PRIVATE SPECIFICATION

Prepared for

The South African Navy

SHIRT (Men)

Short sleeved, tropical

SAN 162

Revised October 2008

1. Scope

This specification covers the material, cut and make of short sleeved tropical shirts for male personnel of the South African Navy.

2. Definitions

acceptable: acceptable to the Directorate of Naval Logistics.

nominal: subject to the tolerances normal to good manufacturing practice.

3. Style

- open neck
- step collar
- front button fastening
- cut-on facing
- two breast pockets with flaps
- shoulder straps with mitred points
- double yoke at back
- short sleeves
- mock cuffs
- straight bottom hem

Tenderer's comments

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4. Illustrations

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Tenderer's Comments

5. Materials - General

No materials will be supplied by the SA Navy.

- The materials specified in 6 and 7 are to be supplied and used by the manufacturer

A trim chart containing a sample of each component material (as given in 6 and 7) must accompany the pre-production samples

6. Outer Material

The outer material to:

- be 100% polyester that complies with the requirements given in table 1
- be colour CKS129/1C of 2005 "colours for textiles" to be

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Table 1 – Material requirements

1	2	3
Property	Requirement	SANS number (unless otherwise indicated)
Composition, %		1833-1 and 1833-4
Polyester	100%	
Weave	2/2 Twill	Visual examination and physical analysis
Mass per unit area, g/m², min.	200	79
Number of threads per cm , min.		7211-2
Warp ..... Weft	28,4 21,6	
Tensile strength, N, min.		13934-1
Warp ..... Weft	1550 1350	
Dimensional changes, %, max.		
Laundering Warp and weft direction	2	960 procedure C
Seam slippage, N, min.		5726
Warp ..... Weft	220 300	
Colour fastness to:		
Light, rating, min.	4	105-B02
Washing , rating, min.		105-C10 (Test B(2))
Change in colour	4	
Perspiration, rating, min.		105-E04
Change in colour	4	
Resistance to abrasion	2500 rubs No breaks	6009

Tenderer's comments

7. Component materials

Tenderer's comments

7.1 Interlining

- which complies with the requirements of CKS 627 "Fusible interlining"
- fusible woven or non-woven interlining
- suitable for use in garments which may be washed

The selection of interlining of appropriate mass per unit area to be determined by consultation with the supplier of the interlining.

7.2 Buttons

- four-hole plastics
- nominal diameter of 12 mm
- dope-dyed
- fully impregnated
- colour to be an acceptable match to the colour of the outer material

7.3 Stiffeners

- an acceptable adhesive (stick on) plastics material
- attached to a patch of outer material that is shaped to suit the collar point
- to be of finished length 45 mm and width 15 mm
- nominal thickness 0,05 mm
- colour to be an acceptable match to the colour of the outer material

7.4 Threads

- to comply with relevant requirements of SANS 1362 "Sewing threads"
- colour to be an acceptable match to the colour of the outer material

sewing and top-stitching thread:

- polyester-and-cotton core-spun **OR** spun polyester
- ticket No. 120 (in both cases)

overlocking thread:

- crimp-textured polyester
- ticket No. 140

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8. Workmanship

Tenderer's comments

The shirts shall be:

- cut and made with first-class workmanship throughout
- of uniform and acceptable make, colour and finish

Shall be free from:

- defects, that affect their appearance or may affect their serviceability (or both)
- marks
- spots
- stains, incurred in the making-up

Seams and stitches shall be:

- smooth and uniform
- free from twists, pleats and puckers
- sufficiently extensible to avoid seam cracking and undue shrinkage in use

Ends of sewing shall be:

- trimmed and loose threads removed
- back-tacked if unsecured

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9. Sizes

The patterns shall conform to the specification and shall be drafted by the manufacturer.

Shirt measurements

MEASURING POINT		DESCRIPTION
A - A	Chest circumference	Measure at the base of the scye, with garment spread completely flat, and multiply by two.
B - B	Back length	Measure from the centre back neck seam to the bottom edge of the garment.
C - C	Back width	Measured across the width of the back, at yoke seam, from sleeve seam to sleeve seam.
A - D	Sleeve length	Measure along the underarm from the base of the scye to the bottom edge of the cuff.
D - E	Sleeve opening	Measure across the width at the bottom edge of the sleeve .
B - F	Depth of scye	Measure from the centre back neck seam to the level of the base of the scye.
G - G	Collar length	Measure the full length of the collar along the gorge seam.

