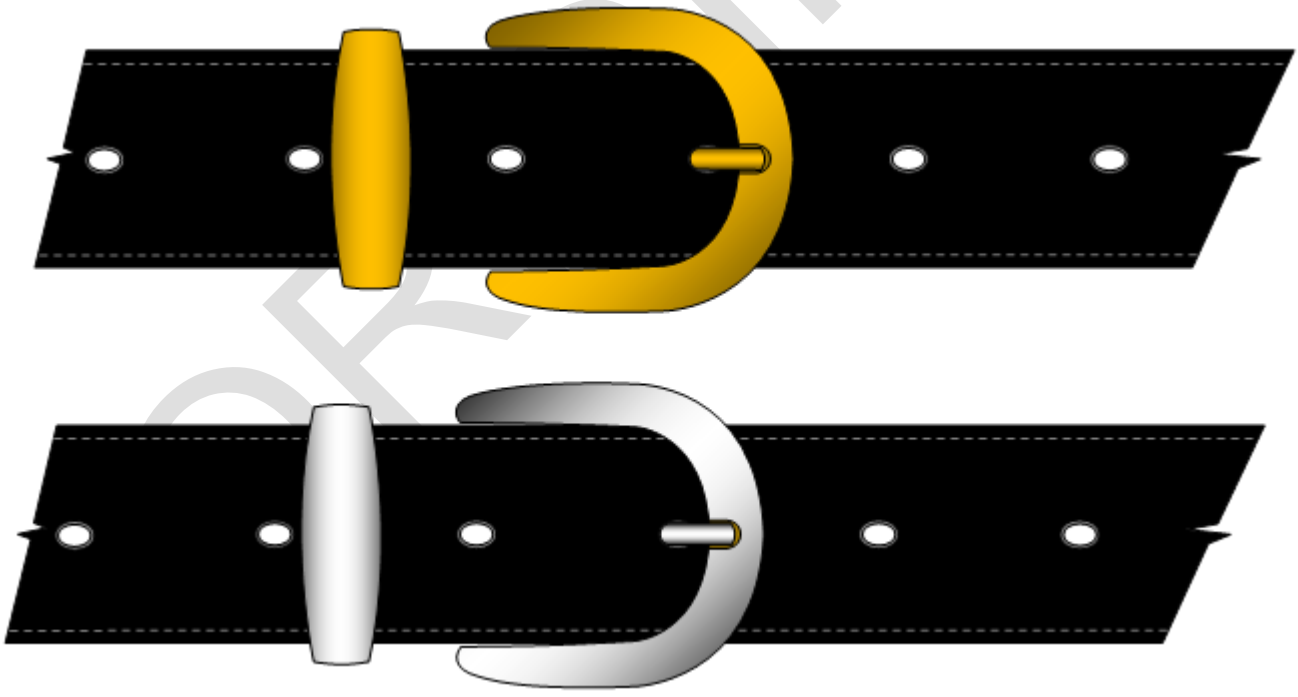
PRIVATE SPECIFICATION

Prepared for

SOUTH AFRICAN AIRWAYS

A STAR ALLIANCE MEMBER

FDC Belt Gold colour buckle
&
GCC Belt Silver colour buckle



Item Number: FM08 & CO21
Document Number: SAA 015
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1. Scope

This specification covers the material, cut and make of belts for personnel of the South African Airways. The belt variations covered in this specification are as given in table 1:

Table 1 – Belt variations

End-user		Description	Item Number
1.1	Flight deck crew	Belt with gold plated buckle and loop	FM08
1.2	Ground and Cabin Crew	Belt with nickel plated buckle and loop	-

NOTE: *The belts shall comply with Type B belts as given in SANS 1540 "Men's and women's leather belts".*

