



PAKISTAN NAVY SPECIFICATION 03/2023
PROMULGATION DATE: 23 OCTOBER 2023

CAP PEAK WHITE FOR CPOs/ POs

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PROMULGATION ORDER

1. This specification is hereby approved and promulgated for information, guidance and compliance by the relevant person.

1. The details contained in the specification are to be studied, interpreted and implemented with due regards to the interest of the Service.

SUGGESTIONS FOR AMENDMENT

The specification has been prepared to bring the test methods and procedures in line with up-to-date PN requirements and facilities held in Pakistan. CINS may request to amend any test requirement/ test procedure in light of the experience emanating from its inspection history, through the feedback form placed at Annex G. However, such an alteration will be effective when the amendment is promulgated by this Directorate, and will be effective on the contracts which materialize after the promulgation date of respective amendment.

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PN SPECIFICATION 03/2023
CAP PEAK WHITE FOR CPOs/ POs

0101. DESIGNATION

1. Cap Peak White for CPOs/ POs.

0102. USAGE

1. These Cap Peak White will be worn by CPOs/ POs of Pakistan Navy with Working and Ceremonial Dresses.

0103. INTRODUCTION

1. This specification is prepared by Directorate of Indigenous Technical Development, Karachi, to provide necessary guidance to the potential manufacturers/ suppliers of the items mentioned herein. This specification is to be used for testing and deciding upon acceptance, or otherwise, of the items mentioned. This specification supersedes and replaces Drawing No of PBR 81 (G/096/93 of 14 Jul 93) , PN / uniforms/ 16/2001 dated 12 august 2004 and all other specifications/ technical details promulgated earlier in relation to the items mentioned herein. Any alteration or addition in this specification can be suggested to ITD wing (NRDI). However, it cannot be implemented without prior approval from DNS.

2. This specification booklet includes **07** Annexes and consists of **25** pages, including the cover.

0104. SCOPE

1. This specification covers the technical/ manufacturing requirements of Cap Peak White for CPOs/ POs worn with working and ceremonial Dresses. It defines and lays down the quality standards, details of materials, workmanship and finish. It also defines brief requirement and process of sampling, testing, inspection acceptance/ rejection, marking, preservation, packing and delivery etc. of Cap Peak White for CPOs/ POs.
2. The supplier/ manufacturer shall comply in every respect with the terms of this specification and ensure that the stores conform to it, in all respects.

0105. RELATED DOCUMENTS

1. The latest standards documents that have been referred to in this specification are:

a.	AATCC-20 A	Fiber Analysis –Qualitative.
b.	BS 1006	Color fastness to Light
c.	ISO 3801	Determination of Mass per unit Length
d.	ISO 7211/5	Determination of count of yarn
e.	ISO 105-E01	Color fastness to water.
f.	ISO 105 E02	Color fastness to sea water
g.	ISO-105-E04	Color Fastness to Perspiration
h.	AATCC-08-2016	Color fastness to Rubbing
j.	ISO 105 E04	Color Fastness To Perspiration
k.	ISO 105 C10 C(3)	Color Fastness to Washing
l.	ISO 105 J02	Method for Calculating Berger Value

m.	ASTM D 8136-17	Method for calculating thickness of plastic
n.	ASTM E 158	Material analysis of Steel
p.	ISO 4592	Plastic- Film and Sheeting Determination of Length and width
q.	ISO- 9237	Determination of air permeability
r.	ISO 105 D01	Colour fastness to Dry- cleaning
s.	BS EN ISO 12945-2	Determination of pilling and fuzzing
t.	ISO 105 X-18	Method to determine Phenolic Yellowing value

0106. **DEFINITIONS & ABBREVIATIONS**

1. Definitions for the terms used in this standard are given at Annex A of this specification.

0107. **TECHNICAL DETAILS OF CAP PEAK WHITE FOR CPOs/ POs**

1. The Technical Details of Cap Peak White for CPOs/ POs are mentioned at Annex B of this specification.

0108. **MANUFACTURING DETAILS OF CAP PEAK WHITE**

1. **Peak.** The peak (synthetic material) is sandwiched with upper glazed plastic and inner Rexene. The edge of the peak is to be bound using seam type (lock stitch) with the join at the center back of the cap.

2. **Pattee round.** A pattee round is to be used to provide the rigidity/ Stiffness for the crown, and should be round shape.

3. **Crown Cover Cloth.** Crown cover should be 100% polyester. The absorbent fabric is to be positioned 1cm above the base of the crown former. The absorbent fabric when attached by either drumming or by conventional methods must provide the same degree of comfort as that provided by the standard Pattern.

4. **Additional Headband/ Mohair band.** The additional headband is to be seamed 1.5 cm with the corners turned and stitched to avoid fraying. The band is to be positioned with the joint at the center front.

