



PAKISTAN NAVY SPECIFICATION 17/2021  
PROMULGATION DATE: 07 JANUARY 2022

## **CAP ROUND WHITE**

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## **PROMULGATION ORDER**

1. This specification is hereby approved and promulgated for information, guidance and compliance by the relevant person.
2. 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**

1. 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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## RECORD OF CHANGES/ AMENDMENT

[illegible]

0101 **DESIGNATION**

1. Cap Round White

0102 **USAGE**

1. Cap Round White is to be used by Sailors of Pak Navy.

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. Any alteration or addition in this specification can be suggested to ITD wing (NRDI). However, it cannot be implemented without prior approval from DNS. This specification supersedes and replaces PN Technical details G\161\94 of 13 Feb 94 Promulgated earlier in relation to the item mentioned herein. These specifications are based on sample approved by Dress Committee.

1. This specification booklet includes 07 Annexes and consists 24 pages, including the cover.

0104 **SCOPE**

1. This specification covers the technical/ manufacturing requirements of Cap Round White is to be used by Sailors of Pakistan Navy. It defines and lays down the quality standards, details of materials, workmanship and finish. It also defines briefly requirement and process of sampling, testing, inspection acceptance/rejection, marking, preservation, packing and delivery etc.

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.	AATCC 16	Color fastness to light
c.	AATCC 08	Color fastness to crocking
d.	ASTM D1874	Specification
e.	ASTM D 4850	Standard terminology related to Fabric and Fabric test.
f.	ASTM D 3776	Test method for mass per unit Area (Weight) of fabric.
g.	ASTM D 1777	Test method for thickness of Textile
h.	ASTM D 71	Thickness of coated fabric
j.	ISO 7211/2	Number of threads per unit length
k.	ISO 7211/5	Determination of linear density of yarn removed from fabric.

l.	ISO 105-E01	Color fastness to water.
m.	ISO 105 E02	Color fastness to sea water
n.	ISO-7211/1	Determination of Weave pattern
p.	ISO 105 E04	Color Fastness To Perspiration
q.	ISO 105 J03	Method for Calculating a Color Difference
r.	ISO 105 X18	Phenolic yellowing
s.	ISO 3801	Determination of Mass per unit Length and Mass per unit Area
t.	ISO 13937	Determination of Tear Strength
u.	ISO 13934	Determination of Tensile Strength
v.	ISO 105 C10	Color fastness to Washing
w.	ISO 12945 02	Determination of fabric propensity to surface fuzzing and to pilling

#### 0106 **TERMS & DEFINITIONS**

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

#### 0107 **TECHNICAL DETAILS OF CAP ROUND WHITE**

1. The Technical Details of Cap Round White are mentioned at Annex B of this specification.

#### 0108 **SCHEDULE OF MEASUREMENT**

1. Measurement schedule of Cap Round White is given at Annex C.

#### 0109 **TECHNICAL DRAWING**

1. Technical drawing of Cap Round White is given at Annex D

#### 0110 **GUIDE LINE FOR CAP ROUND WHITE MANUFACTURING**

1. The Cap Round White shall be fabricated from the materials detailed at Annex B

#### 0111. **QUALITY OF WORKMANSHIP AND FINISHING**

1. The Workmanship and finish of Cap Round White shall be equal to sealed pattern. It shall be the best of its class and to the entire satisfaction of the INS Inspectors.

#### 0112. **TESTING**

1. The stores/ material during manufacture and after delivery shall be tested and examined as the 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. However, any test considered

important by Inspecting Authority other than Annex B may also be conducted in order to check its suitability. Firm is liable to pay all the testing charges.

**0113. BULK REPRESENTATIVE SAMPLE OF CAP ROUND WHITE FROM LOTS/BATCHES**

1. No of samples drawn from bulk quantity for inspection/ testing are as per instruction of Inspecting Officer or as per following table (if deemed appropriate):

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

**0114. 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.	Cap Round White	05 x samples
b.	Wall molded ring	03 x samples
c.	Upper cover	02 meters
d.	Wall lining/ Blazer	01 meters
e.	Inner/ Outer Patti Black	01 meters
f.	Chin strip	02 meters
g.	Eyelets	10* No.
h.	Sewing Thread Polyester 2/31.5 Tex	01 Tube

**0115. 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 Officer or his representative an initial delivery of 01% of the contract or ten samples along with samples of accessories/ materials 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 facilities which will be used for manufacture of the bulk items.

