

PRIVATE SPECIFICATION

Prepared for the



SOUTH AFRICAN AIRWAYS

A STAR ALLIANCE MEMBER 

**FDC FULL WING, CABIN CREW HALF WING & LOAD
MASTER HALF WING METAL BADGES**



Item Number: C016, C0132 & C0100

Document Number: SAA 014

Version 03.0/April 2014

1. Scope

This specification¹ covers the material and design of three types of metal badges for personnel of the South African Airways. The variations covered by this specification are as follows:

Table 1 – Badge variations

	Type	Designation	Item Number
1.1	Full wing (Gold plated)	Flight Deck Crew	C0100
1.2	Half wing (Gold plated)	Load Master	C0132
1.3	Half wing (Nickel Plated)	Cabin Crew	C016

2. Definitions and Abbreviations

For the purposes of this specification, the following definitions apply:

Acceptable:	Acceptable to the South African Airways.
Defective:	A badge that fails in one or more respects to comply with the relevant requirements of this specification.
A Lot:	Not less than 25 and not more than 150 000 badges of the same type, Item number, finish and style, from one manufacturer, submitted any one time for inspection and testing.
Nominal:	Subject to the tolerances normal to good manufacturing practice.
SANS:	South African National Standard.
Significant surface:	The visible face side of the badge, when the badge is attached to the relevant uniform item.

3. General

No component materials, hobs, dies or tools will be supplied by the South African Airways.

¹ This private specification has been compiled by National Private Specifications (Pty) Ltd. privatespecs@vodamail.co.za

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4. Illustrations

Images are not to scale.



Figure 1 – Significant surface: Flight deck crew, Full wing

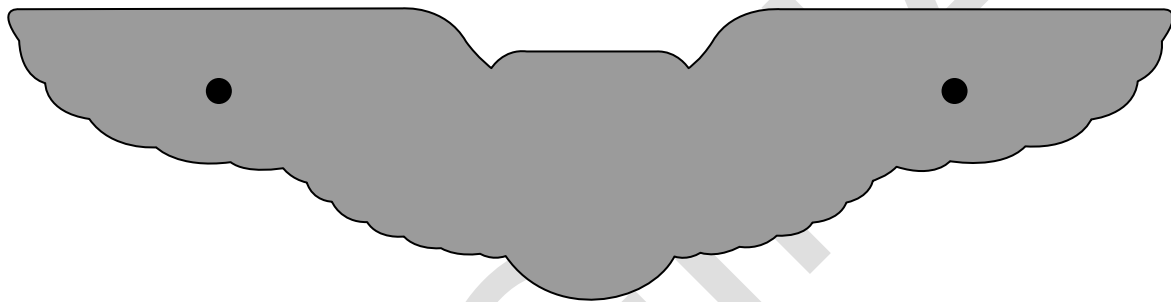


Figure 2 – Reverse: Flight deck crew, Full wing



Figure 3 – Significant surface: Load Master, Half wing

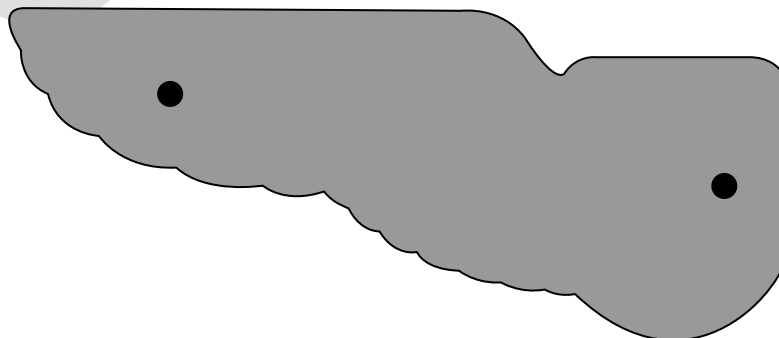


Figure 4 – Reverse: Load Master, Half wing

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Figure 5 – Significant surface: Cabin Crew

