



SCARF NAVY BLUE

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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 F. 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

0101 **DESIGNATION**

1. Scarf Navy Blue with Ceremonial Dress.

0102 **USAGE**

1. These Scarf Navy Blue with Ceremonial Dress will be worn by CPOs/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 NHQ (NS Dte). This specification supersedes and replace PN Specification No PN/UNIFORM/03/99 dated 15 Feb 99. Promulgated earlier in relation to the item mentioned herein.

2. This specification booklet includes 06 Annexes and consists 22 pages, including the cover.

0104 **SCOPE**

1. This specification covers the technical/ manufacturing requirements of Scarf Navy Blue with Ceremonial Dress worn by CPOs/ Sailors. 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.

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. This specification lays down the standard to which the store shown under designation above should comply.

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. | ASTM D 4850 | Standard terminology related to Fabric and Fabric test. |
| c. | ASTM D 3776 | Test method for mass per unit Area (Weight) of fabric. |
| d. | ASTM D 3990 | Terminology related to fabric Defects |
| e. | ASTM-D 2261 | Stitch Tear Strength, lbs (min) |
| f. | AATCC 61-3A | Shear Strength, L Peel strength (Lbs/ inch/ (min)) |
| g. | ASTM-D 1875-70 2015 | Thickness of fabric |
| h. | BSEN 1992 | 22313-Crease recovery |

| | | |
|----|--------------------|--|
| j. | BSEN 12945-2 | ISO Pilling (5,000 Cycles) |
| k. | BSEN 12947-1 | ISO Abrasion (3,000 Cycles) |
| l. | ISO 72112 | Number of treads per unit length |
| m. | ISO 7211/5 | Determination of linear density of yarn removed from fabric. |
| n. | ISO 3801 | Determination of Mass per unit Length |
| p. | ISO 13934 | Determination of maximum force and elongation. |
| q. | ISO 7211/2 | Determination of threads per unit length |
| r. | ISO 105-E01 | Colour fastness to water. |
| s. | ISO 105 E02 | Colour fastness to sea water |
| t. | ISO 105 X 12 | Color fastness to Rubbing |
| u. | ISO 105 E04 | Colour Fastness To Perspiration |
| v. | ISO 105 J03 | Method for Calculating a Colour Difference |
| w. | ISO 105 C06 | Color fastness to commercial laundering |
| x. | ISO - 9237 | Air permeability |
| y. | ISO -13934-01 1989 | Breaking Strength lbs (min) |

0106 TERMS & DEFINITIONS

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

0107 TECHNICAL DETAILS OF SCARF NAVY BLUE

- The Technical Details of Scarf Navy are mentioned at Annex B of this specification.

0108 GUIDELINES FOR MANUFACTURING OF SCARF NAVY BLUE

- The Cloth of Scarf Navy Blue shall be Jacquard double patti, pick 128 and filling of 3 (Warp thread No. 300 & Weft thread No. 90), having high breaking strength.
- Warp twist will be 600 and 0 for weft with reed filling of 3 each.
- Scarf Navy Blue shall be free from weaving defects.
- The amount of size shall be minimum possible and no weighting material shall be used.
- The cloth of Scarf Navy Blue shall be well scoured and bleached before dyeing and said process have no deleterious effect on cloth.
- Fastness properties of Scarf Navy Blue is as per Annex B.
- Lining material shall be Rayon or Poly Viscose with high breaking strength.

0109. QUALITY OF WORKMANSHIP AND FINISHING

1. The Workmanship and finish of Scarf Navy Blue 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 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.

0111. **REPRESENTATVIVE SAMPLING**

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

| 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. | Scarf Navy Blue | 10 x samples along with accessories |
|----|-----------------|-------------------------------------|

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 Officer or his representative an initial delivery of One % of the contract or 10 meters for inspection and testing.
3. The approval of advance or pre-production sample, authorizes the commencement of bulk production but does not relieve the suppliers/ manufacturers 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, whenever asked/ required by Inspecting authority 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 procedure/ criteria in vogue.

2. Scarf Navy Blue shall be tested and examined during manufacturing/ Stage inspection as Inspector may consider necessary, to determine whether they conform to PN specification or not.

3. **Inspection of Scarf Navy Blue.** The guidelines for Inspector w.r.t general defects are defined at Annex D and Inspection Criteria is defined at Annex E. The Cloth of Scarf Navy Blue 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 acceptable store shall be stamped with Inspectors individually acceptance mark close to contractor marking.

b. Stamping of rejected stores: The rejected stores shall be marked with inspectors rejection mark close to contractor marking 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 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.

