawer is stretched to one and a half times its width.

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- 2.2 **Waist band and Cotton woven tape:** At the waist of the drawers, the raw edge of the knitted fabric shall be turned into a depth of 40 mm throughout and stitched in such a manner that it is possible to insert the cotton tape, approx. 25mm wide and at least 30 cm long, through the waist band. The tape shall be stitched centrally inside the waist band at the middle of the back. Cotton yarn of 60 tex x 2 (10s/2) may be used for the manufacturing tape.
- 2.3 **Front opening:** The front of the drawer shall be of a fly-front type. The length of the fly-front shall be in accordance with Table-2, when read with Fig 2. The bottom flap at the fly-front opening shall consist of two layers of fabrics, the outer one being knitted as used for drawers and the inner layer of cotton cloth-scoured and bleached (manufactured using approximate 26s count of cotton yarns for both warp and weft, Ends/dm:  $268 \pm 5\%$ , Picks/dm:  $220 \pm 5\%$ , weight :  $120 \pm 5\%$ , Breaking load (5X20 cm stripes)- warpwise, Minimum: 36Kg and westwise, Minimum: 22Kg). It shall be attached to the drawer with lock stitches and joint shall be further reinforced with cotton tape. The fabric used for the bottom flap shall be of the same shade as that of the fabric used for making the drawers. The width of the bottom flap shall be 40 mm. The upper flap would be reinforced inside with cotton tape. The two flaps shall be stitched together at the bottom to facilitate opening and closing as shown in Figure 1 and 2.
- 2.4 **Crutch Piece:** The fabric used for crutch piece shall be of the same type and construction as used in the construction of drawers. The crutch piece shall be reinforced throughout with cotton cloth (Specification of cotton cloth is given in clause 2.3). The crutch piece and reinforced fabric shall be scoured and bleached as the drawers.

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2.5 The design, dimension and shape of the "Drawer" shall be as per Figures 1 and 2 and Table-2.

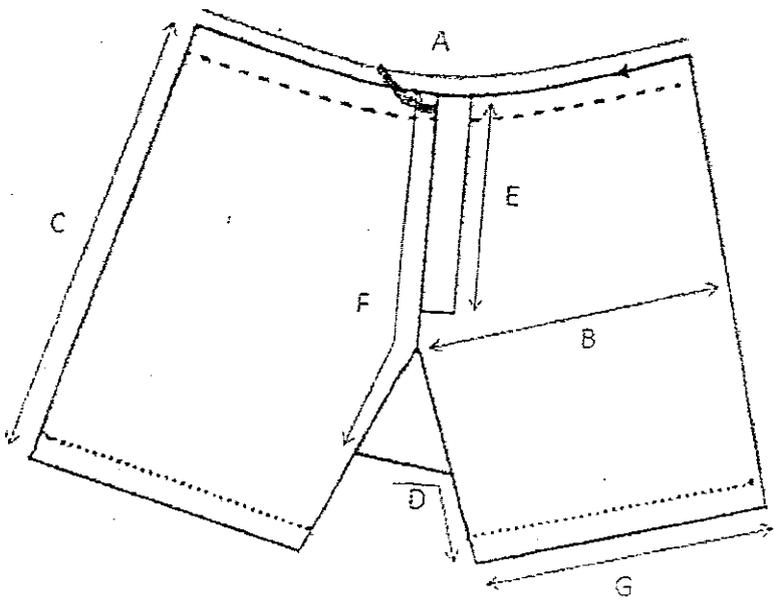


Figure 1: Front view of the 'Drawer'