5. Firm shall provide advance sample along with quality verification reports from an accredited laboratory, whenever asked/ required by Inspecting Authority to ensure compliance of quality assurance parameters during production/ final internal inspection.

#### 0116. **INSPECTION**

1. Bulk representative sample (B/R) random sampling will be carried out as per rules in vogue.

2. **Inspection of Cap Round White.** The guidelines for Inspector w.r.t general defects are defined at Annex E.

3. **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 Standing Order.

4. INS reserves the right to reject the whole supply in case, upon examination, material or packing of any sample or portion of the consignment is found NOT CONFORMING the parameters laid down in this specification or the quality of product does not seem up to the mark.

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 and tests) 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.

0117. **SPECIAL INSTRUCTIONS**

1. **Care Label Instructions.** Cap Round White are capable of being cleaned by using conventional means to maintain appearance. Following care instructions in the form of leaflet OR attached with Cap Round White shall be provided in English and Urdu :

- a. To be washed/ rinsed delicately
- b. Warm/ hot water not to be used for washing
- c. Delicate clean method with mild soap /detergent solution to be adopted whenever required
- d. Stain removing bleach should be avoided.
- e. Direct contact of sunlight should be avoided.

0118. **PACKING AND PRESERVATION DETAILS**

1. Processing of preservative treatment and 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 Round White will be packed in Butter paper then in paper bag/ fussing plastic bags.
- (2) 20 x Cap Round White will be packed in card board carton.
- (3) Each package shall contain one size only.

(4) Packing, marking and preservation will be done by the supplier as per specification and with adhesive tape of 10cm width of the best quality.

(5) The binding and wiring of the carton card board shall be done in accordance with the instructions of the Inspecting Officer.

c. **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.

0119. **IDENTIFICATION LABEL**

1. Each Cap Round White shall bear following clear and indelible information on Main Label attached at inside of Crown of Cap Round White:

- 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.

0120. **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.

0121. **MARKING OF STORES**

1. Each Cap Round White shall be clearly and indelibly marked with contractor's name, initial or recognized trade mark, the year of manufacture, Cat No Designation and size.

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).

0122. **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**

**MUHAMMAD AFSAR**  
 Captain Pakistan Navy  
 Director Inventory Deletion  
 DID

**Annexes:**

A. Terms & Definitions	8
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**ANNEX A TO**  
**PN SPECIFICATION NO.17/2021**  
**PROMULGATION DATE 07 JAN 22**

**TERMS & DEFINITIONS**

- a. **INS:** Inspector of Naval Stores
- b. **ITD :** Indigenous Technical Development
- c. **DNS:** Directorate of Naval Store.
- d. **PNCSD:** Pakistan Navy Clothing Store Depot
- e. **PNCTA:** Pakistan Navy Central Testing Authority
- f. **Inspector:** The term inspector shall include the “inspection Authority”, inspecting officer and their representatives, duly authorized for the purpose of discharging inspection duties involved.
- g. **Inspection Authority:** Chief Inspector of Naval Stores (CINS). His verdict in respect of Sealed Inspection matters is to be taken as final.
- h. **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.
- j. **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.