5. **Chin strap and Loop.** A ribbon cut approximately 10cm long (effective length no less than 2cm doubled), is to be securely sewn.

6. **Seams and Stitching to BS 3870.** Machine stitching is to be lock stitch with at least eight but not more than ten stitches per 2cm. Unless otherwise stated in the body of the specification.

7. **General.** Sewing thread may be treated with stain free lubricants. The cap are to be free from all ends of sewing thread, be locked and pressed to retain the required appearance and uniform shape. All seams are to be free from pucker. The contractor must ensure that the cap is manufactured with a high regard to appearance, comfort and durability.

8. Label (Identification & care) will be printed on a suitable fabric and stitched/ printed on inner side of Cap as per Annex D.

9. Measurement schedule is define at Annex C

0109. **QUALITY OF WORKMANSHIP AND FINISHING**

1. The Workmanship and finish of PN CPOs/ POs Cap shall be best in quality and to the entire satisfaction of the Inspector.

0110. **TESTING**

1 The stores/ material during manufacturing and after delivery shall be tested and examined as Inspector may consider necessary in order to determine whether they conform to Annex B of this specification. Inspecting Authority reserves the right to get any B/R samples tested from any reputable Laboratory other than PN wherever considered important by Inspecting Authority.

0111. **BULK REPRESENTATIVE SAMPLES OF PN CPOs/ POs CAP**

1. No of samples drawn for testing from bulk quantity are as under OR as per instruction of Inspecting Officer (if deemed appropriate):

Lot Size	No. Sample
300 ≥ 500	03
501 ≥ 800	05
801 ≥ 1300	07
1301 ≥ 3200	10
3201 ≥ 8000	15
8001 ≥ 22000	30
22001 ≥ 110000	40

0112. **TENDER SAMPLE**

1. Tender sample to be approved by TSR Committee.

2. For each contract following material shall be supplied by the manufacturer at the time of tendering:

a.	CPOs/ POs Cap	04 x samples (each type)
b.	Inner Crown (Plastic Shell)	03 Samples/ 02 mtr
c.	Mohair Band/ Head Band	02 mtr
d.	Brim Binding	02 Samples/ 02 mtr
e.	Inner Lining	02 mtr
f.	Head Fabric	03 mtr
g.	Cover	02 mtr
h.	Chin Strap & Loop	01 mtr
j.	Thread for all Sewing	03 Bobbin each/ 100 mtr
k.	Other relevant accessories	Suitable quantity for testing

3. Firm shall provide tender sample alongwith Quality verification report from an accredited lab.

0113. **ADVANCE SAMPLE**

1. Advance sample or pre-production sample, when required, shall be submitted in accordance with terms of the contract for inspection, as per Annex B, C and D and approved by CINS.
2. Whenever Tender, Advance or pre-production sample is not required, the suppliers/ manufacturer are advised in their own interest to submit to the Inspecting CPOs/ POs or his representative an initial delivery of 01 % of the contract or suitable quantity for inspection and testing.
3. The approval of Tender, Advance or pre-production sample, authorizes the commencement of bulk production but does not relieve the suppliers/ manufactures from compliance with all the provisions of this specification. One approved sample shall be properly sealed by INS and returned to the firm for guidance; rest of the approved sample shall be retained by INS for future use in bulk Inspection (if deemed necessary).
4. The pre-production sample shall be manufactured by the manufacturer with the same facilitates which will be used for manufacturing of the bulk items.
5. Firm shall provide advance sample along with quality verification reports from an accredited laboratory, to ensure compliance of quality assurance parameters during production/ final internal inspection.

0114. **INSPECTION**

1. Bulk representative sample (B/R) random sampling will be carried out as per rules in vogue.
2. CPOs/ POs Cap shall be tested and examined during manufacturing/ stage inspection as Inspector may consider necessary, to determine whether they conform to PN specification w.r.t quality or not.
3. Inspection of CPOs/ POs Cap. The guidelines for Inspector w.r.t General defects are defined at Annex E and Inspection Criteria is defined at Annex F. CPOs/ POs Cap shall be examined to ensure correctness of material, shade, width, evenness of dyes and other constructional details.
4. Inspection/ Acceptance and Rejection of Stores. Inspection/ acceptance is to be carried out to the entire satisfaction of Chief Inspector of Naval Stores or as per instruction/ procedure laid down in unit/ department order.
 - a. Stamping of accepted stores: Each Cap shall be stamped with Inspectors individually acceptance mark close to contractor marking/ labelling.
 - b. Stamping of rejected stores: The rejected items shall be marked with inspectors rejection mark close to contractor marking/ labelling to avoid resubmission by the supplier.
5. If on examination of 5% of any delivery, 20% of those examined from bulk supply are found NOT CONFORMING to this specification in respect of the pattern, dimensions,

workmanship and finish, the whole consignment may be rejected without any compromise.