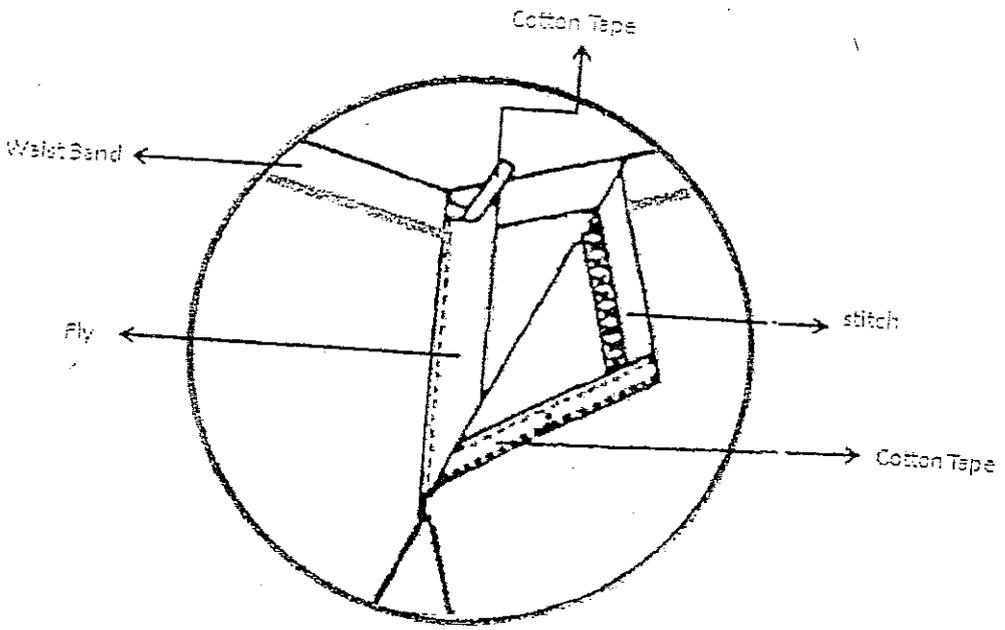


Figure 2: Details of fly-front of the 'Drawer'

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2.6 **Seams and Stitches:** For joining inner side of the legs, back of drawer, three thread over-lock stitches shall be used. Hemming of waist and bottom legs shall be carried out using two-thread over-lock stitch. In the front opening lock stitch shall be used. Polyester spun sewing thread (See specification IS 9543 : 1980 RA 2004) of 60<sup>s</sup>/3 Ne may be used in the needle and looper. Minimum 4 stitches/cm shall be used. All the stitches shall be of even tension throughout with all loose ends fastened. The white sewing thread shall be used in the assembling of 'Drawer'.

2.7 **Freedom from Defect:** The 'Drawer' shall be visually examined. It shall be evenly stitched, free from missed stitches, holes, cuts and puckering defects. The 'Drawer' shall be free from processing defects such as streaks, stains. The 'Drawer' shall be free from any other defect which may significantly mark the appearance or serviceability.

2.8 **Sealed Sample:** In order to illustrate or specify the indeterminable characteristics such as general appearance of the 'Drawer', a sample has been agreed upon and sealed; the supply shall be conformity with the sample in such respects.

2.8.1 The custody of the sealed sample shall be a matter of prior agreement between the buyer and seller.

### 3.0 REQUIREMENTS

3.1 The 'Drawer' shall satisfy the requirements in respect of construction, dimensional change (due to relaxation), pH value of aqueous extract, etc. as given in Table-1. The requirement of the cotton tape is given in Table 1.

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3.2: The dimensions of 'Drawer' when measured shall conform to the requirements given in Table 2. For the measurement of 'Drawer', take a 'Drawer'; lay it flat on a horizontal surface. Remove all creases and wrinkles without distorting it. Measure corrects to the nearest millimeter the dimensions given in Table 2.

#### 4.0 MARKING

4.1 A suitable label shall be securely stitched on the inner side of the waist (back side) of each 'Drawer'. Following shall be marked on the cloth label:

- (a) Name of the material, namely, "Wool Cotton drawer White (off white short)"
- (b) Size in cm
- (c) Any other information required by the buyer.

Care labeling instruction shall be given if required by the buyer and it shall be fastened at the place of the 'Drawer' as per the buyer instructions.

*NOTE:* The Indication on the cloth label shall be such that the colour from the label shall not bleed on the 'Drawer' during storage or use.

#### 5.0 PACKAGING & PACKING

The 'Drawer' shall be packed in polyethylene or polypropylene bags and or in box, as required by the buyer. However, on each box the following shall be indicated:

- (a) Name of material
- (b) Designation of material

- (C)                      (16)                      (39)
- (c) Size in cm
  - (d) Quantity per box
  - (e) Indication of the source of manufacture and
  - (f) Any other information as required by the buyer or the law in force.

The boxes containing 'Drawer' shall be packed as agreed to between the buyer and seller.

## 6.0 SAMPLING AND CRITERIA FOR CONFORMITY

6.1 The sampling procedure detailed in 6.2 to 6.4 shall give desired protection to the buyer and the seller, provided that the lot submitted for inspection is homogeneous. To achieve this, the manufacturer shall maintain a system of process control at all stages of manufacturing ensuring the 'Drawer' tendering by him for inspection to comply with the requirements of this standard in all respects.

*NOTE: For effective process control the use of statistical quality control technique is recommended. Helpful guidance may be obtained in this respect from 397(Part I): 2003 and IS 397 (Part II): 2003.*

6.2 Lot: In any consignment, all Drawer's of the same size and manufactured from of the same designation, same quality and delivered to a buyer against one dispatch note shall constitute a lot.

6.2.1 The conformity of a lot to the requirements of this specification shall be determined on the basis of the tests carried out on the samples selected from the lot.

