

No. U-II-25/2011-12-Prov-(CoBRA)
 Government of India/भारत सरकार
 Ministry of Home Affairs/गृह मंत्रालय
 Police Modernization Division/पुलिस आधुनिकीकरण प्रभाग
 Prov.I Desk/संभरण-I डेस्क

26, Mansingh Road, Jaisalmer House,
 New Delhi, the 11th February, 2013

DsG : AR/BSF/CISF/CRPF/ITBP/NSG/SSB & BPR&D

Subject : QRs/Specification of 14 various Clothing items.

The QRs/Specification of following 14 items as per annexures have been approved by the Competent authority in MHA:

- i. Socks woollen heavy (Annex. B).
- ii. Hand Gloves Knitted (Annex. C)
- iii. Cotton Terry Towel (Sky Blue Color)/Hand Towel (Annex. D)
- iv. Scoured and bleached rib knitted round neck sleeveless and short sleeve vests/Vest Cotton (Annex. E)
- v. Water Bottle(Annex. F)
- vi. Trouser BD Serge Cloth/Cloth Trouser BD (Annex. G)
- vii. Shirt Angola Cloth./Shirt Angola (Annex. H)
- viii. Cap Comforter Woollen(Annex. I)
- ix. Under Pant Thermal/ Under Pant Woollen (Annex. J)
- x. Vest Thermal/Vest Woollen (Annex. K)
- xi. Coat Parka (Annex. L)
- xii. Beret Cap (Annex. M)
- xiii. Rain Cape(Annex. O)
- xiv. Blanket Air Force Blue (Annex. S)

2. Henceforth, all CAPFs should procure the above items required by them, strictly as per the laid down QRs/Specifications.

widm 5/12
 13/2/2013

Yours faithfully,

Tilak Raj
 (Tilak Raj)

Under Secretary to the Govt. of India

O/C

Encl : As above.

Copy to :

1. SO, IT Cell, MHA - with the request to host the above QRs/Specification on the official website of MHA (under the page of Organizational set up, Police Modernization Division) and confirm to this Division. Softcopy is being sent separately.
2. Director(Procurement), MHA

Copy for information to PS to JS(PM).

CENTRAL RESERVE POLICE FORCE STANDARD

**SPECIFICATION FOR ~~COTTON TERRY TOWEL~~
(SKY BLUE COLOUR)**

Submitted to :

**Office of the Directorate General of Police,
CRPF, Ministry of Home Block No-1, CGO Complex,
Lodhi Road, New Delhi-03**

Prepared by :

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**SPECIFICATION FOR ~~COTTON TERRY TOWEL~~
(SKY BLUE COLOUR)**

RECORD OF AMENDMENTS

Amendment No. and Date	Amendment pertains to Sl.No./Para No./Column No.	Authority	Amended by Name and Appointment (in block letter)	Signature and Date

PREAMBLE

The Inspector General of Police, CRPF, has asked NITRA to prepare technical specifications for "Cotton Terry Towel (Sky blue colour)". The specification describes the fabric particulars and properties – ends/inch, picks/inch, weight, yarn count, fibre composition, dimensions, weave, color fastness to light, colour specification, pH, scouring loss, dimensional change due to washing etc.

Bureau of Indian Standards (BIS) and American Association of Textile Chemists and Colorists (AATCC) test methods are considered to draw the specification.

This report contains 13 pages which describe the technical specifications of "Cotton Terry Towel (Sky blue colour)" for CRPF.

This technical specification will enable the CRPF to prepare tender documents (technical details) at the time of placing orders for "Cotton Terry Towel (Sky blue colour)" and final inspection as well.

SPECIFICATION FOR COTTON TERRY TOWEL (SKY BLUE COLOUR)

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0.0 FORWARD

0.0 This specification has been prepared by Office of the Directorate General of Police, CRPF on the authority of The Director General of Police, CRPF.