**ANNEX B TO**  
**PN SPECIFICATION NO 17/2021**  
**PROMULGATION DATE 07 JAN 22**

**TECHNICAL DETAILS OF CAP ROUND WHITE**

<b><u>S. No</u></b>	<b><u>PARAMETERS</u></b>	<b><u>METHOD</u></b>	<b><u>RESULTS</u></b>
1.	<b>WALL MOLDED RING</b>		
	a. Material	AATCC 20A	Plastic
	b. Thickness at bottom	ASTM D 1874	02 ± 0.5 mm
	c. Color	Visual analysis	Off White
	d. Weight of complete ring	Physical analysis	100 ± 10 gms
2.	<b>UPPER COVER/ CROWN COVER</b>		
	a. Material	AATCC 20A	Rexine
	b. Weight	ISO 3801	310 ± 10 gms
	c. Color	ISO 105 JO3	Berger value= 80 ± 05
	d. Thickness (1) Before stretch (2) After stretch	ASTM D 71	01 - 1.5mm  0.7 – 0.8mm
3.	<b>WALL LINING</b>		
	a. Material	AATCC 20 A	65 ± 05% Polyester 35 ± 05% Cotton
	b. Weave	ISO 7211/1	Twill
	c. Linear density	ISO 7211/5	Warp= 20 ± 02 s Weft= 20± 02 s
	d. Thread/ inch	ISO 7211/2	Warp= 100 ± 05 Weft= 60 ± 02
	e. Color	Visual analysis	Pantone No= 19-3923 TCX (Navy Blazer)
	f. Tensile Strength (5cm x 20cm) minimum	ISO 13934-01	Warp= 1415 ±10N Weft= 600± 10 N
4.	<b>INNER/ OUTER PATTI (BLACK BLAZER)</b>		
	a. Material	AATCC 20 A	Wool= 80 ± 05% Fiber= 20 ± 05%
	b. Linear density minimum	ISO 7211/5	Warp=6 <sup>s</sup> Weft=8 <sup>s</sup>
	c. Thickness minimum	ASTM D 1874	1 mm

	d.	Thread/ inch	ISO 7211/2	Warp=33 ± 02 Weft=37± 02	
	e.	Tensile Strength (5cm x 20cm) minimum	ISO 13934-01	Warp=200 ± 10 N Weft=180 ± 10 N	
	f.	Tear Strength Minimum	ISO 13937-01	Warp= 35±10 N Weft= 35 ±10 N	
5.	CHIN STRIP				
	a.	Material	AATCCC 20 A	Elastomer	
	b.	Color of chin Strip	Visual analysis	Pantone No = 19-4006 TCX (Caviar)	
	c.	Length of strip	Physical analysis	21 ± 01”	
	d.	Width of strip	Physical analysis	1 ± 0.2”	
	e.	Elongation (5cm x 20cm) minimum	ISO 13934-01	Breaking Strength=840±10 N Elongation%= 215± 05%	
6.	EYELETS				
	a.	Material	AATCC 20 A	Mild Steel	
	b.	Enamel	Visual analysis	Enamel white	
	c.	No of Eyelets	Visual analysis	04	
	d.	Distance of eyelets	Physical analysis	1.37”	
7.	STITICHING THREAD			Black	White
	a.	Material	AATCC 20 A	Polyester	
	b.	Linear Density	ISO 7211/5	02 cord each single	
	c.	Stitch per inch	Physical analysis	05	
	d.	Color	Visual analysis	Pantone No= 19- 4006 TCX	White(matched with upper cover )
8.	LINING UNDER THE CROWN				
	a.	Material	ATCC 20 A	Fabric/ Soft Polythene sheet	
	b.	Thickness	ASTM D1874	0.12 mm	
9.	PERFORMANCE TESTING CROWN COVER				
	a.	Color fastness to light	AATCC – 16	GS 4 or better	

	b.	Abrasion (10,000 Cycles)	ISO – 13947-1	No weight loss No thread break
	c.	Phenolic yellowing	ISO X 18	GS 4 or better
10.	<b>WALL LINING/ INNER OUTER PATTI (BLACK BLAZER)</b>			
	a.	Color fastness to Sea Water 1) Change in shade 2) Staining a) Wool b) Acrylic c) Polyester d) Nylon e) Cotton f) Acetate	ISO 105 E02	GS 4 or better  GS 4 or better GS 4 or better GS 4 or better GS 4 or better GS 3 or 4
	b.	Color fastness to Water 1) Change in shade 2) Staining a) Wool b) Acrylic c) Polyester d) Nylon e) Cotton f) Acetate	ISO 105 E01	GS 4 or better  GS 4 or better GS 4 or better GS 4 or better GS 4 or better GS 4 or better
	c.	Color fastness to Perspiration 1) Change in shade 2) Staining a) Wool b) Acrylic c) Polyester d) Nylon e) Cotton f) Acetate	ISO 105 E04	<u>Acidic\ Alkaline</u>  GS 4 or better  GS 4 or better GS 4 or better GS 4 or better GS 4 or better GS 4 or better
	d.	Color fastness to Rubbing 1) Dry 2) Wet	AAT CC 08	GS 4 or better GS 4 or better
	e.	Pilling (10,000 Cycles)	ISO 12945-2	Grade 4 or better