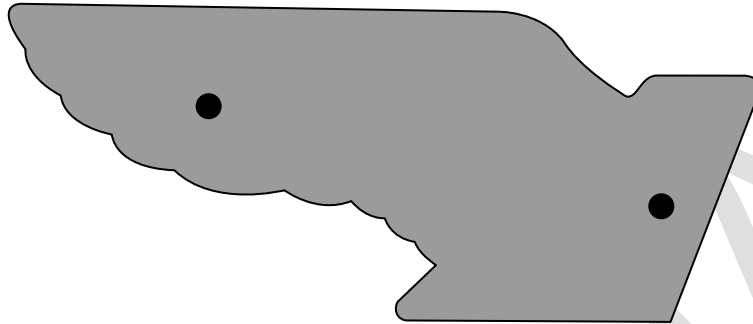


Figure 6 – Reverse: Cabin Crew

5. Component requirements

5.1 Base material

- ♦ made of brass that comply with the relevant requirements of Type Designation CZ101 (90/10 brass), condition ½ Hard, of SANS 1303-1
- ♦ of nominal thickness 1.5 mm

5.2 Prongs

- ♦ made from cold drawn bright nickel silver or brass wire
- ♦ hard or silver soldered to the back surface of the badge, prior to polishing or plating
- ♦ of dimensions to be as given in figure 7
- ♦ sharp point shall be free from burrs
- ♦ any distortion of the prongs shall be rectified during soldering
- ♦ all soldering shall be clean, strong, smooth and free from flux and excess soldering

NOTE- The type of soldering used shall depend on the base material of the prongs.

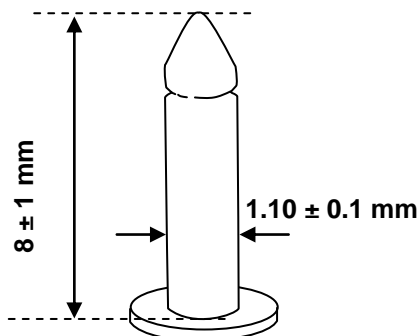


Figure 7 – Dimensions of prongs

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5.3 Clutches

- ♦ acceptable rubber PVC clutches
- ♦ able to withstand a tensile force of at least 20N without releasing the pin
- ♦ design to be as given in figure 8
- ♦ nominal diameter of base to be 11 mm
- ♦ colour to be black or white
- ♦ the diameter of the shaft (centre hole) shall be such as to permit full and secure engagement of the prong



Figure 8 - Clutches

6. Design and construction of badge

6.1 General (applicable to all badges)

- ♦ be a single badge
- ♦ be die-stamped with a flat back
- ♦ be made of brass plate as given in paragraph 5.1
- ♦ fitted with two prongs at the back
 - hard or silver soldered to the back
 - type of soldering used shall depend on the base material of the pin
 - to comply with the requirements as specified in paragraph 5.2
- ♦ be supplied with two clutches that comply with the requirements as specified in paragraph 5.3
- ♦ have explicit detail
- ♦ design variances to be as given in 6.2, 6.3 and 6.4

6.2 Flight Deck Crew: Full wing

- ♦ design to incorporate the following (see figures 1 and 2)
 - SHIELD
 - centrally positioned
 - to incorporate the SAA tail logo in full colour in the centre of the shield
 - SAA tail logo and outer edge of shield shall be outlined with gold plating
 - colour application to be as given in table 2
 - shield shall be covered with epoxy coating, but shall still be level with the wings after epoxy coating has been applied
 - paint and epoxy coating to comply with the requirements as given in paragraph 10.4
 - FULL WINGS that shall be electroplated with gold
 - gold plating shall comply with the requirements as given in paragraph 10.2
- ♦ to comply with the dimensions as given in figure 9