0.1 This specification is for use by the CRPF.

0.2 This specification would be used for manufacture, quality assurance and procurement of the item.

0.3 Quality assurance authority for the item covered in this specification is Office of the Directorate General of Police, CRPF, New Delhi. All enquiries regarding this specification, including those relating to any contractual conditions contained therein shall be addressed to the Quality Assurance authority at the following address:

Office of the Directorate General of Police,
CRPF, Ministry of Home Block No-1, CGO Complex, Lodhi Road,
New Delhi-03

0.4 Copies of the specification can be obtained from:

Office of the Directorate General of Police,
CRPF, Ministry of Home Block No-1, CGO Complex, Lodhi Road,
New Delhi-03

0.5 This specification holds good only for the supply order for which it is issued.

0.6 The Quality Assurance Authority reserves the right to amend or modify this specification as and when required.

0.7 The Quality Assurance Authority is the competent authority to grant concessions, if any, in respect of any clause contained in this specification.

0.8 For the purpose of deciding whether a particular requirement of this specification is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960 (Reaffirmed 2006). The number of significant places retained in the rounded off value should be the same as that of the specified value in this specification.

300

1.0 SCOPE

1.1 The specification prescribes the requirement of "Cotton Terry Towel (Sky blue colour)" herein referred as "Towel".

1.2 This specification does not specify the general appearance, lusture, feel, type of finish of "Towel"

2.0 MATERIAL AND MANUFACTURE

2.1 The dimensions of the "Towel" are shown in the Fig. 1. The toleration of ± 2.5 percent is permitted in all the dimensions.

2.2 The "Towel" shall be manufactured using evenly spun 100% cotton yarn (see IS 171: 1985). For guidance, 2/20^s count (Ne) in the warp ground, 16^s count (Ne) in the pile and 12^s count (Ne) in the weft may be used.

2.3 The weaves of various portions of "Towel" is shown in Fig. 1 to 3. The body of the "Towel" shall have Terry pile weave (Fig. 2), while Cam border shall have Zigzag-1, Zigzag-2, Diamond and Pleat weaves as shown in the Fig 1a and Fig.2. The End hem of the face side of "Towel" shall have Zigzag-1 and Pleat weaves as shown in the Fig. 1a and Fig. 3a, while the End hem of back side of "Towel" shall have plain weave as shown in Fig. 1b and Fig. 3b. The finish of the "Towel" shall match with the sample held in the custody of CRPF.

3.0 SEWING THREAD

Polyester sewing thread of 2/60s shall be used. The shade of the sewing thread shall match with the shade of towel cloth.

4.0 END HEMS AND SIDE HEMS

Each transverse end of towel shall have 12 mm hem with full turn-in at each end.

The side ham shall be of 6 mm wide. For more details see the Fig.1.

5.0 STITCHING

5.1 The type of stitch used in the hems are shown in the Fig 1. All the stitches shall be of even tension throughout with all loose ends fastened. The number of stitches shall not be less than 4 per centimeter.

6.0 WORKMANSHIP AND FINISH

The "Towel" shall be free from workmanship defects i.e. spinning, weaving and processing defects (See IS 4125 : 1985). The dyeing shall be uniform without stains, streaks, patches etc and shall match the required shade.

7.0 SEALED SAMPLE

In order to illustrate or specify the indeterminable characteristics such as general appearance, luster, feel and design of the "Towel", a sample has been agreed upon and sealed; the supply shall be conformity with the sample in such respects.

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

8.0 REQUIREMENTS

The "Towel" shall conform to the parameters as given in Table 1.

Table 1: Requirements of "Towel"

Sl. No.	Parameters	Requirements	Method of Testing
1.	Composition	100 % Cotton	IS 667:1981
2.	Breaking load on 5.0 X 20 cm strips (reveled stripe method), N, Minimum - Warp direction - Weft direction	300 270	IS 1969 : 1985
3.	Thread per dm, Minimum - Warp ground - Pile - Weft	130 130 144	IS 1963-1981
4.	Pile ratio	5:1	Annex B of IS 7056 : 1989
5.	Mass, g/m ² , Minimum	430	IS 1964: 2001
6.	Dimensional Change (due to relaxation), percentage, Maximum -Wales direction -Courses direction	3.0 3.0	IS:2977 : 1989
7.	Scouring loss, percentage, Max	2	IS1383 : 1977 (Mild method)
8.	pH Value of aqueous extract	6.0 to 8.5	IS :1390-1983 (Cold method)
9.	Wettability, Seconds, Maximum	10	IS 2349 : 1963
10.	Colour fastness to light	5 or better	IS 2454 : 1985
11.	Colour fastness to Washing -Change in colour -Staining of adjacent fabric	4 or better 4 or better	IS 764 : 1979
12.	Colour difference (ΔE)	≤ 3.0	See Table 2

