No. U.II.1/2012-13-Prov-CLO 608

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 28th April, 2016

To

The DsG: Assam Rifles, BSF, CISF, CRPF, ITBP, NSG, SSB and BPR&D.

Subject: Revision of QRs/Specification of Beret Cap.

Sir,

The undersigned is directed to refer to DG, CRPF's U.O. No.U.II-98(Spec)/2015-16-Prov(Beret Cap) dated 8.4.2016 on the subject mentioned above and to say that the revision of QRs/Specifications in respect of Beret Cap as annexed have been approved by the competent authority in MHA.

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

3. Concerned CAPFs will be accountable for correctness of the QRs/Specifications of Beret Cap.

4. The QRs/Specifications of Beret Cap at Sl. No.xii earlier issued by MHA vide letter No.U-II-25/2011-12-Prov(CoBRA) dated 11.2.2013 is rescinded.

Encl: As above.

Yours faithfully,

28/4/16

(Ritesh Kumar)
Under Secretary to the Govt. of India

Copy forwarded for necessary action to:

✓ SO (IT), MHA - With the request to host the QRs/Specifications of Beret Cap on official website of MHA (under the page of Organizational Set up, Police Modernization Division-Clothing Items). Soft copy is being sent through email also.

28/4/16

(V. Devadas)
Section Officer (Prov-I)

Copy to: DDG (Procurement), MHA.

QRs/SPECIFICATION

OF

BERET CAP

(Revision)

1.0 SCOPE

1.1 The specification prescribes the requirement of "Beret Cap" (Navy Blue colour) herein referred as "Beret".

1.2 This specification does not specify the general appearance, lusture, feel of "Beret".

2.0 MATERIALS AND MANUFACTURE

2.1 The shape, dimensions and design of the "Beret" shall be as shown in Fig 1 and 2. The "Beret" shall be manufactured as described in the following sub classes.

2.1.1 Base fabric: A plain knitted fabric made out of 100% virgin woolen yarn (wool grade not less than 64s confirming IS 5910:1977) shall be used to manufacture the "Beret".

2.1.2 The plain knitted fabric shall be manufactured using two strands of yarn on a suitable circular knitting machine depending upon the size of the "Beret". The fabric shall undergo milling and finishing like raising (both side) before making "Beret".

2.1.3 The "Beret" shall be lined with black colour polyester cloth and shall have an interlining of polyethylene film of minimum 40 microns thickness (see IS 2508) covering completely the crown and the bevel portions. The crown of the "Beret" shall have four layers of fibres bed (Each layer of around 3.0 mm thickness when tested in accordance to IS 7702 at 1 Kpa pressure and waste fibres of wool, polyester etc may be used for fibre bed) along with jute fabric (For guidance End/dm: 78, Picks/dm:28 and mass:550 g/m^2) sandwiched between polyethylene film and polyester cloth to give cushioning effect. These layers shall be

stitched together (No. of stitch per centimeter: 3) along with jute fabric with the polyester cloth. These layers shall not be stitched with base fabric of the crown. The mass of the crown assembly including base fabric, lining fabric, four fibres layers, Jute fabric and polyethylene film shall be around 2000 g/m^2. The approximate thickness of crown assembly shall be 12 mm when tested in accordance to IS 7702 at 5 Kpa pressure. The lining of crow shall be of one piece while of bevel in two pieces. The corwn of the "Beret" shall be circular in shape.

2.1.4 The polypropylene tape (for guidance around 600 Denier polypropylene filament yarn in warp and weft and total ends in full width 58 and Picks/dm 228 may be used for the manufacture of tape) of (25±2 mm shall be attached to the bottom edge of the bevel by one row of stitches. turned over and joined to the body by an additional row of stitches. The channel so formed shall be around 13 mm and provided with a braided polyester draw tape (For guidance 300 denier polyester filament yarn may be used for manufacture, width of the tape: approximately 10 mm and number of threads: approximately 24) approximately 18 cm longer than the circumference of the head band. The two ends of the draw tape shall be tied to form a bow. The two ends of polypropylene tape shall overlap at the back to form a triangular slit which shall be secured by two rows of stitches. The polypropylene tape and draw tape shall be of black colour.

2.1.5 Two metal eyelets of 6 mm size shall be fitted at the back approximately 25 mm apart and 20 mm above the bottom edge of the "Beret". The eyelets shall be black in colour.

3.0 STITCHING:

3.1 Lock stitch having 3 to 4 stitches per cm shall be employed wherever stitching has to be carried out. The stitching shall be done with even tension and all loose ends shall be securely fastened off.

3.2 Polyester sewing threads of 2/40s Ne count may be used. The colour of the sewing thread shall visually match with the navy blue colour of base fabric.