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6.3 Load Master: Half wing

- ♦ design to incorporate the following (see figures 3 and 4)
 - SHIELD
 - positioned to the left when badge is viewed from the front
 - to incorporate the SAA tail logo in full colour
 - the capital letters “LM” shall be positioned below the SAA tail logo
 - typeface of letters: Trade Gothic (Light)
 - letter height to be as agreed upon between SAA and the successful bidder
 - SAA tail logo and outer edge of shield shall be outlined with gold plating
 - colour application to be as given in table 2
 - shield shall be covered with epoxy coating, but shall still be level with the wing after epoxy coating has been applied
 - paint and epoxy coating to comply with the requirements as given in paragraph 10.4
 - HALF WING that shall be electroplated with gold
 - positioned to the right when badge is viewed from the front
 - gold plating shall comply with the requirements as given in paragraph 10.2
- ♦ to comply with the dimensions as given in figure 10

6.4 Cabin Crew: Half wing

- ♦ electroplated with nickel (see table 3)
- ♦ design to incorporate the following (see figures 5 and 6)
 - SAA TAIL LOGO
 - positioned to the left when badge is viewed from the front
 - HALF WING
 - positioned to the right when badge is viewed from the front
- ♦ to comply with the dimensions as given in figure 11

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7. Dimensions

Images are not to scale and all measurements given are nominal.