Table 2 - size range

1	2	3	4	5	6	7	8	9
		Nominal finished garment measurements, cm						
National stock No.	Size designation[1]	Chest circumference	Back length	Back width	Sleeve length	Sleeve opening	Depth of scye	Collar length
8405-18-096-9543	X-Small	95	76	41	12	17	28	34
8405-18-096-9544	Small	105	78	44	13	18	29	37
8405-18-096-9545	Medium	115	80	47	14	19	30	40
8405-18-096-9547	Large	125	82	50	15	20	31	43
8405-18-096-9548	X-Large	135	84	53	16	21	32	46
8405-18-096-9549	XX-Large	145	86	56	17	21	33	49
8405-18-181-1496	XXX-Large	155	88	59	18	22	34	52

1) Based on the chest circumference in centimetres of the intended wearer.

10. Make

Illustrations are not to scale and are for guidance only, and unless inconsistent with the text, all measurements are nominal.

Tenderer's comments

10.1 Fronts

Each front shall have:

- a patch pocket with flap
- a grown-on facing
- a lapel step of 25 mm
- a 6 mm top-stitching at the front edge
- a straight hem
- straight side seams

Tenderer's comments

10.2 Facing

Facing shall be:

- grown-on
- of finished width 30 mm at the shoulder seam
- of finished width 90 mm at the point of the lapel step (measured horizontally)
- shaped to 50 mm at bottom hem
- interlined with interlining from shoulder seam to 20 mm below the second button closure
- overlocked on the free edges

10.3 Collar

Collar shall:

- be one-piece
- be lined with outer material with the top collar lined with fusible interlining
- be finished depth 70 mm at the centre back and 60 mm at the points
- have a 6 mm top-stitching along the free edges

10.4 Pockets

Pocket shall:

- be a patch pocket
- be square with 20 mm blunted corners
- be positioned with the sides parallel to the front edge
  - X-Small and Small shall be 65 mm from the front edge
  - Medium and Large shall be 75 mm from the front edge
  - X-Large and XX-Large shall be 85 mm from the front edge
- be of finished width and depth
  - 12 cm and 13 cm respectively on size X-Small and Small
  - 13 cm and 14 cm respectively in size Medium and Large
  - 14 cm and 15 cm respectively on size X-Large and XX-Large
- have a pocket mouth hem
  - folded in 15 mm
  - overlocked raw edges
  - stitched down 15 mm from folded edge
- be secured over the full length of the pocket mouth hem, with a box-tack
- be turned-in 7 mm at the side and bottom overlocked edges
  - stitched down 2 mm from the turned-in edge
- have a button

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Tenderer's comments

10.5 Pocket flaps

Flap shall:

- be lined with outer material
- be interlined with interlining
- be cut with a mitred point
- be of finished depth 60 mm to the point and 40 mm at the sides
- be positioned 10 mm below the top buttonhole
- have a 10 mm gap between the top of the pocket and stitching down of the flap
  - stitched down 5 mm and turned over
  - stitched down 6 mm from the turned over edge
- have a 6 mm top-stitching around the free edges
- be bar-tacked at both top ends
- have a buttonhole

10.6 Back

Back shall:

- have a double yoke of outer material
- be finished depth 80 mm at centre back on size designation Medium
- a straight hem

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Tenderer's comments

10.7 Shoulder straps

Shoulder straps shall be:

- mitred at the free end
- lined with outer material
- top-fused with interlining
- of finished width 50 mm at shoulder seam
- tapering to 40 mm at the base of the mitre
- of such length that the mitred point is 15 mm from the neck seam
- sewn in with the sleeves
- positioned with the centre line of the shoulder strap 5 mm forward of the natural shoulder line
- top-stitched 6 mm around the free edges

10.8 Sleeves

Sleeves shall:

- be one-piece, set-in sleeve
- be shirt-type, short sleeved
- have mock-cuffs
  - of finished width 30 mm
  - stitched down 6 mm from the top edge

10.9 Buttonholes

Each shirt to have:

- eleven buttonholes on all sizes
  - neatly made
  - barred
  - shirt-type buttonholes
  - 17 mm long