2. Definitions

acceptable: acceptable to the South African Airways

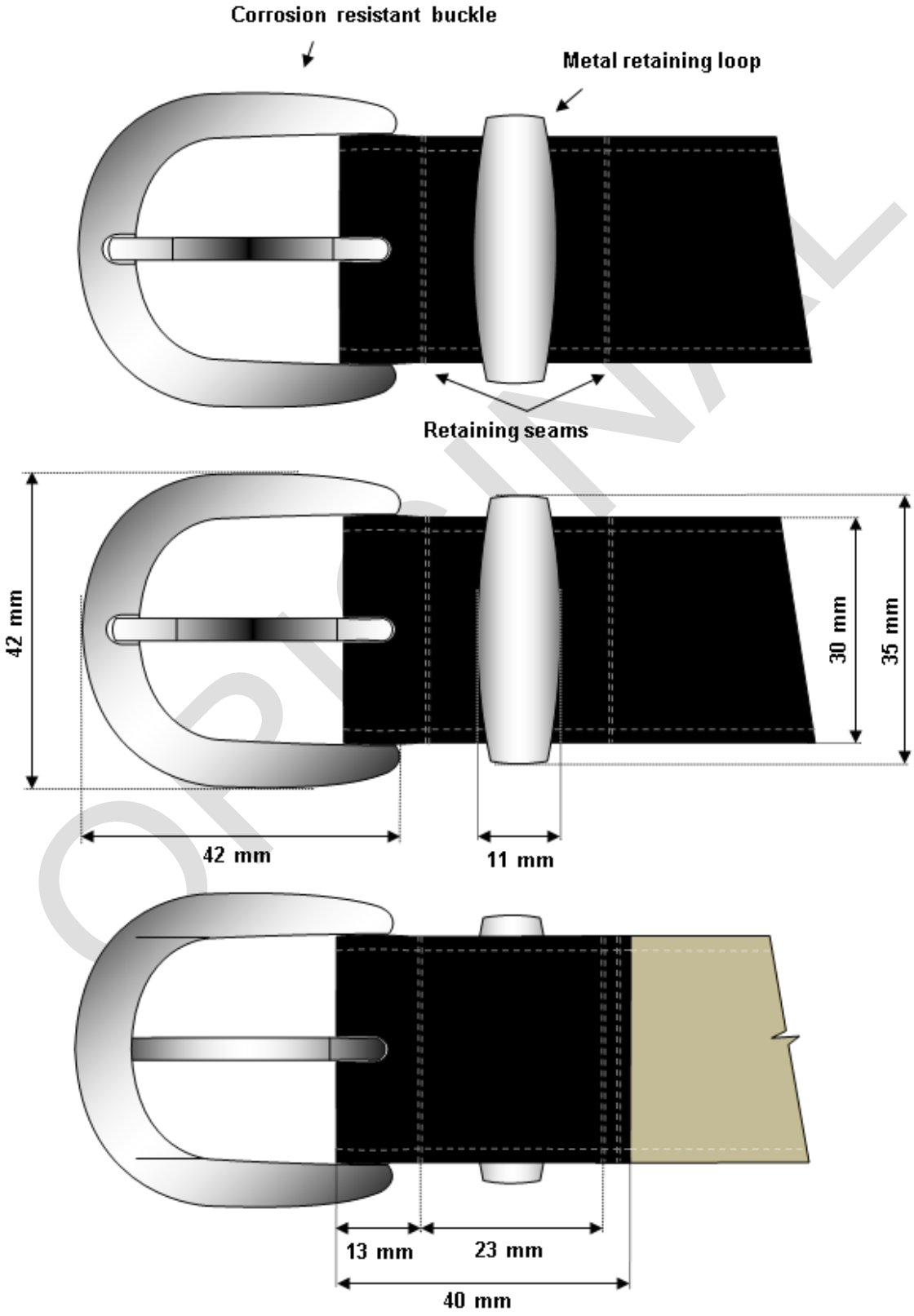
nominal: subject to the tolerances normal to good manufacturing practice