4.0 WORKMANSHIP AND FINISH

The base fabric used shall be free from defects such as yarn, fabric and dyeing defects.

The workmanship to stitch the "Beret" should be free from defects due to stitching and handling.

5.0 SEALED SAMPLE

For appearance, shape, general workmanship, finish and for other aspects, not defined in this specification, "Beret" shall conform to the sample held in the custody of the Indentor/Buyer. The custody of sealed sample shall be a matter of prior agreement between the buyer and the seller.

6.0 DIMENSIONS

6.1 The "Beret" shall conform to the dimensions given in the Table 2 to measure dimensions of the "Beret", take the "Beret" to be tested and lay it flat on a horizontal surface. Remove all creases and wrinkles without distorting it.

7.0 SAMPLING AND CRITERIA FOR CONFORMITY

Manufacturers must satisfy themselves that the stores are in accordance with the requirements of the buyer and fully conform to the required specification by carrying out a through pre-inspection of each lot before actually tendering the same for inspection to the inspecting officer. A declaration by the manufacturer that necessary pre-inspection has been carried out on the store tendered, will be submitted along with the CHALLAN. The declaration will also indicate the method followed in carrying out pre-inspection showing the feature checked/tested and will have the test certificate attached to the challan/declaration.

7.1 The sampling procedure given below shall give desired protection to the buyer and the seller provided the lot submitted for inspection is homogenous. To achieve this, manufacturer shall maintain a system of process control at all stages of manufacture and shall ensure that the "Beret" tendered by him for inspection comply with the requirements of this standard in all respects.

7.2 In any consignment, all the "Beret" of same size and colour delivered to a buyer against a dispatch note shall constitute a lot.

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

7.3 Unless otherwise agreed to between the buyer and the seller, the number of "Beret", depending upon the size of the lot, shall be selected at random in accordance with the col 2 of Table 1 for non-destructive testing and col 4 of Table 1 for destructive testing.

Table-1: Number of "Beret" to be selected from a lot and permissible Number of non-conforming "Beret"

No. of "Beret" in the lot	Non-Destructive Testing		Destructive Testing (Chemical Testing)	
	No. of "Beret" to be selected	Permissible number of non-conforming "Beret"	No. of "Beret" to be selected	Permissible number of non-conforming "Beret"
(1)	(2)	(3)	(4)	(5)
Upto 300	10	1	2	0
301-500	20	1	3	0
501-1000	30	2	5	0
1001-3000	50	3	8	0
3001 and above	80	5	13	1

7.4 The sample size and the criteria for conformity for various characteristics shall be as follows:

Characteristics	Number of test samples	Criteria for conformity
Dimensions and freedom from defects	All the "Beret" selected according to the column 2 of Table 1	Non-conforming "Beret" not to exceed the corresponding number given in column 3 of Table 1
Dimensional change, pH value, weight, colour fastness to various agencies except light.	All the "Beret" selected according to the column 4 of Table 1	Non-conforming "Beret" not to exceed the corresponding number given in column 5 of Table 1
Colour fastness to light	One up to 500 "Beret" and two above 500 "Beret"	Each observed value satisfies the specified requirement.

8.0 MARKING

A suitable cloth label marked with the following information shall be securely attached adjacent to the chin strap of each "Beret"

a) Size

b) Manufacturer's name or trade-mark, if any; and

c) Year of manufacture, if required.

9.0 PACKAGING & PACKING

9.1 The "Beret" shall be packed in clean and dry condition.

9.2 Each "Beret" shall be wrapped in a polythene bag of suitable size.

9.3 Ten "Beret' of same size packed as mentioned in 9.2 and shall be arranged suitably and tied together with twine jute 3 ply (IS 1912:1984 RA 2007) to form a bundle.

9.4 The bundles shall be wrapped with layer of polyethylene film of minimum 40 microns thickness (see IS:2508:1984, RA 2003). A suitable number of such bundles shall be packed in wooden cases lined with water proof packing paper (See IS 1398:1982, RA 2004) or polyethylene film of 40 microns

10.0 REQUIREMENTS

10.1 The dimensions of the various sizes of "Beret" shall conform to Table 2.

10.2 The "Beret" shall conform to the requirement given in Table 3 and 4.

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Table-2: Dimensions of the "Beret"

Size	Head Band		Diameter of circular crown in cm	Depth of Bevel to seam on polypropylene tape all around in cm
	Diameter in cm	Circumference in cm		
	A		B	C
Small	17.75	56.5	26.0	5
Medium	19.00	60.5	27.5	5
Large	20.25	64.5	28.5	5
Tolerance	±0.5	±1.0	±6.5	±0.3

NOTE: For dimension test, lay Beret flat on a horizontal surface. Remove all creases and wrinkle without distorting it. Measure correct to the nearest millimeter as per the dimensions given in the above table.