0115. **SPECIAL INSTRUCTIONS**

1. **Care Label Instructions.** Following care instructions in the form of leaflet OR attached with Scarf Navy Blue 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. 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 Scarf Navy Blue will be packed/ wrapped individually in Polythene bag of 0.005 (0.127 mm).
 - (2) The Polythene shall be of sufficient size to ensure Scarf Navy Blue are protected.
 - (3) 100 x individual Scarfs will be packed in a carton.
 - (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.
- b. **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 Scarf Navy Blue shall bear following clear and indelible information on both ends :

- 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 bolt of Scarf Navy Blue will be 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.

XXXXXSDXXXX

MUHAMMAD AFSAR
Captain Pakistan Navy
DID

Annexes:

| | |
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ANNEX A TO
PN SPECIFICATION NO.08/2021
PROMULGATION DATE 13 AUG 21

- a. **CINS:** Chief Inspector of Naval Stores
- b. **ITD Wing:** Indigenous Technical Development (Wing)
- c. **NS Dte:** Directorate of Naval Store
- d. **NRDI:** Naval Research and Development Institute
- e. **PNCSD:** Pakistan Navy Clothing Store Depot
- f. **PNCTA:** Pakistan Navy Central Testing Authority
- g. **Inspector:** The term inspector shall include the "inspection Authority", inspecting officer and their representatives, duly authorized for the purpose of discharging inspection duties involved.
- h. **Inspection Authority:** Chief Inspector of Naval Stores (CINS). His verdict in respect of Sealed Inspection matters is to be taken as final.
- j. **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.
- k. **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.08/2021
PROMULGATION DATE 13 AUG 21