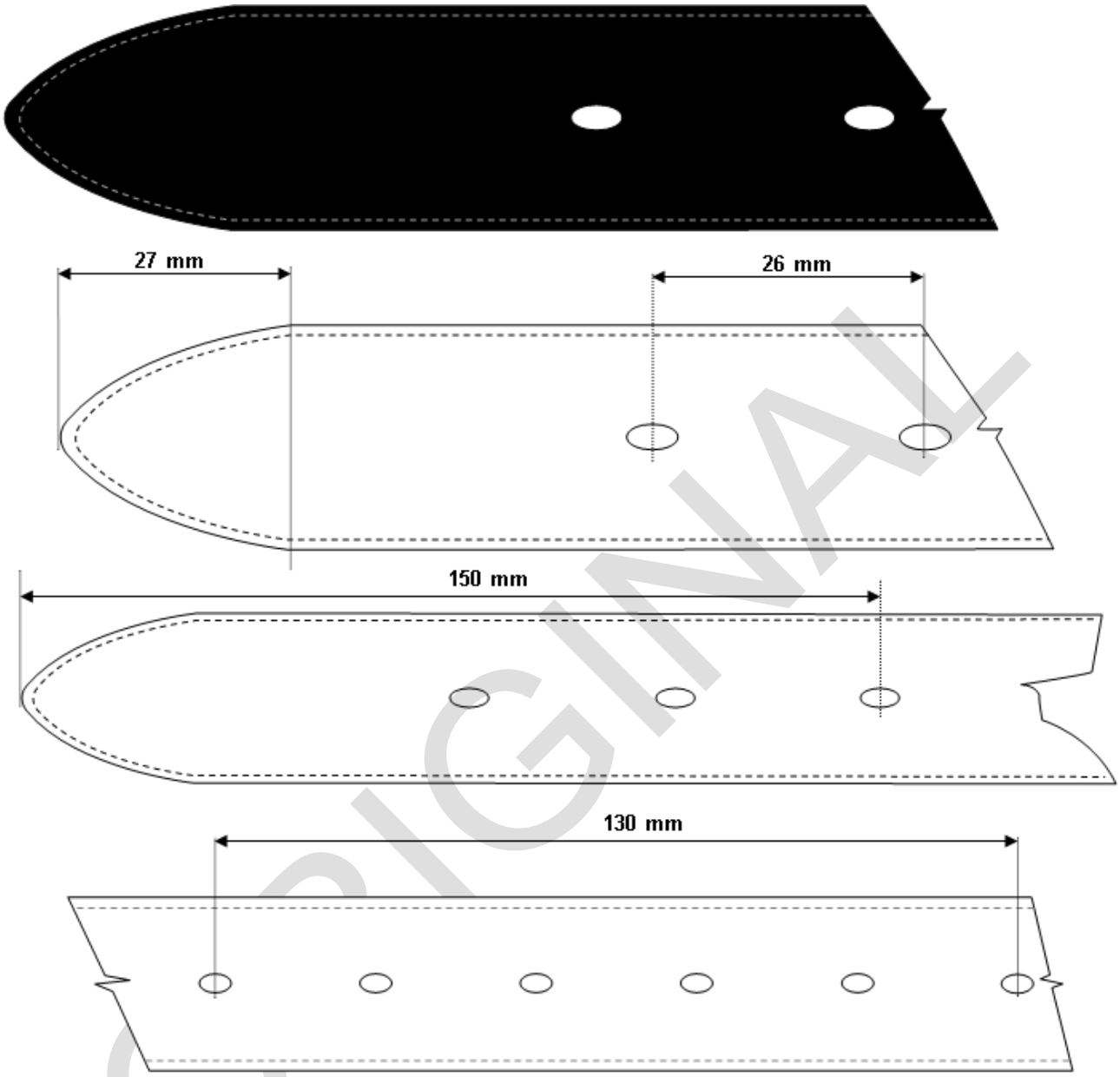
SANS: South African National Standard

3. Style

- waist belt
- gold and silver electroplated buckle with prong (as specified in the order or contract)
- electroplated metal retaining loop

4. Illustrations and dimensions





5. Client Furnished Materials

No materials shall be supplied by the South African Airways.

6. Component Materials

The following materials shall be supplied and used by the manufacturer. Trim charts shall also be submitted by the manufacturer (see Annex B).