TABLE -2 Specification of colour of Towel

(Guideline of AATCC Test method 173 : 2005 & AATCC Evaluation Procedure 7 : 2003)

Colour	:	SKY BLUE		
System	:	CIE LCH		
Illuminant Observer	:	D 65		
Standard Observer	:	10 Degree		
Tristimulus Values	:	X	Y	Z
		23.948	26.223	45.248
LCH	:	L	C	H
		58.248	22.768	260.003
CMC (l:c)	:	2:1		
Colour difference, ΔE_{cmc}	:	≤ 3.0		

Interpretation of Results :

- i) If ΔE_{cmc} is less than or equal to 3, then sample is acceptable.
- ii) If ΔE_{cmc} is greater than 3, then sample is unacceptable.

Note-1 : Absorbance/reflectance/ transmittance are affected by surface characteristic features of the substrate. Therefore comparison should be made between samples of same type i.e., identical fabric construction parameters and filament/ fibre composition.

9.0 SAMPLING

9.1 The sampling procedure detailed in 9.2 and 9.3 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 "Towel" tendering by him for inspection to comply with the requirements of this standard in all respects.

9.2 The manufacturer should offer the stores serially numbered and arranged in such a way that the entire lot is accessible to the inspecting officer. The conforming of a lot to the requirement of this specification shall be determined on the basis of the tests carried out on the samples selected from it. The number of samples shall be selected at random in accordance with Table-3.

Table-3: Number of "Towel" to be selected from a lot and permissible number of non-conforming "Towel"

Lot size (1)	Sample size (2)	Permissible number of non-conforming pieces (3)	Sub-sample size (4)
Up to 25	3	0	2
26 – 50	5	0	2
51-150	8	0	3
151-300	13	1	3
301-500	20	1	5
5001-1000	32	2	5
1001 and above	50	3	8

Note: Sampling officer will select sampling unit randomly (as per procedure given in IS 4905 : 1968) and select ultimate items from each sampling unit as per the above table.

9.3 **Lot:** For the purpose of conformance inspection and test sampling, a lot is defined as all the completed "Towel" of the same size and type, with same assemblies, produced in one facility, using the same production processes and materials, and being offered for delivery at one time to buyer against a dispatch note.

9.4 The CRPF reserves the right to carry out inspection of bigger lot sizes, even to the extent of 100% inspection, if considered necessary.

9.5 The sample size and the criterion for conformity for various characteristics shall be as follows:

Characteristics	Sample size	Criteria for conformity
Ends, picks, mass, length, width and visual inspection	According to col 2 of table 3	Non-conforming "Towel" not to exceed the corresponding number given in col. 3 of table 3
Nature of fibre, Colourfastness, Dimensional change, Scouring loss, pH value, colour specification (ΔE_{cmc})	All the "Towel" shall be inspected according to the column 4 of table 3	All the towels shall satisfy the relevant requirements.

10.0 MARKING

A woven cloth label marked with the following information (Colour from the label shall not bleed on to the "Towel" during storage or use) shall be fastened to each "Towel".

- a) Size (length and width) in cm
- b) Name of manufacturer or trade mark, if any
- c) Any other information required by the buyer

11.0 PACKING

11.1 Unless otherwise agreed upon by the buyer and the seller the towel shall be packed in ales or cases in conformity with the procedure laid down in IS 1347: 1972 or IS 293 : 1980.