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Table-3: Requirements of "Beret"

Sl. No.	Parameter	Requirements	Method of Testing
	Base Fabric		
1	Composition	Wool	AATCC 20:2010
2	Dimensional Change (due to relaxation), percentage. Maximum	3.0	As per guidence of IS 2977:1989 (See Annexure 1)
3(a)	Weight in g/m^2	500 (Minimum.)	IS 1964:1970
3(b)	Course/dm	50 minimum	-
3(c)	Wales/dm	30 minimum	-
4	Colour Fastness to		
	a) Light (on blue wool Standards)	5 or better	IS 2454:1985
	b) Washing -Change in colour -Staining on Cotton	 3-4 or better 3-4 or better	 IS/ISO 105 C 10 A(1):2006
	c) Perspiration (Acid & Alkaline) - Change in shade -Staining on cotton	 3-4 or better 3-4 or better	 IS 971:1983
	c) Dry cleaning	3-4 or better	IS 4802:1988
	e) Hot pressing	3-4 or better	IS:689:1988 at 150±2°C
5	pH Value of aqueous extract	6.0-8.0	IS 1390:1983 (cold method)
6	Colour specification	As per	See Table 4
	Polyester cloth		
7	Composition	Polyester	AATCC 20:2010
8	Weave	Satin	Visual
9	Ends/dm, Minimum	280	IS 1963:1981
10	Picks/dm, Minimum	240	IS 1963:1981

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11	Weight, g/m²	320 (Minimum)	IS 1964:1970
12	Colour	Visual	Black
	Polypropylene tape		
13	Composition	100% Polypropylene or 100% Polyester	AATCC 20:2010
14	Weave	Coated twill Refer Fig 3	Visual
15	Width, mm	[illegible]	IS 1954:1990
16	Linear weight, g/100 meter (Minimum)	[illegible]	IS 1964:2001
17	Colour	Visual	Black
	Braided d[illegible] tape		
18	Composition	100% Polypropylene Or 100 Polyester	AATCC 20:2010
19	Linear Weight, g/100 meter	[illegible]	IS 1964:2001
20	Colour	Black	Visual

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Table-4 : Specification of colour of base fabric "Beret"

(AATCC Test method 173: 2009 & AATCC Evaluation Procedure 7:2003)

Colour	:	Navy Blue		
System	:	CIE LCH		
Illuminant Observer	:	D 65		
Standard Observer	:	10 Degree		
Tristimulus Values	:	X	Y	Z
		1.608	1.614	2.604
L C H	:	L	C	H
		13.315	7.648	286.107
CMC (l:c)	:	2:1		
Colour difference, ΔE_{cmc}	:	≤ 2.0		

Interpretation of Results:

i) If ΔE_{cmc} is less than or equal to 2 then sample is acceptable.

ii) If ΔE_{cmc} is greter than 2, then sample is unacceptable.

Note-1 : Absorbance/reflectance/transmittance are effected 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.

Note-2 : Test should be carried out after proper conditioning as per AATCC 173 using Diffuse (sphere) geometry spectrophotometer.

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Table-5 : Specification of colour of base fabric "Beret"

(AATCC Test method 173: 2009 & AATCC Evaluation Procedure 7:2003)

Colour	:	Black		
System	:	CIE LCH		
Illuminant Observer	:	D 65		
Standard Observer	:	10 Degree		
Tristimulus Values	:	X	Y	Z
		1.347	1.439	2.153
		L	C	H
L C H	:	15.164	0.886	284.616
CMC (l:c)	:	2:1		
Colour difference, ΔE_{cmc}	:	≤ 2.0 +ve		

Interpretation of Results:

i) If ΔE_{cmc} is less than or equal to 2 then sample is acceptable.

ii) If ΔE_{cmc} is greter than 2. then sample is unacceptable

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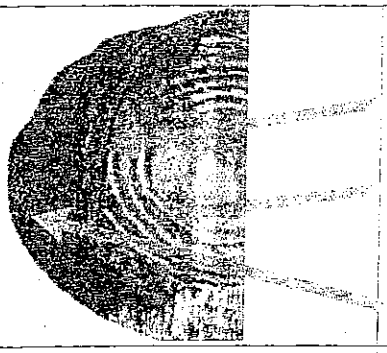
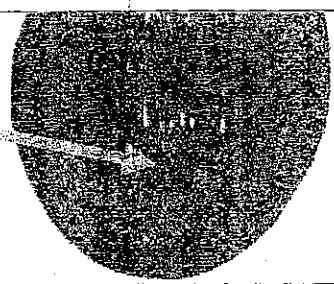