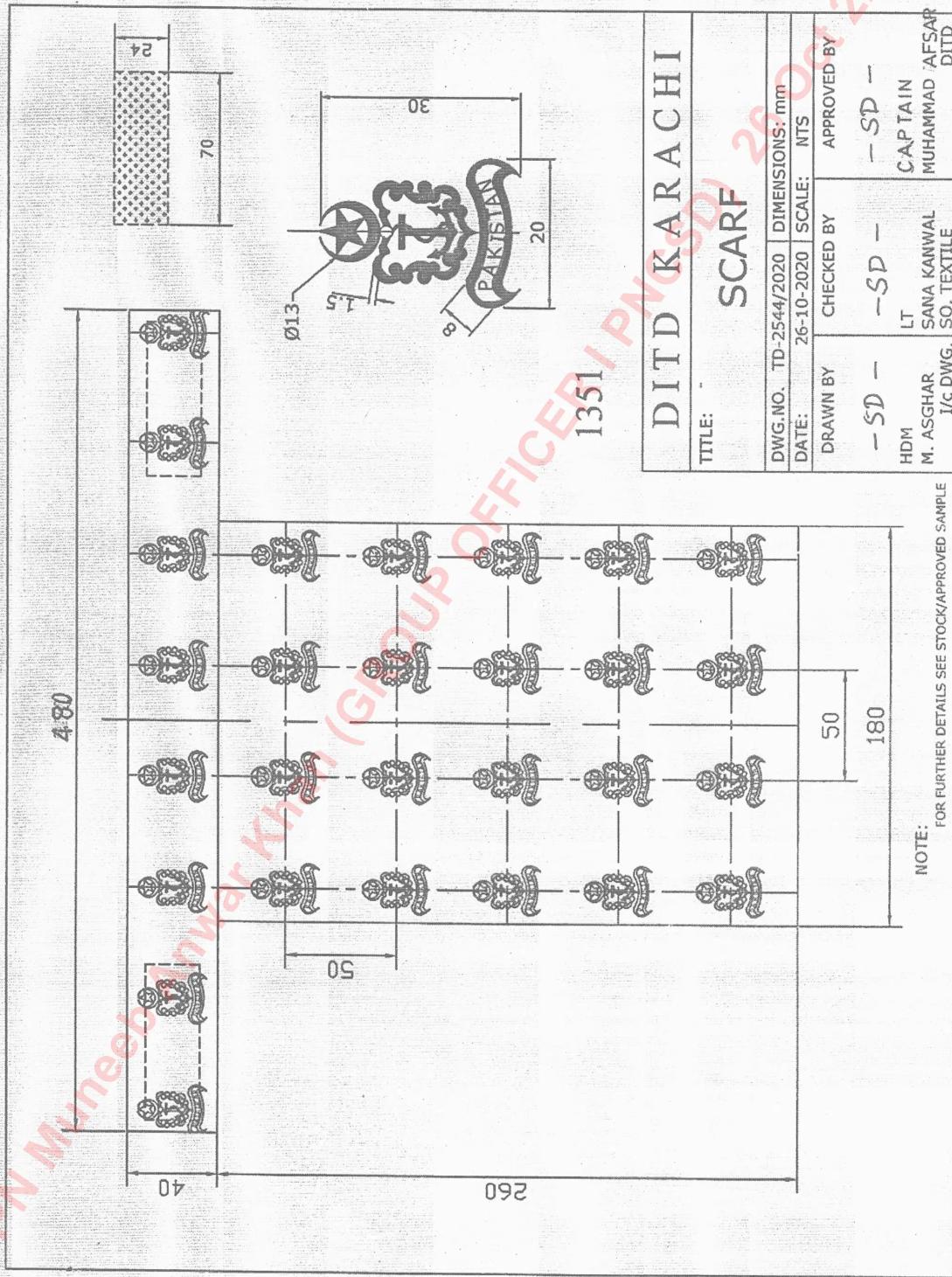
TECHNICAL DETAIL OF SCARF NAVY BLUE

| S.No. | QUALITY PARAMETERS | REFERENCE STANDARD | RESULT |
|-------|--|--------------------|------------------------------------|
| 1. | Fabric | | |
| a. | Material Composition (1) Blue (2) Golden Crest | AATCC-20 A | 100% Polyester 100% Polyester |
| b. | Weight (GSM) | ISO 3801 | 19 gms/ sq. ft |
| c. | Linear Density (1) Warp (2) Weft | ISO 7211/5 | 142 ± 3 Denier 106 ± 3 Denier |
| d. | Thread per cm (1) Warp (2) Weft | ISO 7211/2 | 59 ± 2 38 ± 2 |
| e. | Nature of Dye | Chemical Analysis | Disperse dye |
| f. | Shade (1) Blue (Pea coat) (2) Golden Crest | Visual Analysis | 19-3920 TPX 15-0953TPX |
| g. | Colour fastness to dry cleaning | ISO 105-DO1 | GS= 4 or better |
| h. | Colour fastness to bleach | ISO 105-NO1 | 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. | Color Fastness to Water (1) Change in Shade (2) Staining | ISO 105-E01 | GS= 4 or better GS= 4 or better |
| l. | Color Fastness to commercial laundering (1) Change in Shade (2) Staining | ISO 105 C06 | GS= 4 or better GS= 4 or better |
| m. | Crease recovery (3) Warp (4) Weft | BSEN 22313-1992 | 73 ± 3 % 72 ± 3 % |
| n. | Air permeability(mm/sec at 100 Pa) | ISO - 9237 | 96 mm/Sec ± 3 mm/Sec |
| p. | Water absorbency (drop test) | Visual Analysis | 05 ± 1 Sec |
| q. | Colour fastness to rubbing (1) Wet (2) Dry | ISO 105-X12 | GS= 4 or better GS= 4 or better |
| r. | Pilling (5,000 cycles) | BSEN ISO 12945-2 | GS= 4 or better |
| s. | Colour fastness to perspiration (1) Change in shade | ISO-105-E04 | GS= 4 or better |