6. All stores and packing NOT fully in accordance with this specification shall be rejected.

7. Responsibility for Inspection. The supplier is responsible for the performance of all inspection requirements (examinations, tests etc.) as specified herein. PN reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

8. Responsibility for Compliance. The inspection set forth in this specification shall become a part of the supplier's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of ensuring that all products or supplies submitted to PN for acceptance comply with all requirements of the contract. Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements. However, this does not authorize submission of known defective material, either indicated or actual, nor does it commit PN to acceptance of defective stores (material).

9. Replacement by the Contractor. The supplier is responsible for replacement of the consignment or any part thereof, whenever it is found to be not conforming to this specification. The supplies so tendered in replacement, shall be subjected to testing/ Inspection and acceptance by the Inspecting Officer.

10. Responsibility for Safety. The supplier/ manufacturer is fully responsible for the safety of supplies during inspection, storage at firm's premises, proper packing, dispatch and delivery up to consignee.

11. The CINS is the authority in all matters pertaining to Inspection.

0115. **SPECIAL INSTRUCTIONS**

1. Care Label Instructions. Following care instructions in the form of leaflet OR attached with Cap shall be provided in English and Urdu:

- a. To be washed/ rinsed with Warm/ hot water.
- b. Stain removing bleach should be avoided.
- c. Prolonged contact with sunlight should be avoided etc.

0116. **PACKING AND PRESERVATION DETAILS**

1. Quality of packing shall be examined/ tested as the Inspector may consider necessary in order to determine whether they conform to this specification.

- a. Packing. The store when ordered to be delivered 'PACKED' shall be distributed evenly in each carton.

- (1) Each cap shall be packed and wrapped in Polythene bag having thickness of 0.005 (1.27mm).
- (2) The Polythene shall be of sufficient size to ensure caps are protected.
- (3) Packing, marking and preservation will be done by the supplier as per specification and with adhesive tape of 10cm width of the best quality.
- (4) 10 x Boxes CPOs/ POs Cap will be packed neatly in suitable carton.
- (5) Label (Identification & care) will be printed on a suitable fabric and stitched/ printed on inner side of cap as per Annex D.

2. Packing Slip . A Packing Slip shall be enclosed in each package giving full details about the store packed i.e. Cat No. designation, quantity packed, contract No, Challan No and date I/Note No or Voucher No. and date, consignee, consignor, date of packing and packer's signature, Package No and weight of the individual Package.

0117. **IDENTIFICATION LABEL**

1. Each PN Officers Cap shall bear following clear and indelible information on back side of label:
 - a. Item name/ item description with size and NSN/ patt no.
 - b. Contract number and Date.
 - c. Year of manufacture.
 - d. Firm's name, initials, or trade mark.
 - e. Batch no.

0118. **PACKING LIST**

1. Firm is bound to provide a packing list of store offered for inspection along with the challan, which include complete details about the store i.e. Pattern No., Description of stores, size, quantity, contract No., and Date, Challan No. date and I/Note No. or voucher No. and date, consignee, Manufacturer/ firm's name, date of packing and packer's signature, QA certificate /Lab test report from any accredited lab.

0119. **MARKING OF STORES**

1. Each carton of caps will stenciled with quick drying Black indelible ink/ print in clearly define characters as per followings:
 - a. On Front and Top:
 - (1) Consignee Address.
 - (2) Contract No and date.
 - (3) Description of Stores Packed and NSN/ Patt No.
 - (4) Stowage/ Stacking Instructions.

- (5) Quantity of the Item packed.
- (6) Signature along with stamp of Packaging Manager/ rep of firm.

b. On Back:

- (1) Manufacturers name / Firm's name.
- (2) Voucher No. or Inspection note no. and date.
- (3) The No. of individual Package and the total No of Packages in the consignment joined by the word 'of 'e.g. 2 of 300.
- (4) Weight of the package.
- (5) Month and year of packing.
- (6) Destination i.e. Railway station/ (Navy).

0120. **DELIVERY**

1. The consignment of store will be delivered in accordance with the terms of contract.
2. The store shall be delivered in brand new, clean and dry condition.
3. The contractor/ manufacturer is fully responsible for the safety of the supplies during inspection, stage inspection, storage at firm's and consignee premises, proper packing, dispatch and delivery up to consignee.