6.3 Unless otherwise agreed to between the buyer and the seller, a number of Drawer's depending upon the size of the lot shall be selected at random from the lot to constitute the gross sample. The number of 'Drawer' so selected shall be in accordance with Table 3

6.4 The number of 'Drawer' to be tested at criterion for conformity for each of the characteristics shall be as follows:

| Characteristics   | No. of 'Drawer' to be tested           | Criterion for Conformity  |
|---|--|---|
| (a) Freedom from defects, dimensions and number courses and wales   | Selected according to col 2 of Table 3 | Non-conforming Short's not to exceed the corresponding number given in col 3 of Table 3 |
| (b) Other requirements (dimensional change, mass in g/m <sup>2</sup> , pH value, scouring loss and blend) | Selected according to col 4 of Table 3 | All the test specimens to satisfy the relevant requirements.                            |

7.0 TERMINOLOGY

7.1 For the purpose of this specification the definitions given in IS 3596:1967 (RA 2004) shall apply.

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Table 1: Requirements of 'Drawer'

| Sl. No.                          | Parameters  | Requirements   | Test Method                          |
|----------------------------------|---|----------------|--------------------------------------|
| <b>Properties of Fabric</b>      |   |                |                                      |
| 1                                | Composition, percentage<br>-Cotton<br>-Wool   | 78-80<br>20-22 | IS 2006: 1978<br>(Based on dry mass) |
| 2                                | Fineness grade of wool<br>(From finished Drawer)                                    | 58s or finer   | IS 5911: 1977 and<br>IS 744: 1977    |
| 2                                | Courses/dm (Minimum)  | 130            | Appendix-1                           |
| 3                                | Wales/dm (Minimum)  | 84             | Appendix-1                           |
| 4                                | Mass, gm/m <sup>2</sup> (minimum)   | 240            | IS 1964: 1970                        |
| 5                                | Dimensional Change due to relaxation, percentage, (Maximum)<br>- Courses<br>- Wales | 5.0<br>5.0     | Appendix-2                           |
| 6                                | Scouring Loss, % (for 100% cotton yarn only remove from the drawer)                 | 2.0            | IS 1383: 1977<br>(Mild method)       |
| 7                                | pH value of aqueous extract   | 6.0-8.5        | IS 1390: 1983<br>(Cold method)       |
| <b>Properties of cotton Tape</b> |   |                |                                      |
| 8                                | Tape type   | Woven          | Visual                               |
| 9                                | Width, mm   | 25, +2/-0      | IS 1954: 1990                        |
| 10                               | Mass, g/m   | 12.5±0.5       | IS 1964: 1970                        |
| 11                               | Ends in full width, Min   | 70             | IS 1963: 1981                        |
| 12                               | Pick/cm, Min  | 8              | IS 1963: 1981                        |
| 13                               | Breaking strength, Min (Full width X 50 cm), N                                      | 705            | IS 1969: 1968                        |

Table 2: Dimensions of Drawer  
 (Clause 2.5 and Figures 1 & 2)  
 (All Dimensions in cms)

| Size      | Width Across Waist | Width Across Seat (Measured at the top of the crutch piece) | Side length | Inside Leg Length | Depth of the fly-front opening | Depth of front (Distance from the top of waist band to bottom of crutch piece) | Width of Leg Opening |
|-----------|--------------------|---|-------------|-------------------|--------------------------------|--|----------------------|
| 1         | 2                  | 3   | 4           | 5                 | 6                              | 7  | 8                    |
|           | A                  | B   | C           | D                 | E                              | F  | G                    |
| 75        | 37.5               | 45.5  | 30          | 17                | 17                             | 29   | 23                   |
| 80        | 40                 | 49.5  | 36          | 18                | 18                             | 30   | 24                   |
| 85        | 42.5               | 53.5  | 41          | 19                | 18                             | 32   | 25.5                 |
| 90        | 45                 | 56  | 43          | 22                | 19                             | 33   | 26.5                 |
| 95        | 47.5               | 58.5  | 43          | 23                | 19                             | 34   | 28                   |
| 100       | 50                 | 61  | 51          | 23                | 20                             | 36   | 29                   |
| 105       | 52.5               | 63.5  | 53          | 27                | 22                             | 37   | 30.5                 |
| Tolerance | ±1.0               | ±2.0  | ±2.0        | ±1.5              | ±1.5                           | ±1.5   | ±1.5                 |

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 [Handwritten signature: "S. J. ..."]  
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Table 3: Sample size and permissible number of non-conforming 'Drawer'

| No. of 'Drawer' in the Lot | Non Destructive Testing         |  | Destructive Testing (No. of 'Drawer' to be Tested) |
|----------------------------|---------------------------------|--|--|
|                            | No. of 'Drawer' to be inspected | Permissible No. of non-conforming 'Drawer' |  |
| (1)                        | (2)                             | (3)  | (4)  |
| Up to 300                  | 10                              | 1  | 2  |
| 301-500                    | 20                              | 1  | 2  |
| 501-1000                   | 30                              | 2  | 3  |
| 1001-3000                  | 50                              | 3  | 5  |
| 3001 and above             | 80                              | 5  | 5  |

NOTE: The Buyer reserve the right to carry out inspection of bigger lot sizes, even to the extent of 10% inspection, if considered necessary.