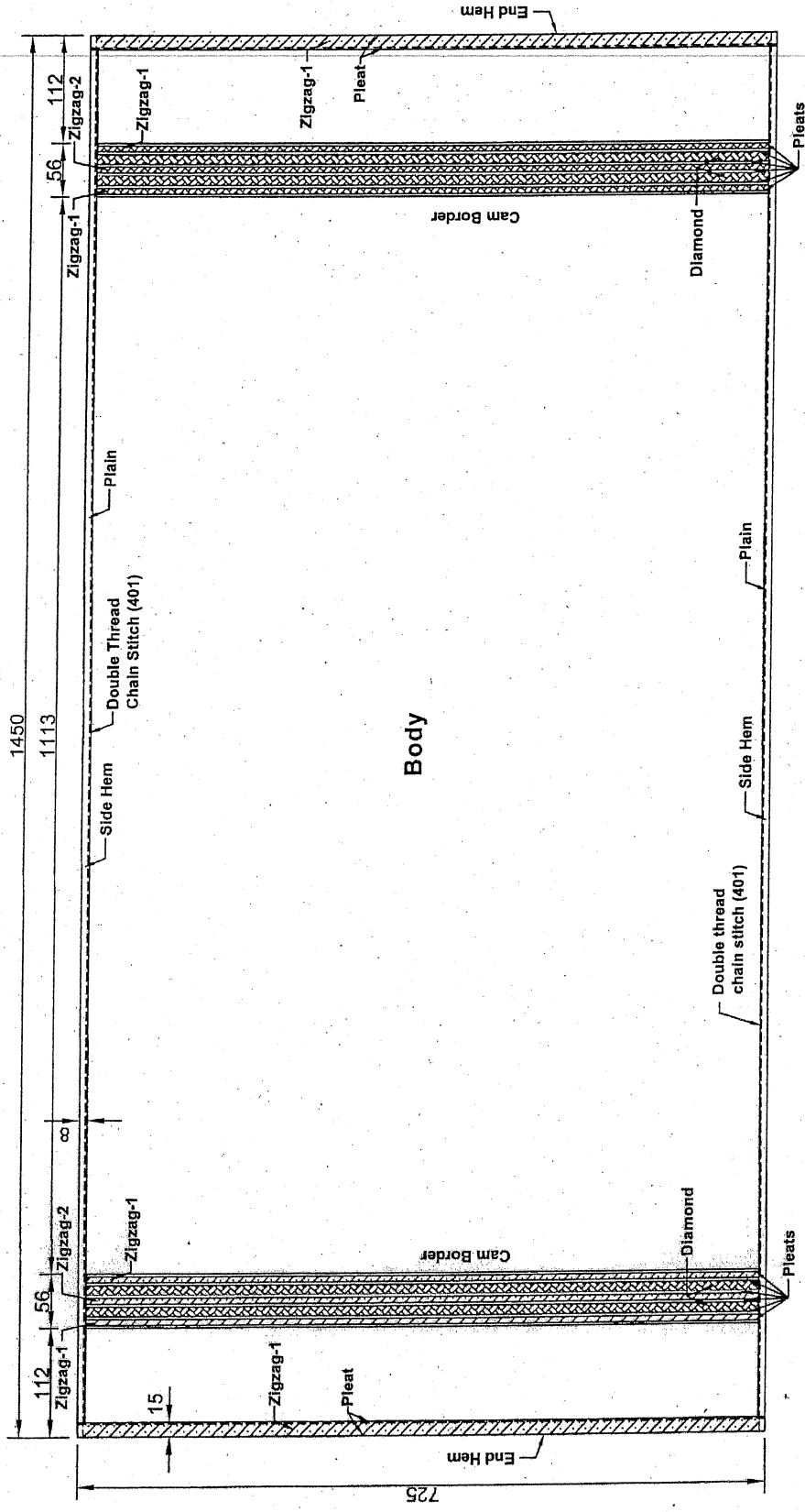