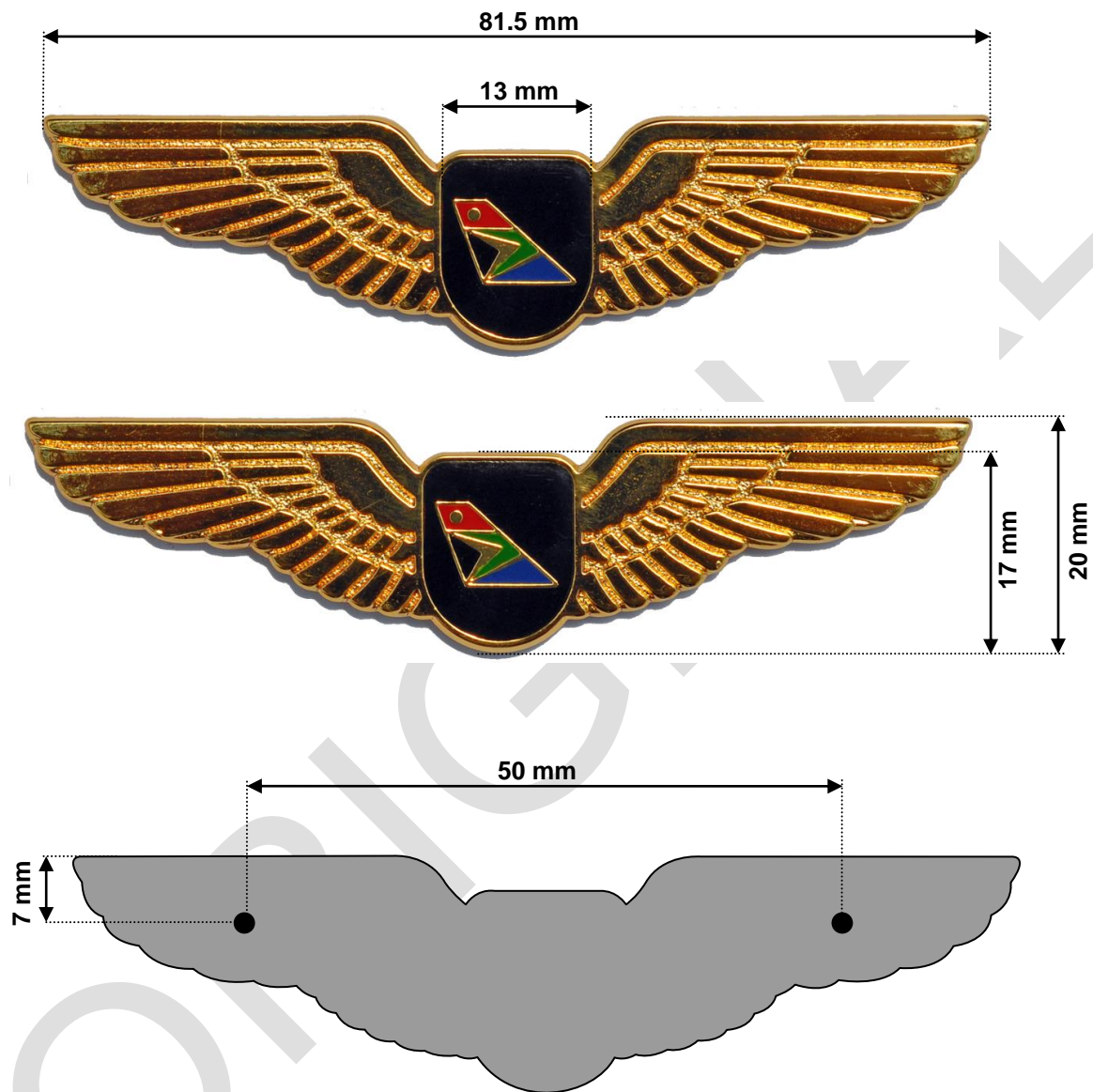


Figure 9 – Dimensions of the Flight deck crew badge, Full wings

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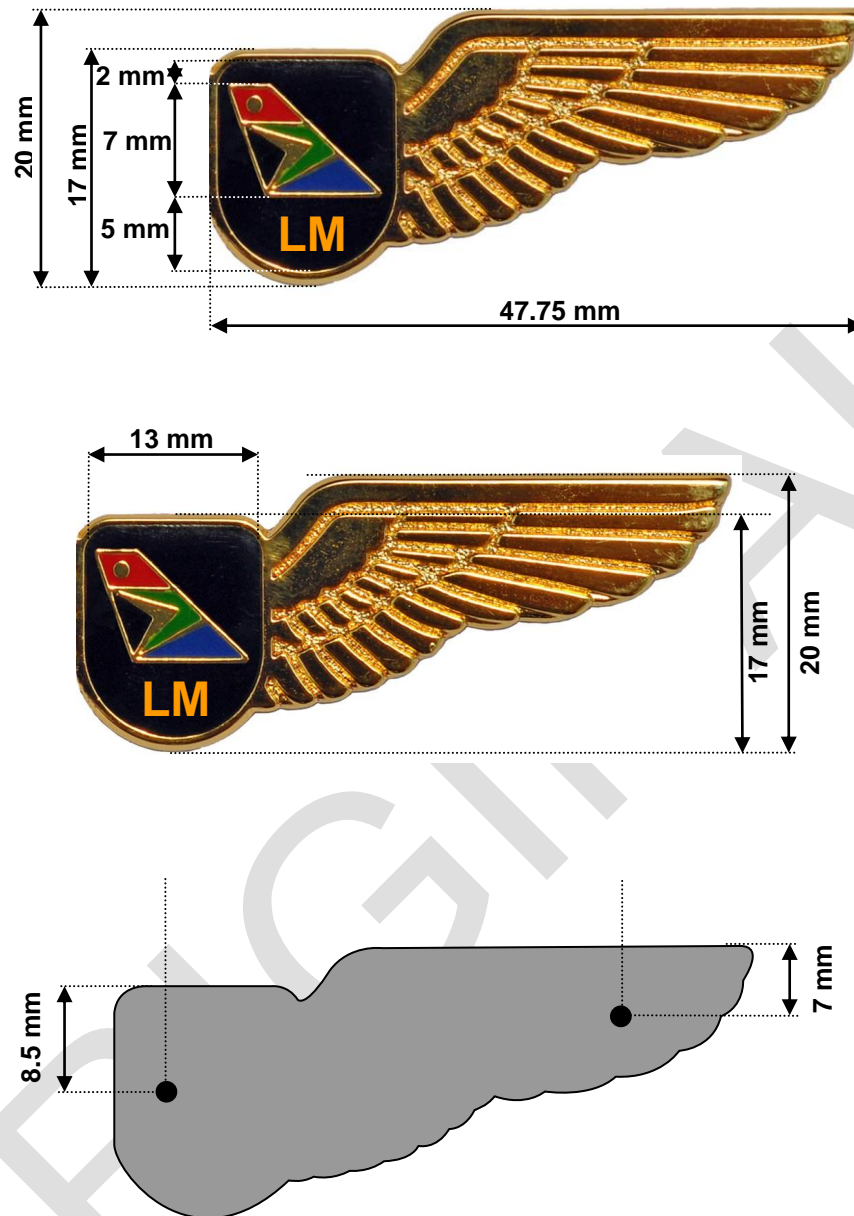