Seven buttonholes shall be:

- positioned on the left front
- vertical
- positioned 15 mm from the front edge
- positioned with the top buttonhole being 12 cm below the lapel step
- equidistantly spaced
- positioned at approximately 8-10 cm intervals (determined by the size of the shirt)

One buttonhole shall be:

- positioned in each shoulder strap and
- centrally positioned at the base of the mitre

One buttonhole shall be:

- positioned in each flap
  - centrally positioned
  - positioned 10 mm above the mitred point

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Tenderer's comments

10.10 Buttons

Each shirt to have:

- thirteen buttons on all sizes
  - properly secured

Seven buttons shall be:

- positioned on the right front
- in corresponding positions to that of the relevant buttonholes

One button shall be:

- positioned on each side of the shoulder area
- in corresponding positions to that of the buttonholes on the shoulder straps

One button shall be:

- positioned centrally on each pocket
- in corresponding positions to that of the buttonholes on the flap

Two spare buttons shall be:

- positioned on the right facing
  - near the hem of the shirt

10.11 Bottom hem

Hem shall be:

- a roll hem of finished width 10 mm
- straight

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11. Stitches, seams and stitchings

Tenderer's comments

11.1 Stitches

Sleeve-insertion seams and side seams: safety stitch

Overlocking: three-thread overlocking stitch

Other stitches: single needle lock stitch

11.2 Seams

Seams to be at least 10 mm wide:

Side seam and sleeve-insertion seams: seam type SSa

Superimpose two or more plies of material and seam with the appropriate number of rows of stitches positioned at the specific distance(s) from the aligned edges.

Collar and shoulder strap edges: seam type SSe-2

Form seam type SSa-1, using two plies of material. Then turn back each ply at the seam and seam through the turned edges with the appropriate number of rows of stitches.

Pockets to shirts: seam type LSd-1

Turn in the edge of one ply of material, lap it on the body of a second ply (at the specific distance from the edge of the second ply), and seam with the appropriate number of rows of stitches.

Flaps to shirt: seam type LSbl-2

(1)

(2)

Form seam Type LSBj-1 **(1)**. Then turn the strip back at the seam and seam with one rows of stitches **(2)**

Tenderer's comments

11.3 Stitchings

All exposed raw edges: stitching type EFd

Stitch over the edge of a ply of material with one row of stitches.

Hems: stitching type EFb-1

Turn in the specified width at the edge of a ply of material, fold back the turned edge, and stitch the turned-in and folded portion with the appropriate number of rows of stitches.

11.4 Number of stitches

Seaming and top-stitching: 40 ± 4 per 10 cm

Overlocking: 32 ± 4 per 10 cm

Buttonholes: 12 ± 1 per 1 cm

Buttons: 12 ± 1 per button

Bar-tacks: 22 ± 2 per 1 cm

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12. Packing, care-labelling and marking

Tenderer's comments

12.1 Packing

The shirts shall be:

- delivered in a commercially dry condition
- so packed that they will not be damaged in transit or in storage
- neatly folded around a piece of cardboard and individually packed in a plastics envelope of suitable size and shape (only plastics clips shall be used in the folding and presentation of a shirt)
- unless otherwise specified in the order or contract, acceptably packed (in units of 10) for transportation in acceptable bulk containers that comply with the requirements of RSA-MIL-SPEC 296 "Corrugated board boxes for clothing"

Shirts:

- of the same size designation to be packed together in a bulk container (unless quantities ordered are such that packing together of the same size only is not justified).
- of different size designations may also be packed together to accommodate the last part of an order or contract

12.2 Care-labelling

- Each garment to have a woven or printed label that is permanently secured and that provides (in accordance with SANS 10011 "Care-labelling of textiles and clothing") correct and appropriate care instructions
- printed labels to comply with the requirements of SANS 1309 "Printed labels for textiles"
- all care-labels and their markings to be such that they outlast the garments.
- all care instructions shall be shown in words and in symbols

12.3 Marking

12.3.1 Shirts

Each shirt to have, secured centrally on the inside centre back neck seam, a woven fabric label that complies with the requirements of SANS 1309 "Printed labels for textiles", and provides the following information in legible and indelible block letters of height at least 3 mm:

- the manufacturer's name or trade mark or both
- the size designation eg. MEDIUM
- the composition of the fabric, to comply with SANS 10235 "Fibre-content labelling of textiles and textile products"
- the National stock number
- the year of manufacture
- the VAT no. of the manufacturer
- the country of origin

12.3.2 Envelopes

Each envelope to be clearly marked with the following information:

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- the designation, i.e "SHIRT (Men) Short sleeved, tropical"
- the size designation eg. MEDIUM
- the National stock number

12.3.3 Containers

E ach bulk container to have a label securely attached to the outside visible when the containers are stacked and providing the information as specified in RSA-MIL-SPEC 296

12.4 Additional marking

When so required by the South African Navy, jackets, envelopes or containers (or any combination of these) to bear information additional to that specified above.

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13. Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this specification. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of a standard, parties to agreements based on this specification are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards may be obtained from Standards South Africa.

RSA-MIL-SPEC 296, *Corrugated board boxes for clothing.*

CKS 129, *Colours for textiles.*

CKS 627, *Fusible interlinings.*

SANS 79 (SABS SM 79), *Textile - Mass per unit of conditioned fabrics.*

SANS 105-B02/ ISO 105-B02, *Textiles - Test for colour fastness Part B02: Colour fastness to artifical light: Xenon arc fading lamp test.*

SANS 960, *Textiles - Dimensional stability during washing and drying procedures.*

SANS 105-C10, *Textiles - Tests for colour fastness Part C10: Colour fastness to washing with soap or soap and soda.*

SANS 105-E04/ ISO 105-E04, *Textiles - Test for colour fastness Part E04: Colour fastness to perspiration.*

SANS 1309, *Printed labels for textiles.*

SANS 1362, *Sewing threads.*

SANS 1833, *Textiles - Binary fibre mixtures - Quantitative chemical analysis.*

SANS 5726 (SABS SM 726), *Seaming properties of woven textile fabrics.*

SANS 6009 (SABS SM 1009), *Abrasion resistance of textile fabrics (Martindale test).*

SANS 7211-2/ ISO 7211-2, (SABS ISO 7211-2), *Textiles - Woven fabrics - Construction - Method of analysis Part 2: Determination of number of threads per unit length.*

SANS 10011 (SABS 011), *Care-labelling of textiles and clothing.*

SANS 10076-1, *The assessment of defects in textile piece-goods and made-up articles – Part 1: Defects in woven cellulosic and cellulosic blends.*

SANS 10235 (SABS 0235), *Fibre - content labelling of textiles and textile products.*

SANS 13934-1/ISO 13934-1 (SABS ISO 13934-1), *Textiles - Tensile properties of fabrics Part 1: Determination of maximum force and elongation at maximum force using the strip method.*

Annex A
(normative)

Special conditions of tender

General

A-1 Unless otherwise stated, the South African Bureau of Standards, shall be the inspecting authority.

A-2 Three pre-production sample shirts, shall have been inspected, tested and approved by the inspecting authority before bulk production is commenced. Each one of these samples shall be accompanied by a trim chart containing a sample of each component material (as given in 7) and the relevant certificates. Three metres of the outer material fabric must also be submitted by the successful tenderer to make swatches for colour re-registration purposes. It shall be the duty of the manufacturer to give adequate notice to the inspecting authority of the availability of these samples.

A-3 The shirts shall be subject to inspection during the course of manufacture. The inspector shall, during normal working hours, be given all reasonable facilities for carrying out his duties and shall have the right of entry into the contractor's factory and the factory or works of any subcontractor where work on shirts supplied to this specification may be in progress.

A-4 The contractor shall inspect the finished shirts for compliance with the specification before submitting them to the inspecting authority for final inspection

A-5 Before acceptance, the shirts shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification.

A-6 Any applications for deviations from drawings or the specification, or any laid down process, treatment or procedures as set out in this specification, must be made to the SA Navy Office, Pretoria.

Documentation

One container of each consignment shall be marked "Documents" and shall, in addition to the shirts, contain the following:

1) The packing slip/delivery note;
2) where applicable, the certificate(s) of conformance; and
3) a copy of the invoice containing the following:
   i) the order number
   ii) the financial authority number
   iii) a full description of the consignment, i.e items, size(s), quantity, etc.