11.	<b>STITCHING THREAD PERFORMANCE TESTING</b>		
a.	Color fastness to Sea Water 1) Change in shade 2) Staining a) Wool b) Acrylic c) Polyester d) Nylon e) Cotton f) Acetate	ISO 105 E02	GS 4 or better  GS 4 or better GS 4 or better GS 4 or better GS 4 or better GS 4 or better
b.	Color fastness to Perspiration 1) Change in shade 2) Staining a) Wool b) Acrylic c) Polyester d) Nylon e) Cotton f) Acetate	ISO 105 E04	GS 4 or better  GS 4 or better GS 4 or better GS 4 or better GS 4 or better GS 4 or better



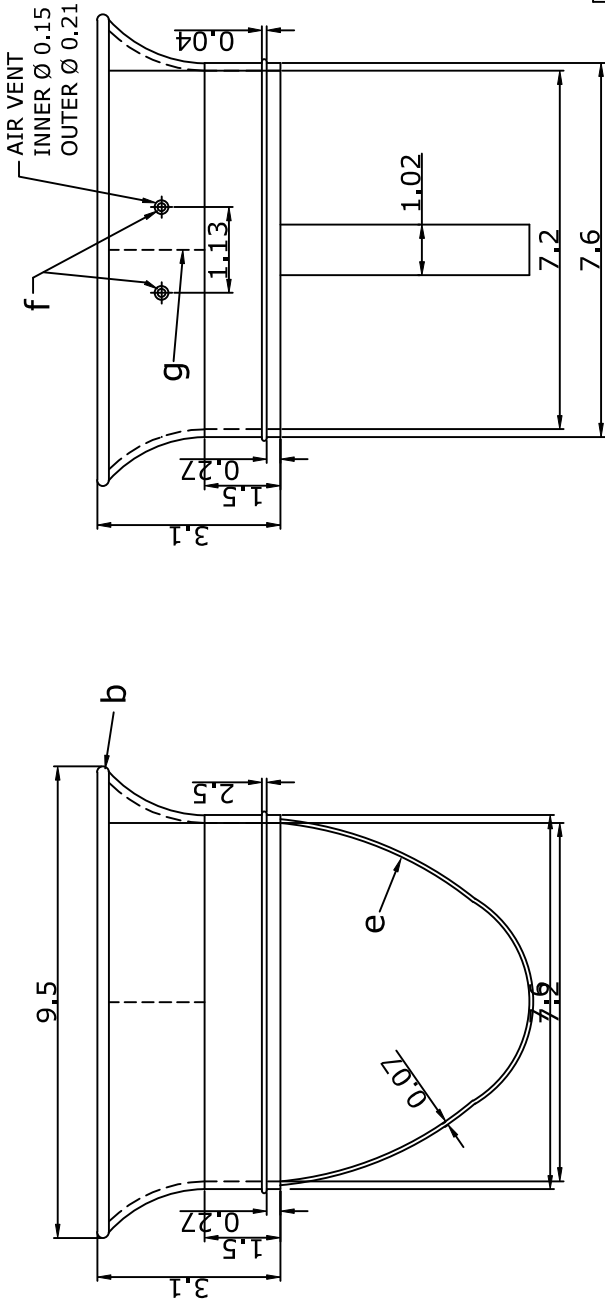
**ANNEX C TO**  
**PN SPECIFICATION NO 17/2021**  
**PROMULGATION DATE 07 JAN 22**

**SCHEDULE OF MEASUREMENTS**

<b>S. No</b>	<b>Size Head</b>	<b>Internal Circ.</b>
1.	6	18-7/8
2.	6-1/8	19-1/4
3.	6-1/4	19-5/8
4.	6-3/8	20
5.	6-1/2	20-1/2
6.	6-5/8	20-7/8
7.	6-3/4	21-1/4
8.	6-7/8	21-5/8
9.	7	22
10.	7-1/8	22-3/8
11.	7-1/4	22-3/4
12.	7-5/8	23-1/4
13.	7-1/2	23-5/8
14.	7-5/8	24
15.	7-3/4	24-3/8
16.	7-7/8	24-3/4
17.	8	25-1/8