NOTE: *All components listed below shall be manufactured in the Republic of South Africa. In instances where the raw material and/or finished components are not available in the Republic of South Africa, the onus shall be on the bidder to apply for exemption certificates from DTI. Exemption certificates, where relevant, shall be submitted together with each bid.*

6.1 Outer material and backing material

NOTE: *The belt and backing material shall both be full grain leather, unless otherwise requested by SAA. Should SAA consider alternative backing materials, it shall comply with the requirements as specified in paragraph 6.2.*

- to be soft full grain bovine leather
- the grain side to be free of blemishes
- to be finished on the grain side with an acceptable black pigment finish
- to comply with the requirements specified in Table 2 after being conditioned in accordance with SANS 5616 *"Preparation of samples (leather, elastomeric material and other footwear materials)"*

Table 2 – Physical and chemical requirements for leather

1	2	3
Property	**Requirements**	**Test methods (SANS unless otherwise stated)**
Shrinkage temperature, °C, min. ……	75	5635 [a]
Extractible matter content (on a moisture-free basis)%.	3.0 to 12.0	5617 & 5618 [b]
pH value, min. …… Difference figure, max. ……..	3.3 0.7	5626 [c]
Resistance to wet and dry rubbing after 50 rubs: Grain side, permissible colour change, rating min .	4	6080 [d]
Breaking strength, N, min…….	400	5636 [e]

[a] See 10.2
[b] See 10.3
[c] See 10.4
[d] See 10.5
[e] See 10.6

6.2 Backing material

NOTE: *This component is not relevant, unless specifically requested by SAA.*

- an acceptable PVC Suede material
- of nominal thickness 1.5 ± 0.1 mm
- finished on the outer side to an acceptable sueded tan colour
- to comply with the requirements as given in table 3

Table 3 – Backing material requirements

1	2	3
Property	**Requirement**	**Test method**
Tearing strength L Direction……. W Direction…….....	 69.76 N 51.92 N	ASTM D2261-13 Temp: 20°C. R.H. 65% Speed: 50 mm/min.
Flexing resistance A Direction……. B Direction…….	Slight cracking after 3000 cycles	DIN 53351-2003 Flexometer Temp: Temp: 20°C. R.H. 65%

6.3 Interlining

- an acceptable synthetic material

6.4 Threads

- to be polyester and cotton core-spun
- to comply with the requirements of SANS 1362 “Sewing threads”
- colour to be an acceptable match to the colour of material with which it is used

6.5 Adhesive

- an acceptable adhesive that is compatible with the materials and fit for purpose

6.6 Buckle

- an acceptable metal buckle
- two types of buckles shall be supplied (as specified in the order or contract)
  - FDC: Gold plated buckle (See Annex A)
  - GCC: Nickel plated buckle (See Annex A)
- shape to conform to the illustrations as given in section 4
- metal prong of nominal width 3 mm
- corrosion resistant
- no sharp edges

6.7 Metal retaining loop

- an acceptable metal loop (same metal as buckle)
- two types of retaining loops shall be supplied (as specified in the order or contract)
  - FDC: Gold plated
  - GCC: Nickel plated

- corrosion resistant
- no sharp edges

7. Workmanship

The belts 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:

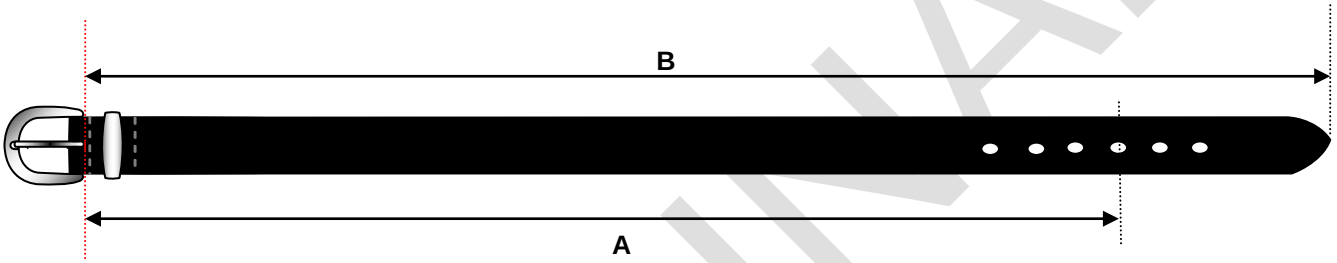
- trimmed and loose threads removed
- back-tacked if unsecured

8. Sizes

The belts shall be supplied the following sizes:

Table 4 - Sizes

Size	Imperial size	Length to 3rd hole from front (measured as given in A below)	Total length (measured as given in B below)
Small	30	76 cm	91 cm
Medium	34	87 cm	102 cm
Large	38	97 cm	112 cm
X-Large	42	107 cm	122 cm
2X-Large	46	117 cm	132 cm