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### 8.0 REFERENCES

8.1 The specification refers to the standards listed below:

#### LIST OF REFERED STANDARDS

| Sl. No. | No.                      | Title   |
|---------|--------------------------|---|
| 1       | IS:397(Part I) : 2003    | Method for statistical quality control during production: Part I Control charts for variable                        |
| 2       | IS:3596 : 1967 (RA 2004) | Glossary of terms relating to hosiery   |
| 3       | IS:14452:1997 (RA 2006)  | Textiles-Care Labeling code using symbols   |
| 4       | IS:397 (Part II): 2003   | Method for statistical quality control during production: Part 2 Control charts for attributes and count of defects |
| 5       | IS:6359: 1971 (RA 2004)  | Method for conditioning of Textiles   |
| 6       | IS:9543:1980 (RA 2004)   | Spun polyester sewing threads   |
| 7       | IS:3100: 1980            | Men's wool-cotton short drawers   |
| 8       | IS: 1895:1982            | Specification for cotton Newar  |
| 9       | IS:10789:2000 (RA 2007)  | Classification and terminology of stitch types used in seams  |
| 10      | IS:11161:2000 (RA 2007)  | Textiles-seam types-classification and terminology  |
| 11      | IS:2006:1988 (RA 2004)   | Methods for quantitative chemical analysis of binary mixture of protein fibre with certain other non-protein fibres |
| 12      | IS:1954:1970 (RA 2006)   | Methods for determination of weight per square meter and weight per linear meter of fabric                          |
| 13      | IS: 1383: 1977 (RA 2004) | Method for determination of scouring loss in grey and finished cotton textile materials                             |
| 14      | IS:1895:1982             | Specification for cotton Newar  |
| 15      | IS 1390 : 1983 (RA 2004) | Method for determination of pH value of aqueous extract of textile materials  |

Appendix-1

Determination of Wales and Courses

Take a specimen and lay it flat on a table. Remove all wrinkles and creases without distorting it. On one side of the test specimen, count with the help of a pick glass or magnifying glass, the number of wales and courses in 10 cm at three different places in the test specimen and calculate the average number of wales and courses per dm.

Appendix-2

Dimensional change due to relaxation

1.1 Take one complete specimen of "Drawer". Mark the directions of wales and courses on the specimen.

1.2 Mark centrally on the test specimen by means of indelible ink or a fast dyed cotton sewing thread an area of 20 X 20 cm with two of its sides are parallel in the direction of wales and other two parallel to the direction of courses. Spread this specimen on a flat smooth surface and carefully remove by hand all creases and wrinkle. Within this area, mark six pairs of marks, three pairs each in the wales direction and the course direction in such a way that the distance between each pair of marks is the same.

1.3 Place the test specimen on a glass plate, carefully remove by hand all creases and wrinkles without distorting it and place another glass plate on the test specimen. Condition the specimen under standard atmospheric conditions (65±2 % relative humidity and 27± 2°C

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temperature for 4 hours). Measure, correct to the nearest millimeter, the distance between each pair of mark separately.

1.4 Lay the test specimen flat in a tray of suitable size having depth of 10 cm min and soak the specimen under head of 25 mm of water containing 0.5 g/l suitable wetting agent at 25 to 35°C (Room temperature) temperature for 2 hours. Drain out the water and remove the test specimen carefully, so that it is not stretched. Lay the specimen flat on a smooth surface, remove the excess water by absorbent material and dry it at room temperature.

1.5 Lay the specimen on a smooth flat surface and allow it to dry at room temperature. Condition the specimen in the standard atmospheric conditions (65±2 % relative humidity and 27± 2°C temperature 4 hours). Measure, correct to the nearest millimeter, the distance between each pair of mark separately.

1.6 Calculate separately the percentage of dimensional change between all the pairs of marks both in the direction of courses and wales by the following formula:

$$S = \{100 X (a - b)\} / a$$

Where

S= dimensional change, percentage

a= the distance between a pair marks (along the course or wales as the case may be) before soaking

b=the distance between pair of mark after soaking and drying

1.7 Calculate the average dimensional change in each direction.