XXXXXXSDXXXXX

M YASSAR YAHYA
Captain Pakistan Navy
Director

Annexes:

A.	Definitions & Abbreviations	8
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DEFINITIONS & ABBREVIATIONS

1. DEFINITIONS

a. Following definitions are used in this specification and will be adopted for use:

- (1) Inspector. The term inspector shall include the “Inspection Authority”, Inspecting Officer and their representatives, duly authorized for the purpose of discharging inspection duties involved.
- (2) Inspection Authority. Chief Inspector of Naval Stores (CINS). His verdict in respect of Sealed Inspection matters is to be taken as final.
- (3) Inspecting Officer. An Officer nominated by the CINS for carrying out inspection of stores supplied by the supplier, against a specified contract or order, in accordance with the particulars stipulated therein.
- (4) Acceptance Quality Level (AQL). It represent allowable limit/ tolerance of defects or non-conformities in an offered store/ lot/ batch. It represent in percentage, also known as Allowable Quality Limits.
- (5) Minor Defects. They are small insignificant issues that don't affect the function or form of the item. Highest tolerance of AQL has been set for minor defects.
- (6) Major Defects. They would likely result in product return but don't poses safety risk. AQL tolerance depend upon the description/ quality of finished product.

2. ABBREVIATIONS

a. Following abbreviations are used in this specification and will be adopted for use:

- | | | |
|-----|--------|---|
| (1) | CINS: | Chief Inspector of Naval Stores |
| (2) | DITD: | Directorate of Indigenous Technical Development |
| (3) | DNS: | Directorate of Naval Store |
| (4) | PNCS: | Pakistan Navy Clothing Store Depot |
| (5) | PNCTA: | Pakistan Navy Central Testing Authority |

TECHNICAL DETAILS OF CAP PEAK WHITE FOR CPOs/ POs

<u>S.NO</u>	<u>ITEMS</u>	<u>STANDARDS</u>	<u>RESULT</u>	
1.	Height of peak			
	a. Front side	Physical analysis	11 ± 0.5cm	
	b. Back side	Physical analysis	7 ± 0.5 cm	
2.	Peak			
	a. Material	AATCC 20 A	Synthetic polimanic sheet (virgin) /Leather board/ plastic	
	b. Upper cloth (for CPOs/POs)		Glazed plastic 19-4007 TCX /(jet Black)	
	c. Glazed plastic thickness	ASTM D 8136-17	0.50 ± 0.05mm	
	d. Peak (synthetic sheet) thickness	Physical analysis	2 ± 0.5mm	
	e. Back cloth	AATCC 20 A	Rexene Black -19-4007 TCX (Black)	
	f. Back cloth Thickness	ASTM D 8136-17	0.5± 0.05mm	
	g. Outer Core of Peak	Visual analysis	Patent leather (Glazed plastic)	
3.	Pattee round			
	a. Material	AATCC 20 A	Synthetic polymer (ABS / PET) / Leather board	
	b. Width	Physical analysis	5.6± 0.5 cm	
	c. Thickness	Physical analysis	1.5 ± 0.5mm	
	d. Outer core of pattee round	Visual analysis	Glazed plastic	
4.	Inner of pattee round			
	a. Material	AATCC 20 A	Rexene/Leather	
	b. Width	ISO 4592	4 ± 0.2mm	
	c. Thickness		1.5 ± 0.05mm	
5.	Outer of pattee round			
	a. Material	AATCC 20 A	Stretchable jersey	
	b. Colour	Visual analysis	Black	
6.	Absorbent lining			
	a. Material	AATCC 20 A	Jersey Cloth	
	b. Colour	Visual	Black	
	c. Length	ISO 4592	25 ±0.5 cm	
	d. Width		2 ±0.5 cm	
	e. Color Fastness to perspiration (1) Change in shade	ISO 105 E04	Acid 4/5	Alkaline 4/5

	(2) Staining				
7.	Supporting for badge (leather board)				
	a. Material	AATCC 20 A	Leather board pivoted with round pattee		
	b. Thickness	ISO 2958	1.5 ± 0.5mm		
	c. Outer cover at badge strengthening	AATCC 20 A	Rexene white		
	d. Thickness of outer cover	ISO 2598	0.74 ± 0.2 mm		
	e. Piping to join ring and badge strengthening	AATCC 20 A	Rexene white		
	f. Thickness of piping	ISO 2598	0.62mm		
	g. Shank (if available)				
	(1) Material	ASTM E 158	Stainless steel		
	(2) Length	ASTM D 8136-17	7cm		
	(3) Width	ISO 4592	1.5 cm		
	(4) Thickness	ASTM D 8136-17	1.2cm		
	h. Outer pattee at badge strengthening				
	(1) Material	Visual Analysis	Rexene		
	(2) Color	ISO 2598	Black		
	(3) Thickness	Visual Analysis	1.12mm		
	8.	Supporting pattee			
		a. Material	AATCC 20 A	Rexene	
b. Thickness		ISO 2958	1.2± 0.2 mm		
9.	Mohair Band/ Head Band				
	a. Material	AATCC 20 A	Woolen Black/ Elastic Polyester		
	b. Color	Visual analysis	19-4007 TCX Or Black		
	c. Dimension (Width)	Physical analysis	2 - 3.5”		
	d. Color Fastness to Light	AATCC 16 or BS 1006	GS 4 or better		
	(1) Change in Shade		GS 4 or better		
	(2) Staining				
	e. Color Fastness to Water	ISO-105-E01	GS 4 or better		
(1) Change in Shade		GS 4 or better			
(2) Staining					
f. Color Fastness to Sea Water	ISO-105-E02	GS 4 or better			
(1) Change in Shade		GS 4 or better			
(2) Staining					
10.	Chin Strap				
	a. Material	AATCC 20 A	Rexene (outer), Foam (inner)		
	b. Width	ISO 2589	12± 0.2mm		
11.	Crown Ring				
	a. Material	AATCC 20 A	Leather board /Phospher Bronze 17 SWG,gromment jointed with brass ferrule, (Covered with plastic tube)		