TECHNICAL DRAWING

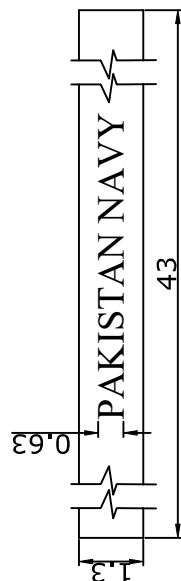
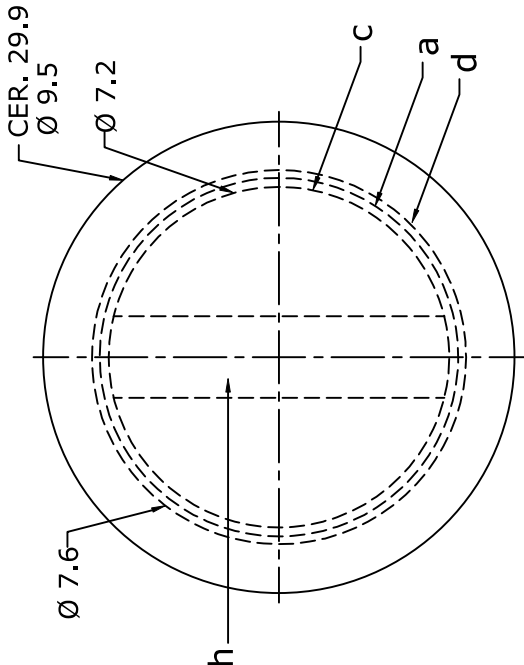
ANNEX D TO  
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FRONT VIEW

SIDE VIEW

h	PLASTIC INNER SHEET
g	STITCHING THREAD
f	EYELETS
e	CHIN STRIP
d	OUTER PATTI BLACK
c	WALL LINING/BLAZAR
b	UPPER COVER
a	WALL MOLDED RING



CAP RIBBON (BLACK/YELLOW)

DITD KARACHI

TITLE:  
CAP ROUND WHITE

1381

DWG.NO.	TD-2574/2021	DIMENSIONS:	mm
DATE:	24-03-2021	SCALE:	1:1
DRAWN BY	CHECKED BY	APPROVED BY	
ADNAN NISAR D/MAN	3rd Engr BUSHRA ASO, TEXTILE	LT CDR M. SHAZAD DID	

NOTE:  
FOR FURTHER DETAILS SEE STOCK/APPROVED SAMPLE

**COMMON DEFECTS**

<b><u>S.No</u></b>	<b><u>Defects</u></b>	<b><u>Possible Cause</u></b>	<b><u>Type of Defects</u></b> <b><u>Major/Minor</u></b>
<b>1.</b>	<b><u>FABRIC</u></b>		
a.	Barre: horizontal stripes of uniform or variable width in Fabric or periodic lateral irregularity	<ul style="list-style-type: none"> <li>Possible due to lower tension in one of the feeders, loops formed in the knitted cycle initiated by that particular feeder were slightly larger than the rest thus causing an embossed appearance in the form of stripes.</li> <li>Individual yarns differ w.r.t count properties or structure.</li> <li>Different course Length.</li> </ul>	Major
b.	Skewed fabric: The shape of the fabric is distorted. Wales and courses are angular.	<ul style="list-style-type: none"> <li>This can be a result of uneven take down roller setting. It is a generic feature of circular knits because of the spiral movement of the needles.</li> </ul>	Within allowable limit then minor otherwise major.
c.	Foreign Fly between loops of constructed fabric	<ul style="list-style-type: none"> <li>Unclean environment or improper maintenance of machine can cause fly to end up in the knitting zone where it becomes part of the fabric.</li> </ul>	Major if it is visible.
d.	Thin Yarn/ Thick yarn	<ul style="list-style-type: none"> <li>One of the feeder is receiving yarn from a spool that has finer yarn or coarser yarn.</li> </ul>	Major
e.	Horizontal band of different color	<ul style="list-style-type: none"> <li>This happens due to a change of bobbin in the knitting machine. Different lots of yarn can have slight shade variations which can produced shade differences in fabric.</li> </ul>	Major
f.	Laddering: Vertical stripes can be observed as longitude lineal gap in fabric	<ul style="list-style-type: none"> <li>Continued knitting with a broken needle.</li> <li>Incorrect closing of the hook by the latch.</li> <li>Shift latches and needles.</li> <li></li> </ul>	Major
g.	Deliberate cut placed in fabric	A rib defect occurred during knitting which was detected by QC who placed a cut on the defect to ensure that the garment does not go through further stages.	Major
h.	Hole: Crack of yarn or breakage	<ul style="list-style-type: none"> <li>High yarn irregularity, poorly lubricated yarn, weak knot or slub present in yarn.</li> </ul>	Depend upon the size. If it's visible and larger in size then its major.