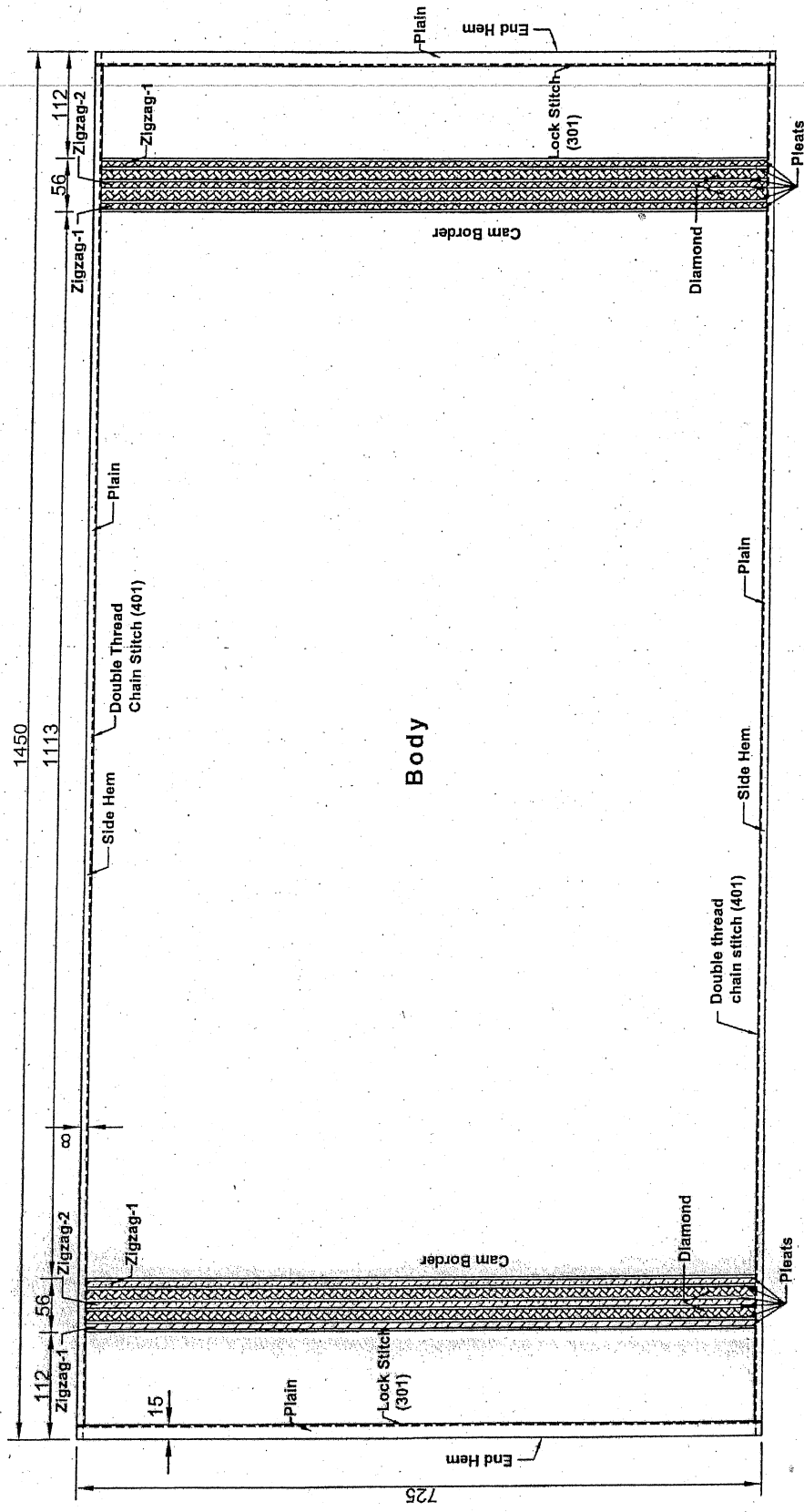