| | | | |
|----|---|-------------------|--|
| | 2) Staining on cotton | | GS= 4 or better |
| t. | Abrasion (3,000 cycles) | BSEN ISO 12947-1 | No thread break |
| 2. | Lining | | |
| a. | Material Composition | AATCC-20 A | Poly Viscose/ Rayon |
| b. | Weight (GSM) | ISO 3801 | 45 ± 2 gm |
| c. | Linear Density (1) Warp (2) Weft | ISO 7211/5 | 53 ± 2 Denier 80 ± 2 Denier |
| d. | Nature of Dye | Chemical Analysis | Reactive/ Disperse dye |
| e. | Shade | Visual Analysis | 19-4006 TPX |
| f. | Colour fastness to dry cleaning | ISO 105-D01 | GS= 4 or better |
| g. | Colour fastness to bleach | ISO 105-N01 | GS= 4 or better |
| h. | Color Fastness to Sea Water (1) Change in Shade (2) Staining | ISO 105-E02 | GS= 4 or better GS= 4 or better |
| j. | Color Fastness to Water (1) Change in Shade (2) Staining | ISO 105-E02 | GS= 4 or better GS= 4 or better |
| k. | Color Fastness to commercial laundering (1) Change in Shade (2) Staining | ISO 105 C06 | GS= 4 or better GS= 4 or better |
| p. | Crease recovery (1) Warp (2) Weft | BSEN 22313-1992 | 73 ± 3 % 72 ± 3 % |
| q. | Air permeability(mm/sec at 100 Pa) | ISO - 9237 | 603 mm/Sec ± 5 mm/Sec |
| r. | Water absorbency (drop test) | Visual Analysis | 02 ± 01 sec |
| s. | Pilling (5,000 cycles) | BSEN ISO 12945-2 | GS= 4 or better |
| t. | Colour fastness to rubbing (1) Wet (2) Dry | ISO 105-X12 | GS= 4 or better GS= 4 or better |
| u. | Colour fastness to perspiration (1) Change in shade (2) Staining on cotton | ISO-105-E04 | GS= 4 or better GS= 4 or better |
| v. | Abrasion (3,000 cycles) | BSEN ISO 12947-1 | No thread break |
| 3. | Velcro | | |
| a. | Class - I for Hook and Loops | AATCC-20 A | 100% Nylon with selvage |
| b. | Type -II | Visual Analysis | 8.0 mil woven hook fastener tape |
| c. | Width | Visual Analysis | 25 ± 1mm |
| d. | Weight (gm/ linear yard) (1) Hook (2) Loop | ASTM-D 3776 | 4.7 ± 0.2 5.9 ± 0.2 |

| | | | | |
|----|--------------------------------|---|------------------------|--|
| | e. | Thickness (1) Hook (2) Loop | ASTM-D 1875-70 2015 | $1.90 \pm 0.01\text{mm}$ $0.98 \pm 0.01\text{mm}$ |
| | f. | Breaking Strength lbs (min) (1) Hook (2) Loop | ASTM-D 5034 | 100 ± 2 75 ± 2 |
| | g. | Peel strength (Lbs/ inch/ (min) (1) After 03 launderings | AATCC 61-3A | 1 ± 0.05 |
| | h. | Shear Strength, L (1) After 03 launderings | AATCC 61-3A | 10 ± 1 |
| | j. | Stitch Tear Strength, lbs (min) (1) Hook (2) Loop | ASTM-D 2261 | 3.5 ± 0.5 6 ± 0.5 |
| 4. | <u>Stitching Thread</u> | | | |
| | a. | Material | AATCC-20 A | Polyester |
| | b. | Shade | Visual Analysis | Matching with fabric |
| | c. | Twist | Visual Analysis | 02 |
| | d. | Linear density | ISO 7211/5 | 263 ± 5 Denier |
| 5. | <u>Fussing/ Buckram</u> | | | |
| | a. | Material | AATCC-20 A | PC Cloth |
| | b. | Breaking Strength in lbs (1) Warp (2) Weft | ISO 13934-01 | 95 ± 2 71 ± 2 |
| | c. | Linear Density (1) Warp (2) Weft | ISO 7211/5 | $20s \pm 1$ $20s \pm 1$ |
| | d. | Threads / 2.5cm (1) Warp (2) Weft | ISO 7211/2 | 66 ± 2 53 ± 2 |
| | e. | Wt/ Sq mtr | ISO 3801 | $162 \text{ g/m}^2 \pm 2$ |

ANNEX C TO
PN SPECIFICATION NO 8/2021
PROMULGATION DATE 15 AUG 2021



ANNEX D TO DITD
PN SPECIFICATION NO. 8/2021
PROMULGATION DATE 13 AUG 2021

| GUIDELINE FOR INSPECTION – GENERAL DEFECTS | | | |
|---|---|---|--|
| S.No | Defects | Possible Cause | Type of Defects Major/Minor |
| 1. FABRIC | | | |
| a. | Barre: horizontal stripes of uniform or variable width in Fabric or periodic lateral irregularity | <ul style="list-style-type: none"> 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. Individual yarns differ w.r.t count properties or structure. Different course Length. | Major |
| b. | Skewed fabric: The shape of the fabric is distorted. Wales and courses are angular. | <ul style="list-style-type: none"> 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. | Within allowable limit then minor otherwise major. |
| c. | Foreign Fly between loops of constructed fabric | <ul style="list-style-type: none"> Unclean environment or improper maintenance of machine can cause fly to end up in the knitting zone where it becomes part of the fabric. | Major if it is visible. |
| d. | Thin Yarn/ Thick yarn | <ul style="list-style-type: none"> One of the feeder is receiving yarn from a spool that has finer yarn or coarser yarn. | Major |
| e. | Horizontal band of different color on bottom | <ul style="list-style-type: none"> This happens due to a change of bobbin in the knitting machine. Different lots of yarn can have slight shade variations which can produce shade differences in fabric. | Major |
| f. | Laddering: Vertical stripes can be observed as longitude lineal gap in fabric | <ul style="list-style-type: none"> Continued knitting with a broken needle. Incorrect closing of the hook by the latch. Shift latches and needles. | 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 | Major |