	b. Width of plastic	ISO 4592	1.3 mm
	c. Dia	Physical analysis	25 ± 0.5 cm
12.	Crown cover cloth		
	a. Material	AATCC 20 A	Knitted Polyester 100%
	b. Knitted pattern	Visual analysis	Twill (Pique embossed grain effect - Cloth)
	c. Berger whiteness	ISO-105-J02	150-160
	d. Count of yarn (1) Warp (2) Weft	ISO 7211/5	300 ± 10 Denier 300 ± 10 Denier
	e. GSM	ISO-3801	250 ± 10 gm
	f. Color Fastness to Washing (1) Change in Shade (2) Staining	ISO 105 C10 C(3)	GS: 4 or better GS: 4 or better
	g. Color Fastness to light g. Change in Shade h. Staining	AATCC 16	GS: 4 or better GS: 4 or better
	h. Color Fastness to Water (1) Change in Shade (2) Staining	ISO-105-E01	GS: 4 or better GS: 4 or better
	j. Color Fastness to Sea Water (1) Change in Shade (2) Staining	ISO-105-E02	GS: 4 or better GS: 4 or better
	k. Air permeability (Pressure:100 pa Test area 20 cm ²)	ISO- 9237	≥70 mm/sec
	l. Pilling and Fuzzing (7000 cycles)	BS EN ISO 12945-2	GS-4 or better
	m. Phenolic Yellowing test value	ISO 105 X-18	GS-4 or better
13.	Button for securing crown cover on pattee		
	a. Material	Chemical Analsis	Plastic Black
	b. Dia	Physical Analysis	0.8 mm
14.	Eyelets and Chin Strap		
	a. Material	ASTM E 158	Aluminium Painted
	b. Inner Dia	Physical Analysis	5 mm
	c. Outer Dia	Physical Analysis	2 cm
15.	Stitching/ hamming thread		
	a. Material	AATCC-20A	100 % polyester
	b. No of stitches per inch(SPI)	Physical Analysis	13
	c. Shade	Visual Analysis	White and black
	d. Construction	Visual Analysis	03 each single
16.	Lining under crown		
	a. Material	AATCC-20A	Muslin Fabric/ Buckram & foam
	b. Thickness	ASTM D 8136-17	1 mm
17.	Air Vent		

	a. Material	Chemical analysis	Mild steel
	b. Lacquered	Visual / chemical	Nickel coating Finish
	c. Dia (1) Inner (2) Outer	Physical Analysis	10 ± 1mm 18 ± 1mm