<b>2. PRE-TREATMENT</b>			
a.	Pinhole	<ul style="list-style-type: none"> <li>The presence of <math>\text{Fe}^{2+}</math> ions accelerates peroxide bleaching. If the fabric has just residue on it or localized iron contamination the bleaching process will damage the fibers causing a hole.</li> </ul>	Depend upon the frequency of the fault, if it occur frequently then its major.
<b>3. DYEING</b>			
a.	Shade difference	<ul style="list-style-type: none"> <li>This occur due to the variation in dye or dyeing procedure.</li> <li>Improper cutting of pieces, bundling and numbering.</li> <li>Different batch mixing.</li> </ul>	Major
b.	Stain of oil, food, drink, ink etc.	<ul style="list-style-type: none"> <li>This occur due to spill of oil, ink, food, drinks on the garment.</li> </ul>	If it is easily washable then minor.
<b>4. STITCHING</b>			
a.	Seam puckering: gathering of a seam either just after sewing or after laundering.	<ul style="list-style-type: none"> <li>Due to uneven stitching on to plies of fabric, improper thread tension, wrong sewing thread etc.</li> </ul>	Minor when it is not visible
b.	Open Seam or broke seam: Portion of garment that has not been covered by sewing thread.	<ul style="list-style-type: none"> <li>Due to improper handling of the part/ piece of fabric, improper setting and timing between needle and looped or rook etc.</li> </ul>	Major
c.	Broken Stitch: Non continuous Sewing thread	<ul style="list-style-type: none"> <li>Due to improper timing or machine usage.</li> </ul>	Minor
d.	Drop stitched/ skipped Stitched Irregular stitching along the seam	<ul style="list-style-type: none"> <li>It appears due to improper handling of cut pieces or machine usage.</li> </ul>	Minor

### **ACCEPTABLE QUALITY LEVELS (AQL)**

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/ garment 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:

<b><u>SINGLE SAMPLING PLAN FOR NORMAL INSPECTION OR AS PER ORDER OF INSPECTING OFFICER.</u></b>											
Lot size	Least No. of sample to be Inspected	Allowable Quality levels( AQL) %									
		<ul style="list-style-type: none"> <li>• Acceptable/ Allowable defective sample (Ac)</li> <li>• Rejected /Exceed allowable limit of defective item (Re)</li> </ul>									
		1.5%		2.5%		04%		6.5%		10%	
		Ac	Re	Ac	Re	Ac	Re	Ac	Re	Ac	Re
281-500	20-80	1-3	2-4	1-5	2-6	2-7	3-8	3-10	4-11	5-14	6-15
501-1200	32-125	1-5	2-6	2-7	3-8	3-10	4-11	5-14	6-15	7-21	8-22
1201-3200	50-200	2-7	3-8	3-10	4-11	5-14	6-15	7-21	8-22	10-21	11-22
3201-10000	80-315	3-10	4-11	5-14	6-15	7-21	8-22	10-21	11-22	14-21	15-22
10001-35000	125-500	5-14	6-15	7-21	8-22	10-21	11-22	14-21	15-22	21	22
35001-150000	200-800	7-21	8-22	10-21	11-22	14-21	15-22	21	22	21	22
150001-500000	315-1250	10-21	11-22	14-21	15-22	21	22	21	22	21	22
500001-above	500-2000	14-21	15-22	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 safe time, cost and give effective/ statistical result of product /offered store e.g. If inspector needs 5 minutes to check the item , the quantity to be inspected is 2,500 items then it took 208 hours to check the whole consignment/ offered store.it means 26 days approx. for one store. Calculation is as follows:

$$\frac{5 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,500 \text{ items} = 208.33 \text{ hrs} \cong 26 \text{ days}$$

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

$$\frac{5 \text{ min} \times 1 \text{ hr}}{1 \text{ item} \times 60 \text{ min}} \times 2,00 \text{ items} = 16.66 \text{ hrs} \cong 02 \text{ days}$$

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.

**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

PN SPECIFICATION 17/2021