Figure 10 – Dimensions of the Load Master badge, Half wing

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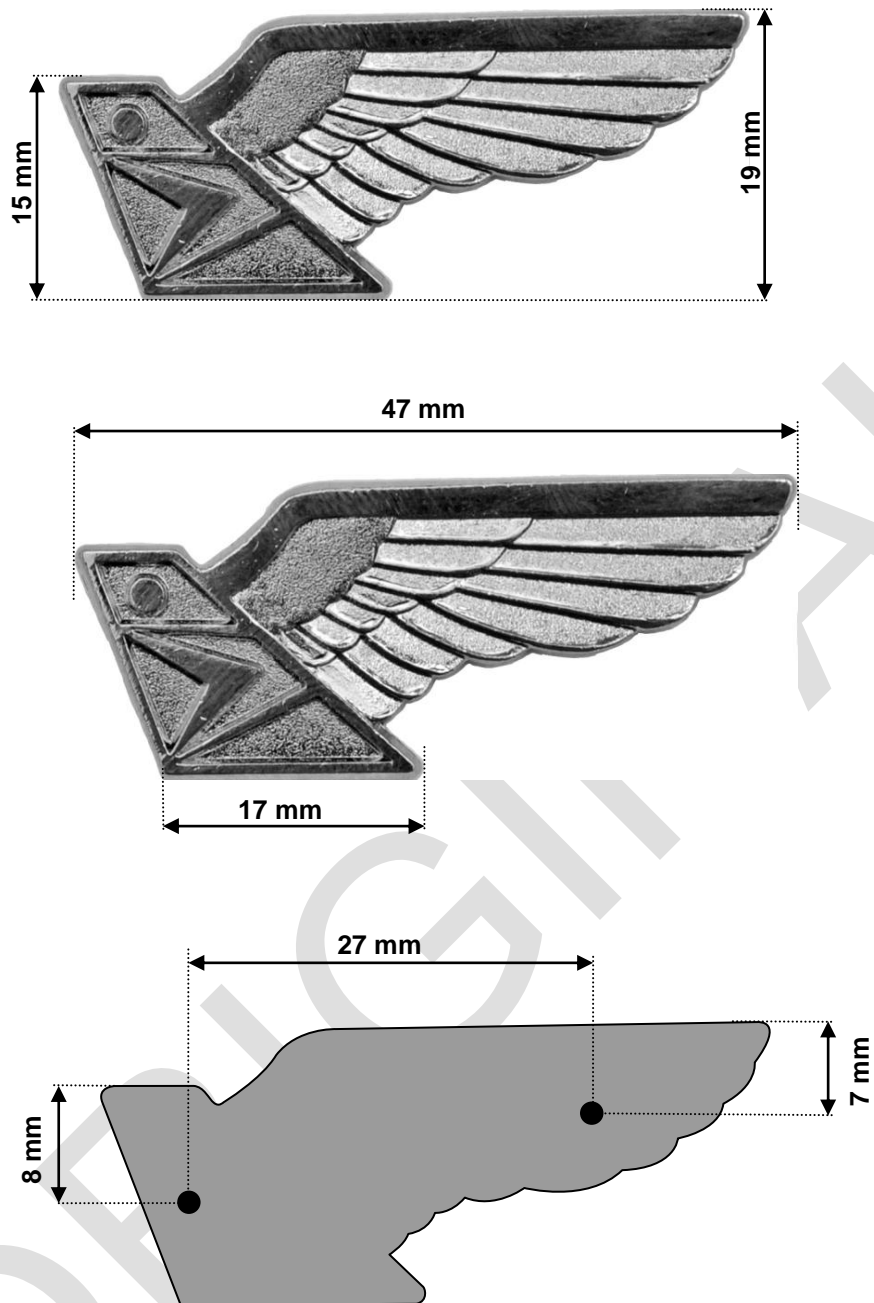