9. Make

- the component parts to be stuck together following the adhesive manufacturer's recommendations
- stitching to be applied 2 mm from the edge at a frequency of 8 stitches per 25 mm
- the belt shall have a finished nominal thickness of 4.65 mm ± 0.5 mm
- shape and dimensions to be as given in section 4
- the one cut end that shall fit into the buckle shall have square corners
  - the buckle shall be attached to the belt by passing its prong through a slot punched through the leather at a position such as to provide a turnover of length ± 40 mm, and shall be secured by rows of stitching as shown in section 4
- the other end shall be shaped in such a way that the tip shall be rounded
- the belt shall be fitted with a metal loop of width 11 mm at its widest point
- six slightly oval holes, 3 mm in diameter, and 26 mm apart, (measured from centre to centre) shall be punched in the centre of the belt
- the edges shall be stained to a black colour that matches the outer leather of the belt.

10. Test methods

10.1 CONDITIONING OF TEST SPECIMENS AND TEST CONDITIONS

- Prepare and condition test specimens in accordance with SANS 5616, and conduct the physical tests without removing the specimens from the conditioned atmosphere

10.2 SHRINKAGE TEMPERATURE

- Use SANS 5635

10.3 MATTER EXTRACTABLE BY PETROLEUM ETHER

- Use SANS 5618, but express the results on a moisture-free basis using SANS 5617

10.4 pH VALUE

- Use SANS 5626, but record the first pH value and also the difference between the two measured pH values.

10.5 RESISTANCE TO WET AND DRY RUBBING

- Use SANS 6080

10.6 BREAKING STRENGTH OF BELTS

- Use SANS 5636, but use a completed belt of full width and thickness. The belt shall be buckled (closed). Clamp the belt 100 mm each side of the closure in the jaws of the tensile testing machine. Operate the machine until a force of 400 N is applied. Report only the force at which rupture occurs (and the nature of the rupture), or that the specimen did not rupture.

11. Packing and marking

11.1 Packing

Each belt shall be:

- delivered in a commercially dry condition
- so packed that it will not be damaged in transit or in storage
- unless otherwise specified in the order or contract, acceptably packed (in units of 15) for transportation in acceptable bulk containers

Each belt:

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

11.2 Marking

11.2.1 Belts

The following to be legibly and indelibly marked on the backing material at the tip of the belt:

- the South African Airways emblem (*not to refer to manufacturer*)
- the size designation
- the month and year of manufacture

In addition, each belt shall be fitted with a printed swing label:

Each swing tag shall:

- be a white cardboard printed label
- information to be in legible and indelible block letters of height at least 3 mm
- include the following information:
  - the size designation
  - the item number
  - the item description
  - the month and year of manufacture
  - the order number

11.2.3 Containers

Each bulk container to have a label securely attached to the outside visible when the containers are stacked and providing the following information in legible and indelible marking:

- the manufacturer's name and trade mark
- the designation e.g. “FDC, Belts”
- the size designation
- the month and year of manufacture
- the quantity
- the order number or contract number or both
- the invoice(s) number(s)
- the SABS Inspection Certificate Number
- the item number

11.3 Additional marking

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

12. 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 the Bureau of Standards.

ASTM D2261-13, *Standard Test Method for Tearing Strength of Fabrics by the Tongue (Single Rip) Procedure (Constant-Rate-of-Extension Tensile Testing Machine).*

DIN 53351-2003, *Testing of artificial leather and similar shut materials - Behaviour at permanent folding (Flexometer-method).*

SANS 1362, *Sewing threads*.