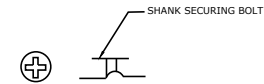
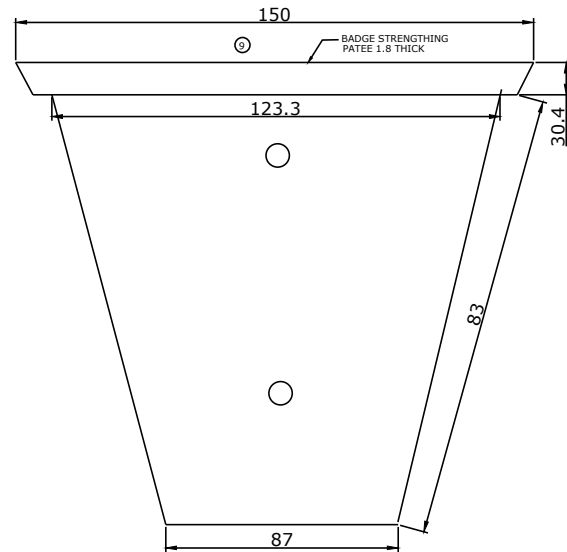
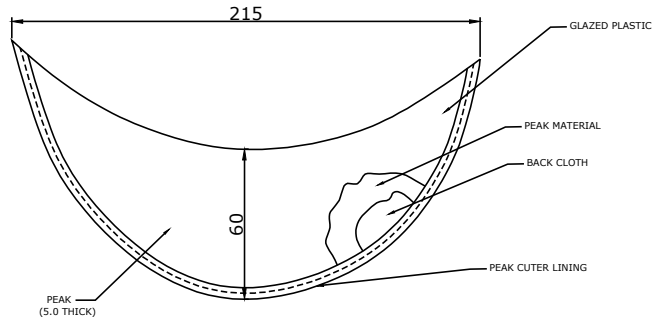
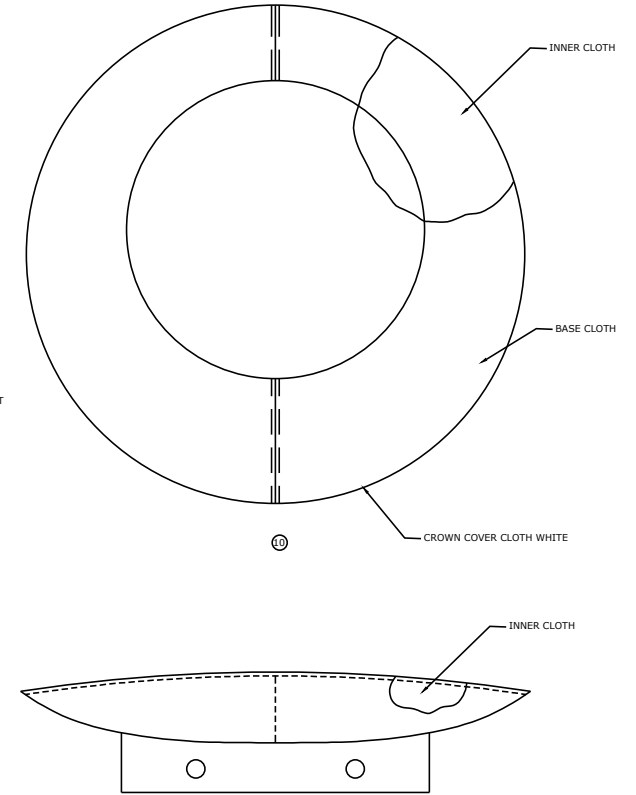
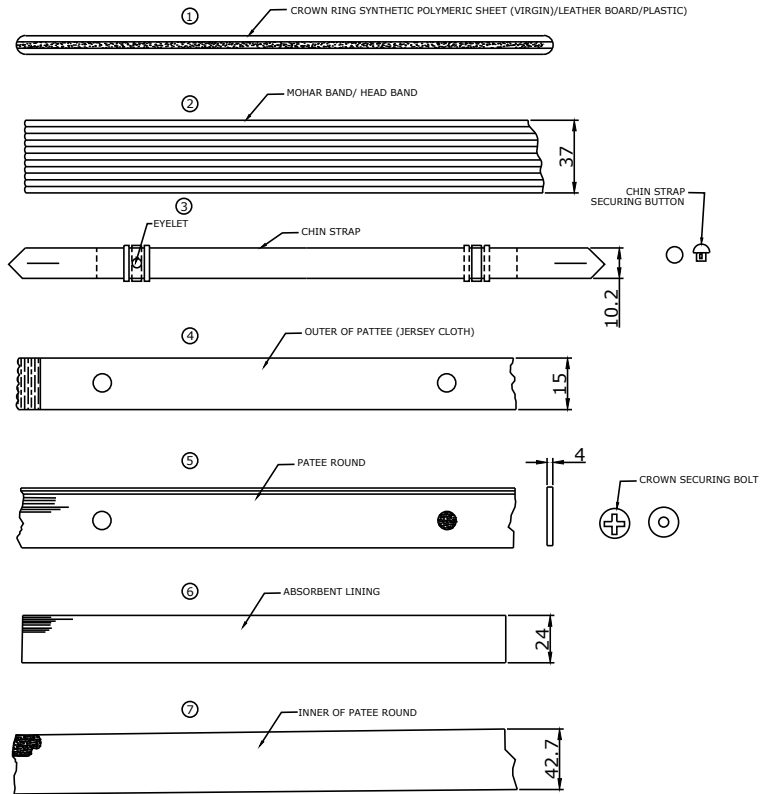
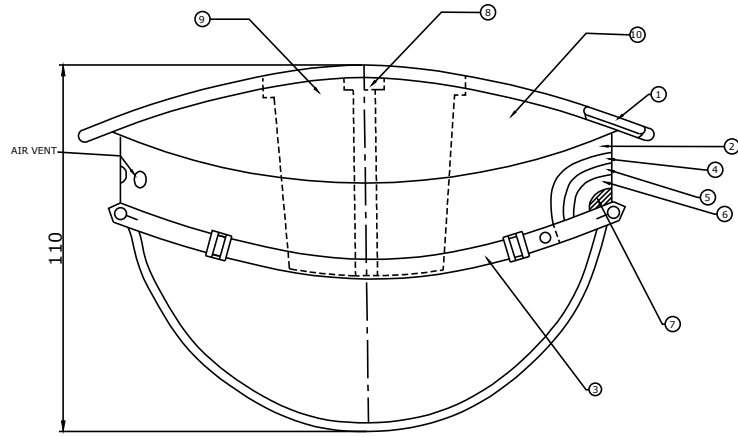
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MEASUREMENT SCHEDULE OF CAP PEAK