Fig.-1a Dimensions of Towel (Face)
(All Dimensions are in mm)

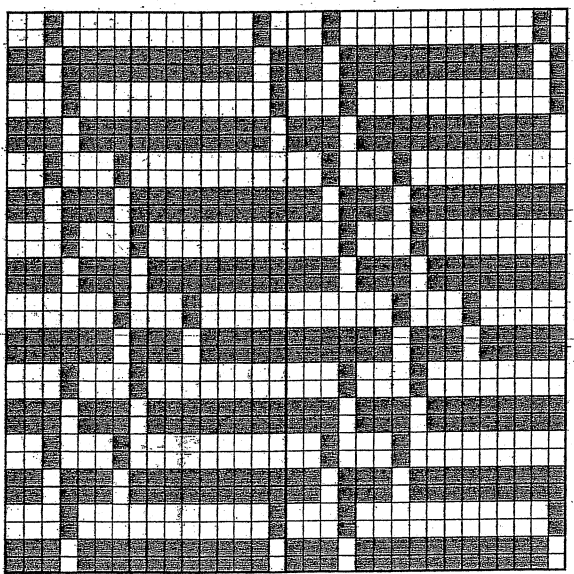


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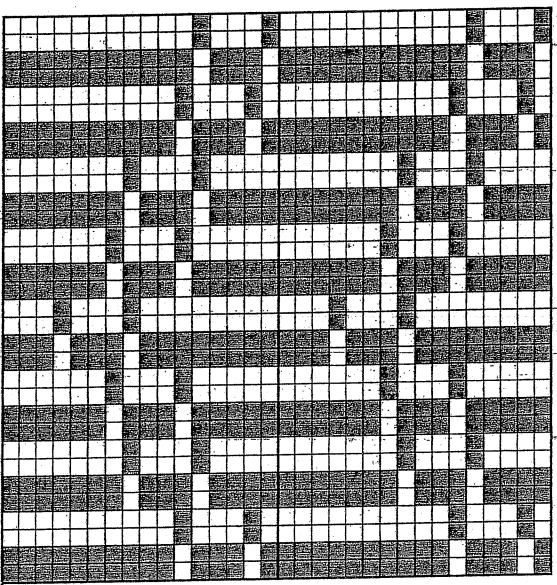
Fig.-1b Dimensions of Towel (Back)
(All Dimensions are in mm)

Fig.-2: Weave of various portion of Towels

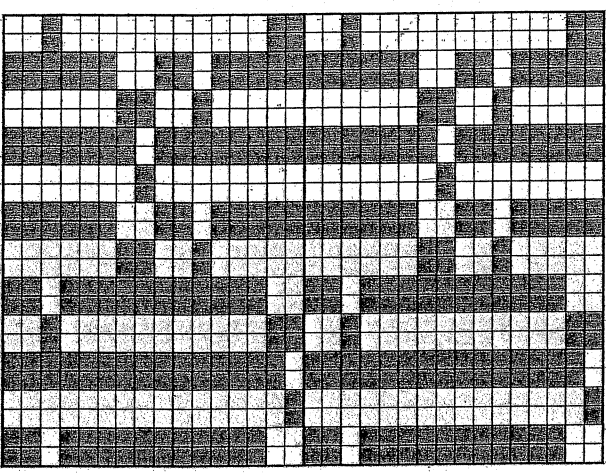
Weave for Zigzag 2



Weave for Zigzag 1

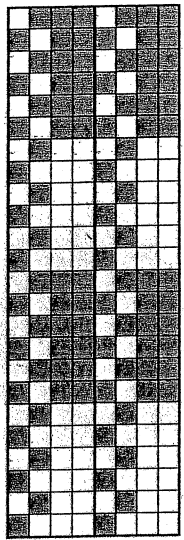
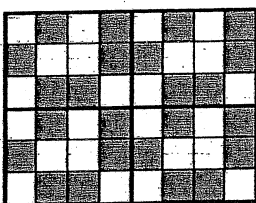