SANS 136:1988/ISO 1458:1988 (SABS ISO 1458), *Metallic coatings - Electrodeposited coatings of nickel.*

SANS 5616, *Preparation of samples (leather, elastomeric material and other footwear materials).*

SANS 5617, *Determination of water content in leather.*

SANS 5618, *Leather — Determination of matter extractable by petroleum ether.*

SANS 5626, *Leather or footwear component — pH value and difference figure of an aqueous extract.*

SANS 5635, *Shrinkage temperature of leather.*

SANS 5636, *Determination of (a) tensile strength, (b) percentage elongation caused by a specified force, (c) percentage elongation at break of leather.*

SANS 6080, *Leather and other footwear materials — Resistance to to-and-fro rubbing.*

ANNEX A

(Normative)

Plating requirements

A.1 Polishing

The polishing shall:

- be carried out prior to the plating of the buckles
- be carried out until an acceptable smooth and even surface is obtained

A.2 Electroplating

The significant surface, reverse of buckle, prongs and retaining loop shall be electroplated with one of the following (as specified in the order or contract):

A.2.1 Gold Electroplating

The gold coating shall:

- be electroplated with a uniform and bright deposit of gold
- have a minimum gold content of at least 995 parts per 1 000, when tested with an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle)
- acceptable match to the colour of the sample held by the South African Airways
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discoloration and mechanical damage

The thickness of the coating shall be:

- 1μm at any point
- be tested by using an acceptable non-destructive test method (e.g. an instrument operating on the beta-ray back-scatter principle) to determine the thickness on the obverse and reverse sides of the buckles

The discontinuity of the coating shall be tested as follows:

- use a volume fraction of 50% aqueous solution of nitric acid at 25°/25° C = 1,42 maintained at 18 °C ± 2°C
- immerse the buckle to a suitable depth, in the acid for (60 ± 2) s

Regard the following as evidence of discontinuity:

- evolution of gas bubbles during immersion
- imparting of a blue colour to the acid solution
- definite change on the obverse or reverse sides of the buckle on removal from the acid solution
- more than 6 pinpoint defects on the obverse or reverse of the buckle

A.2.2 Nickel Electroplating

- be electroplated with a uniform deposit
- **nickel plating** to comply with the requirements as given in SANS 136:1988/ ISO 1458:1988
- acceptable match to the colour of the sample held by the South African Airways
- have no contact marks from the electroplating process
- render a clean surface
- adhere firmly to the base metals
- when viewed at a distance of 350 mm, be free from the following defects
  - blisters, pits, roughness, cracks, stains, discolouration, mechanical damage

The thickness of the coating shall be:

- 5μ m at any point

ANNEX B

(Normative)

Special conditions of tender

B-1 GENERAL

B-1.1 Unless otherwise stated, the South African Bureau of Standards shall be the inspecting authority.

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 Airways and verified by the SABS[1]. All applications must be submitted in writing.

B-1.2 Three pre-production sample belts (of different sizes and different coloured buckles), 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 6) and the relevant certificates. It shall be the duty of the manufacturer to give adequate notice to the inspecting authority of the availability of these samples.

B-1.3 The belts 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 belts supplied to this specification may be in progress

B-1.4 The contractor shall inspect the finished belts for compliance with the specification before submitting them to the inspecting authority for final inspection.

B-1.5 Before acceptance, the belts shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification.

B-2 DOCUMENTATION

One container of each consignment shall be marked “DOCUMENTS” and in addition to the belts, shall contain the following:

a) The packaging slip or delivery note;
b) where applicable the inspection certificate(s);
c) a copy of the invoice containing the following information:
- the order number
- the financial authority number
- a full description of the consignment, i.e. Item Number, quantity, etc

[1] ***SABS Inspection Authority: (Tel) 012 4287371.***

ANNEX C

(Normative)

CKS 129 Colours

Due to the fact that colours can change over a period of time, any colour standard which has been registered for a period of SEVEN YEARS or more shall be considered obsolete. These standards shall then be allocated an archived status (as opposed to current status) and re-registration shall be required.

A. The following scenarios require a submission of leather from the successful tenderer:

1. A colour standard is archived.
2. First time registration is required (CKS 129 colour number does not exist).
3. Colour swatch stock at the SABS is no longer available.

B. Requirements for the submission of fabric as identified in A:

1. The colour shall be as agreed upon between the South African Airways and the successful bidder.
2. The leather shall be used to make new colour swatches which shall be the responsibility of the SABS.
3. The cost of the leather shall be incorporated in the relevant bid submission.

HISTORY SHEET				
VERSION	**DATE**	**AMENDMENTS/HISTORY**	**CHECKED**	
			NAME	**INIT.**
01.0				
02.0	March 2014	Align spec with new sample		
03.0	September 2015	Add Item number Delete contradicting dimensions about positioning of first hole		