<u>Size head</u>	<u>Internal Circumference (mm)</u>
152.4	479.4
155.5	488.9
158.7	498.4
161.9	508
165.1	520.7
168.2	530.2
171.4	536.7
174.6	549.2
177.8	558.8
180.9	568.3
184.1	577.8
187.2	590.5
190.5	600
193.6	609.6
196.8	619.1
199.3	628.6
203.2	638.1

TECHNICAL DRAWING

ANNEX "D" TO
PN SPECIFICATION NO. 03/2023
PROMULGATION DATE . OCT 2023



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NOTE:
FOR FURTHER DETAILS SEE STOCK/APPROVED SAMPLE

MDITD NRDI

TITLE: CAP PEAK WHITE
(CPOs,POs`)

DWG.NO. TD-2689/2023 DIMENSIONS: mm

DATE: 11-04-2023 SCALE: NTS

RVISION NO. 00 RIVISION DATE: --

DRAWN BY	CHECKED BY	FINALIZED
M. ASGHAR HDM	LT CDR SANA KANWAL SO, TEXTILE	CAPTAIN M YASSAR YAHYA DIRECTOR ID

GENERAL DEFECTS
(ASTM D-3990)

<u>S. No</u>	<u>Defects</u>	<u>Definition</u>
<u>FABRIC</u>		
a.	Abrasion Mark (bruise, Chafe Mark or rub)	An area of fabric damaged by friction Damaged due to abraded or uneven surface in a machine
b.	Barre Mark	An unintentional, repetitive visual pattern of continuous bars and stripes usually parallel to the filling of woven fabric or to the courses of circular knit fabric. Barre can be caused by physical, optical, or dye differences in the yarns, geometric differences in the fabric structure, or by any combination of these differences.
c.	Blotch,	An off colored area of any shape caused by grease or Oil. (Syn. oil spot). Cause due to leakage/slippage from machine.
d.	Bow	A fabric condition resulting when filling yarns or knitting courses are displaced from a line perpendicular to the selvages and form one or more arcs across the width of fabric.
e.	Broken/ Stitch	Sewing threads are broken due to some make problem.
f.	Clip mark:	An open place causing a streak of variable length approximately parallel of the length of width.
g.	Decanting Mark	A crease marks or impression extending across the cloth near the beginning or end of a piece Due to the thickness of the fabric leader seam.
h.	Double Pick	In woven fabrics, two picks wrongly place in the same shade.
j.	Draw Back	A weave distortion characterized by tight and stack places in the same warm yarn.
k.	End out	A void caused by a missing warp yarn.
l.	Float	In woven fabrics, the portion of a warp or filling yarn the extends unbound over two or more yarn or filling yarns, in knitted fabrics, that portion of a yarn that is not knitted into loops.
m.	Frosting	A change in color in a limited area of fabric cause by abrasive wear.

n.	Hole	In fabric, imperfection, wear one or more yarn or sufficiently damaged to create an aperture.
p.	Fuzzy	Characterized by a hair appearance due to protruding broken fibers or filaments.
q.	Let-off Mark	In woven fabrics, a corrugated defect pattern distributed across the fabric width.
r.	Loom fly	Waste fibers create during weaving that are woven into a fabric.
s.	Loop Salvage	An improperly woven salvage of uneven width or a salvage containing irregular filling loops extending beyond the outside edges.
t.	Messiness	Surface distortion in a fabric characterized by objectionable unevenness due to many minor deformations.
u.	Pin Hole	In fabric, a very small hole, approximately the size of the across section of the pin.
v.	Shiner	A streak, usually short caused of a lustrous section of filament yarn.
w.	Smash	In woven fabrics, relatively large hole characterized by broken yarn ends and floating picks.
x.	Snag	In fabrics, a yarn or part of a yarn pulled or plucked from the surface.
y.	Thin Place	In fabric, an intentionally in a fabric appearance characterized by a small area of loosely placed yarn or by a congregation of thin yarn as compared to the adjacent construction.
z.	Tight Salvage	In woven fabrics, salvage yarn shorter than warp yarn in the body of the fabric.
aa.	Streak	An extended unintentionally strips narrow width, often a single yarn.
ab.	Tram Mage	In woven crepes, a puckered area in which a filling yarn has twist running in the same direction for several picks instead of alternating S and Z twist.
ac.	Tender Mark	A visible deformation on the side edge or body of a fabric due to pressure for clips or pins.
ad.	Skip Stitch	Due to improper needle and looper action, some lines threads in stitch
ae.	Uneven way stitch	When the stitch line is not straight or properly wave
af.	Cracked Stitch	Stitches are broken due to dress elasticity in the same line