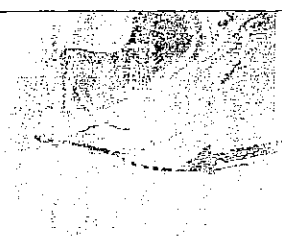
Polypropylene tape

Lining

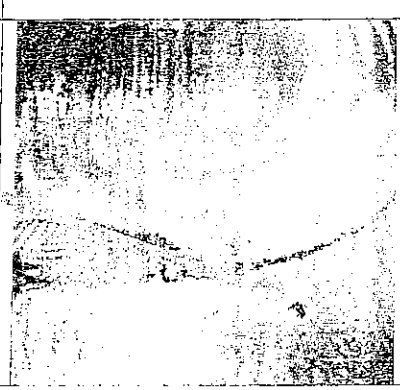
Bavel

Crown
(Base fabric)





Eyelet



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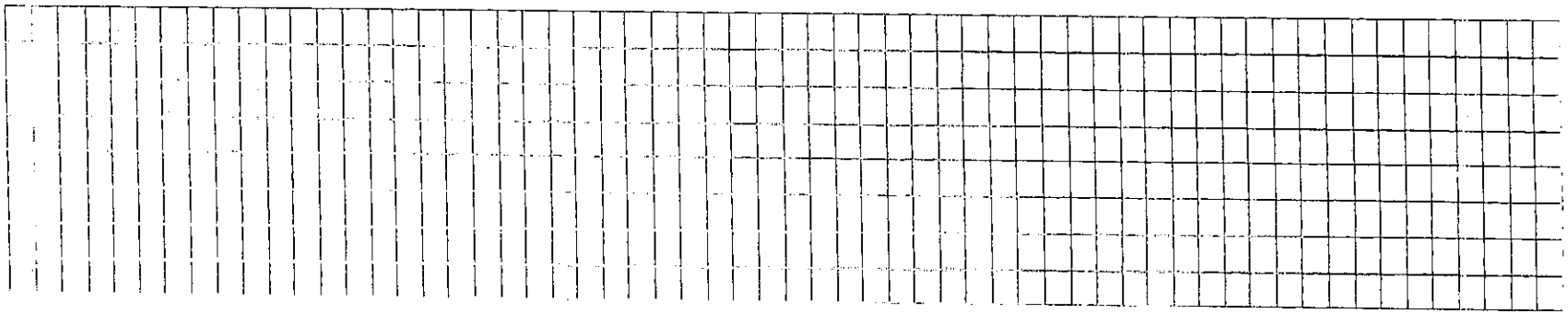

Fig. 3 25 mm wide Polypropylene Tape
(2/2 Pointed Twill -Two repeats, Loom: Needle loom)

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11. REFERENCES

Sl No.	SPEC. /TEST METHOD No.	DESCRIPTION
(a)	AATCC 20 : 2010	Fibre analysis: Qualitative
(b)	IS 971: 1983. RA 2004	Method for determination of colour fastness of textile material to perspiration
(c)	IS 1390: 1983. RA 2004	Methods of testing of pH value of aqueous extract.
(d)	IS 2454: 1985. RA 2006	Methods for determining of colour fastness of textile material to artificial light (xenon lamp)
(e)	IS 2500 (part-2): 1965, RA 2006	Sampling inspection tables
(f)	IS/ISO 105 C10 A(1) : 2006	Method for determination of colour fastness of textile material to washing
(g)	IS 4905: 1968. RA 2006	Method of random Sampling
(h)	IS 2977: 1989, RA 2005	Method for determination of dimensional changes on soaking in water
(i)	IS 6359: 1971. RA 2004	Method for Conditioning of Textiles
(j)	AATCC Test Method: 173 2009	CMC 'Calculation of small colour differences for acceptability
(k)	AATCC Evaluation Procedure 7: 2009	Instrumental assessment of the change in colour of a test specimen

Annex-1

DIMENSIONAL CHANGE AFTER WASHING

Dimensional change shall be tested as per the guidance of IS 2977 with the following change in procedure:

For determination of change in dimensions of "Beret", first, take a "Beret" (fully conditioned), to be tested. Lay it flat on a horizontal surface. Remove all creases and wrinkles without distorting it. Measure to the nearest millimeter (dimension are given in the Table 2). Treat the "Beret" as per IS 2977: 1989, dry and condition. After conditioning, again measure all the dimensions as above and compare with the untreated Beret's dimensions.

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Approved/ Not Approved

K. Durga Prasad, IPS,

DG CRPF