Figure 11 – Dimensions of the Cabin crew badge, Half wing


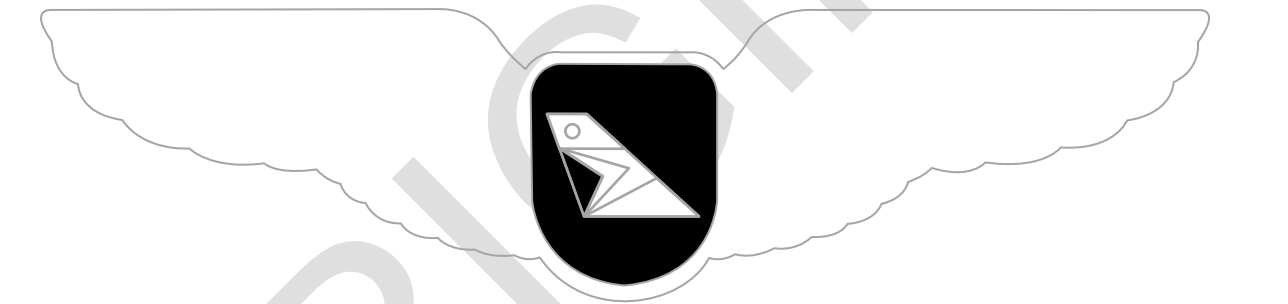
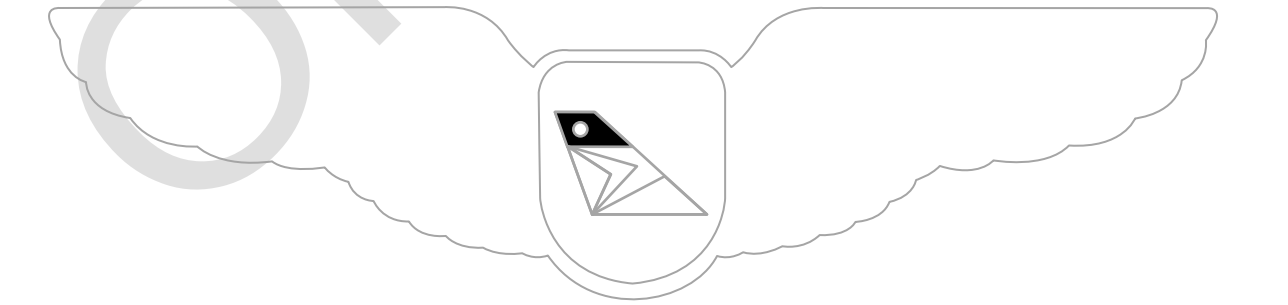
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8. Application of paint/plating

NOTE 1 - The black colour-filled areas indicate the application of the relevant paint/plating on the significant surface.

NOTE 2 - The Pantone® titles given below are not registered titles, but given for the convenience of the users of this specification.

Table 2 – Application of paint/plating on Flight Deck Crew badge and Load Master badge

 <p>The image shows two versions of a pilot's wing badge. The left version is a standard pilot's badge with a white shield containing a black silhouette of a pilot's head and a white triangle. The right version is a Load Master badge, identical but with the letters 'LM' below the shield. Both badges are set against a black background representing the wings. A black square swatch is shown below the badges with the text 'Gold plated'.</p>
 <p>The image shows the same two versions of the wing badge as above, but the wings are filled with a solid black color. A black square swatch is shown below the badges with the text 'Pantone® "Black"'.</p>
 <p>The image shows the same two versions of the wing badge as above, but the wings are filled with a solid red color. A black square swatch is shown below the badges with the text 'Pantone® 1797c "Red"'.</p>