ag.	Open Seam	Due to improper feeding or when two parts of the fabric are not sewing properly.
ah.	Needle Hole	The hole created from the needle in the seam line during the sewing process
aj.	Sharing/ Puckering	The gathered fabric inside the seam line
ak.	Pleat	The folded fabric in the seam line
al.	Twisting	When the seam line becomes curve from one edge to another edge is called twisting defect
am.	Part up down	Two parts of the fabric are not equal in the seam edge.

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ANNEX E TO
PN SPECIFICATION NO 03/2023
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Acceptable Quality Levels

1. Acceptable Quality Level (AQL) is maximum average defective items in a lot or limit/ percentage of defective items in product/ offered store. It is expressed in a percentage. Number of average defective items is determined by following formula:

$$\text{Average defective item} = \frac{\text{No.of defective item found during inspection}}{\text{Total no.of item to be inspected}} \times 100$$

2. AQL process: it is used for inspection of finished product by the QC professionals. AQL standard is depend on the quality of the product to be inspected, random sampling, and experience of inspector Following AQL table is used to determine lot size/ offered store quantity, least No. of sample to be inspected, AQL%, and acceptance & rejection points:

<u>Lot/Batch Size</u>	<u>Sample Size</u>	<u>Materials</u>		<u>Finished Caps</u>					
				<ul style="list-style-type: none"> Acceptable/ Allowable defective sample (Ac) Rejected /Exceed allowable limit of defective item (Re) 					
				<u>Critical Defects</u>		<u>Major Defects</u>		<u>Minor Defects</u>	
		<u>Ac</u>	<u>Re</u>	<u>Ac</u>	<u>Re</u>	<u>Ac</u>	<u>Re</u>	<u>Ac</u>	<u>Re</u>
2 - 8	2	0	1	0	1	0	1	0	1
9 ~ 15	3	0	1	0	1	0	1	0	1
16 ~ 25	5	0	1	0	1	1	2	1	2
26 ~ 50	8	0	1	0	1	1	2	1	2
51 ~ 90	13	1	2	1	2	1	2	2	3
91 ~ 150	20	1	2	1	2	2	3	3	4
151 ~280	32	2	3	2	3	3	4	5	6
281 ~ 500	50	3	4	3	4	5	6	7	8
501 ~ 1200	80	5	6	5	6	7	8	10	11
1201 ~ 3200	125	7	8	7	8	10	11	14	15
3201 ~ 10000	200	10	11	10	11	14	15	21	22
10001 ~ 35000	315	14	15	14	15	21	22	21	22
35001 ~ 150000	500	21	22	21	22	21	22	21	22
150001 ~ 500000	800	21	22	21	22	21	22	21	22
500001 ~ Over	1250	21	22	21	22	21	22	21	22

3. If the inspector have time constrain then AQL is beneficial/ helpful in inspection of whole lot/ offered store. It save time, cost and give effective/ statistical result of product /offered store. e.g. If inspector needs 1 minute to check the item , the quantity to be inspected is 2,500 items then it took 42 hours to check the whole consignment/ offered store. It means 26 days approx. for one store. Calculation is as follows:

$$\frac{1 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,500 \text{ items} = 42 \text{ hrs} \cong 02 \text{ days}$$

After Implementing AQL standard so the sample taken from the lot/ offered store is 200 items/ sample:

$$\frac{1 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,00 \text{ items} = 3.33 \text{ hrs} \cong \text{half quarter of a day}$$

4. Quality parameters/ AQL limits may be defined by Inspecting Authority (if deemed appropriate) and communicate to the manufacturer, so the manufacturer set their quality levels (AQL limits) accordingly for their internal audit. Therefore, good quality product is ready for inspection.

ANNEX F TO
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FEEDBACK FORM

Unit Name: _____

Item Description#: _____

Issue/Problem occurred: _____

PN SPEC #: _____

Possibility to resolve Issue: _____

Any Other Remarks: _____

Note:

- It's good to give feedback for improvement in any clothing Item.
- Recurring problem will also be intimated through this form.

Name Stamp

COUNTERSIGNED By CO/Admin Authority

Name Stamp

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