Weave for Diamond



Weave for Pleat Weave for Terry Pile

G G P P G G P P



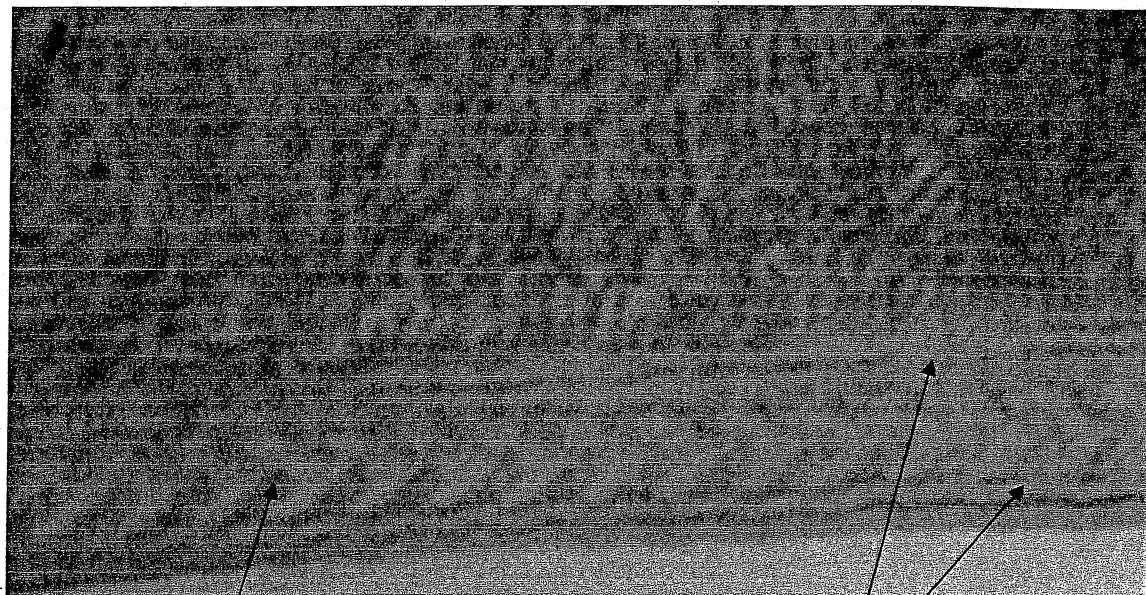


Fig. 3a Face side End Hem

End Hem (Zigzag-1 weave)

End Hem (Pleat weave)

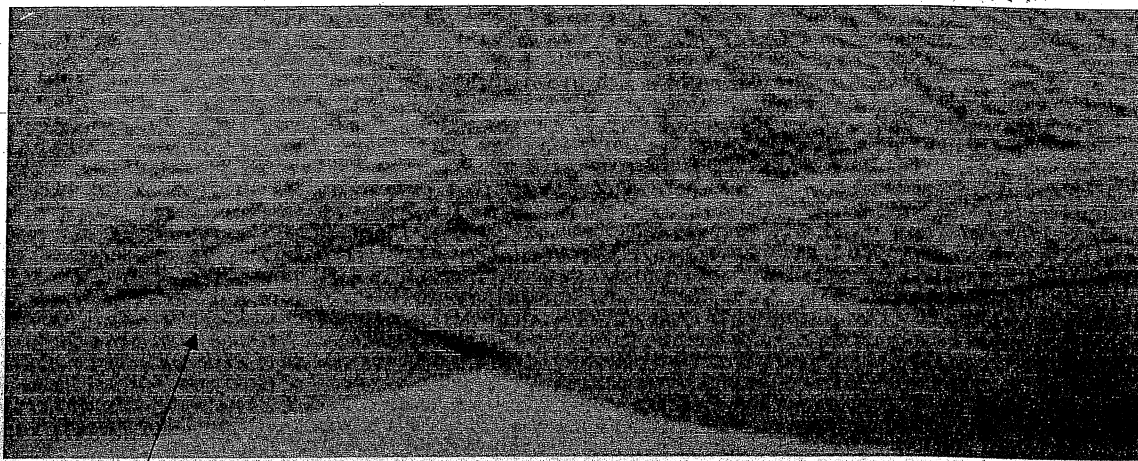


Fig. 3b Back side End Hem

End Hem (Plain weave)

12.0 REFERENCES

Sl. No.	SPEC./TEST METHOD No.	DESCRIPTION
1	IS 667: 1981	Method for identification of textile fibres
2	IS 6359:1971, RA 2004	Method for Conditioning of Textiles
3	IS 293 : 1980	Code for seaworthy packaging of cotton yarn and cloth
4	IS 1383: 1977	Methods for determination of scouring loss in grey and finished cotton textile material
5	IS 1954: 1990	Methods for determination of length and width of fabrics
6	IS 1963 : 1981	Methods for determination of threads per unit length in woven fabrics
7	IS 1964 : 1970	Methods for determination of weight per square meter and weight per linear meter of fabrics
8	IS 1969: 1985	Methods for determination of breaking load and elongation of woven textile fabric
9	IS 2349 :1963	Methods for determination of wettability of cotton fabrics
10	IS 2454: 1985, RA 2006	Methods for determining of colour fastness of textile materials to artificial light (xenon lamp)
11	IS 1390: 1983, RA 2004	Methods of testing of pH value of aqueous extract
12	IS: 9543: 1980	Spun polyester sewing threads

10. 1. 1950