| | | | |
|----|---------------------------------|--|--|
| | | ensure that the garment does not go through further stages. | |
| h. | Hole: Crack of yarn or breakage | <ul style="list-style-type: none"> High yarn irregularity, poorly lubricated yarn, weak knot or slub present in yarn. | Depend upon the size. If it's visible and larger in size then its major. |

2. PRE-TREATMENT

| | | | |
|----|---------|--|--|
| a. | Pinhole | <ul style="list-style-type: none"> The presence of Fe^{2+} 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. | Depend upon the frequency of the fault, if it occur frequently then its major. |
|----|---------|--|--|

3. DYEING

| | | | |
|----|-------------------------------------|---|--------------------------------------|
| a. | Shade difference | <ul style="list-style-type: none"> This occur due to the variation in dye or dyeing procedure. Improper cutting of pieces, bundling and numbering. Different batch mixing. | Major |
| b. | Stain of oil, food, drink, ink etc. | <ul style="list-style-type: none"> This occur due to spill of oil, ink, food, drinks on the garment. | If it is easily washable then minor. |

4. STITCHING

| | | | |
|----|---|---|------------------------------|
| a. | Seam puckering: gathering of a seam either just after sewing or after laundering. | <ul style="list-style-type: none"> Due to uneven stitching on to plies of fabric, improper thread tension, wrong sewing thread etc. | 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"> Due to improper handling of the part/ piece of fabric, improper setting and timing between needle and looped or rook etc. | Major |
| c. | Broken Stitch: Non continuous Sewing thread | <ul style="list-style-type: none"> Due to improper timing or machine usage. | Minor |
| d. | Drop stitched/ skipped Stitched Irregular stitching along the seam | <ul style="list-style-type: none"> It appears due to improper handling of cut pieces or machine usage. | Minor |

ANNEX E TO DITD**PN SPECIFICATION NO. 8/2021****PROMULGATION DATE 13 AUG 2021****Acceptable Quality Levels (AQLS) Scarf Navy Blue**

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 Scarf Navy Blue</u> | | | | | | | |
|-----------------------|--------------------|------------------|---|-----------|----------------------|-----------|---|-----------|-----------|-----------|
| | | | • 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 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 9 ~ 15 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 16 ~ 25 | 5 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 1 | 2 |
| 26 ~ 50 | 8 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 1 | 2 |
| 51 ~ 90 | 13 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 | 3 |
| 91 ~ 150 | 20 | 1 | 2 | 1 | 2 | 2 | 3 | 3 | 3 | 4 |
| 151 ~ 280 | 32 | 2 | 3 | 2 | 3 | 3 | 4 | 5 | 5 | 6 |
| 281 ~ 500 | 50 | 3 | 4 | 3 | 4 | 5 | 6 | 7 | 7 | 8 |
| 501 ~ 1200 | 80 | 5 | 6 | 5 | 6 | 7 | 8 | 10 | 10 | 11 |
| 1201 ~ 3200 | 125 | 7 | 8 | 7 | 8 | 10 | 11 | 14 | 14 | 15 |
| 3201 ~ 10000 | 200 | 10 | 11 | 10 | 11 | 14 | 15 | 21 | 21 | 22 |
| 10001 ~ 35000 | 315 | 14 | 15 | 14 | 15 | 21 | 22 | 21 | 21 | 22 |
| 35001 ~ 150000 | 500 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 21 | 22 |
| 150001 ~ 500000 | 800 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 21 | 22 |
| 500001 ~ Over | 1250 | 21 | 22 | 21 | 22 | 21 | 22 | 21 | 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.

ANNEX F TO DITD

PN SPECIFICATION NO. 08/2021

PROMULGATION DATE 13 AUG 2021

FEED BACK FORM

Item Designation: _____

Pattern #: _____

Parent Equipment: _____

PN SPEC #: _____

Problem Faced: _____

Technical Solution: _____

Financial Effect (if any): _____

Name Stamp

COUNTERSIGNED

Name Stamp

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