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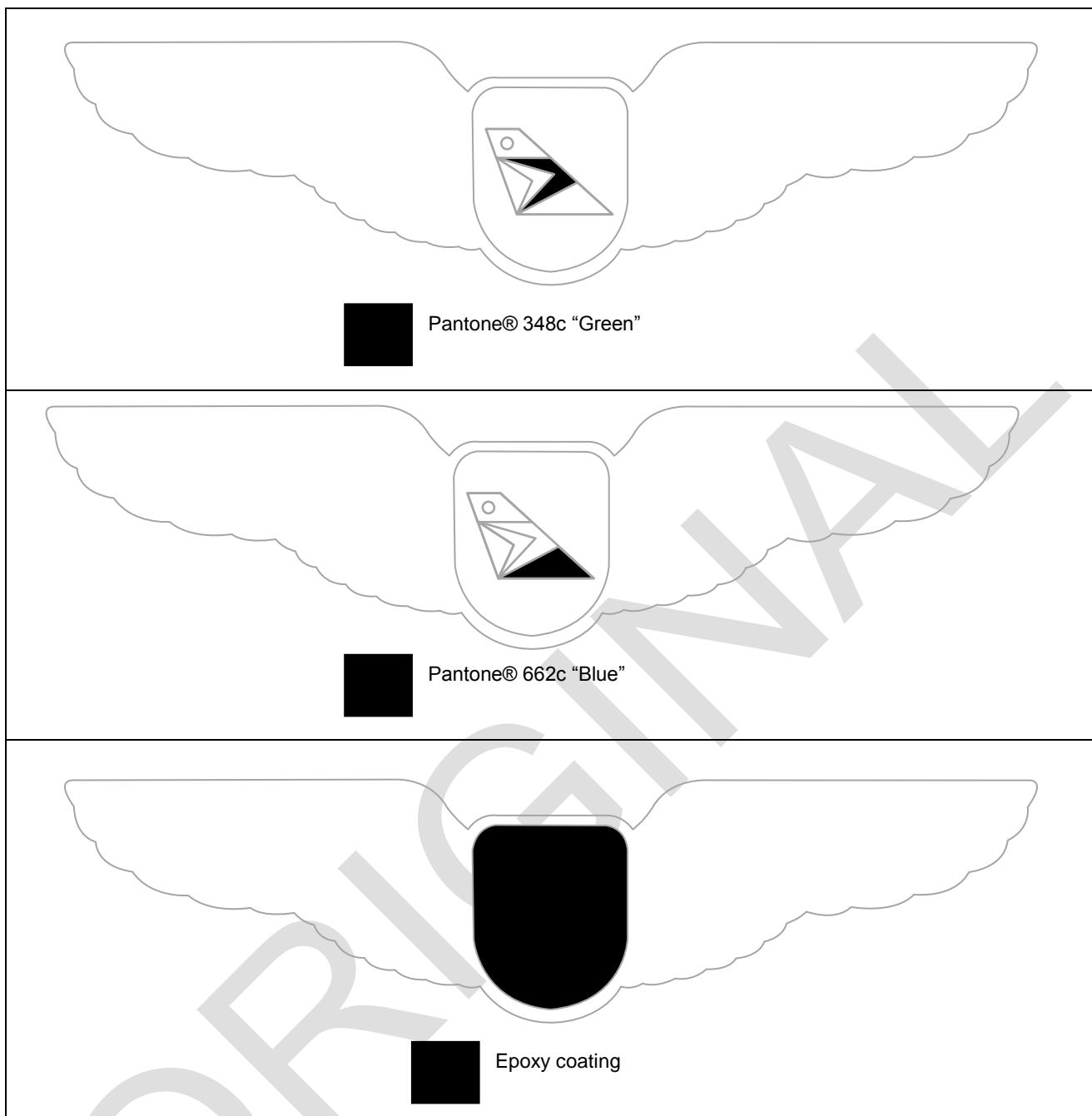
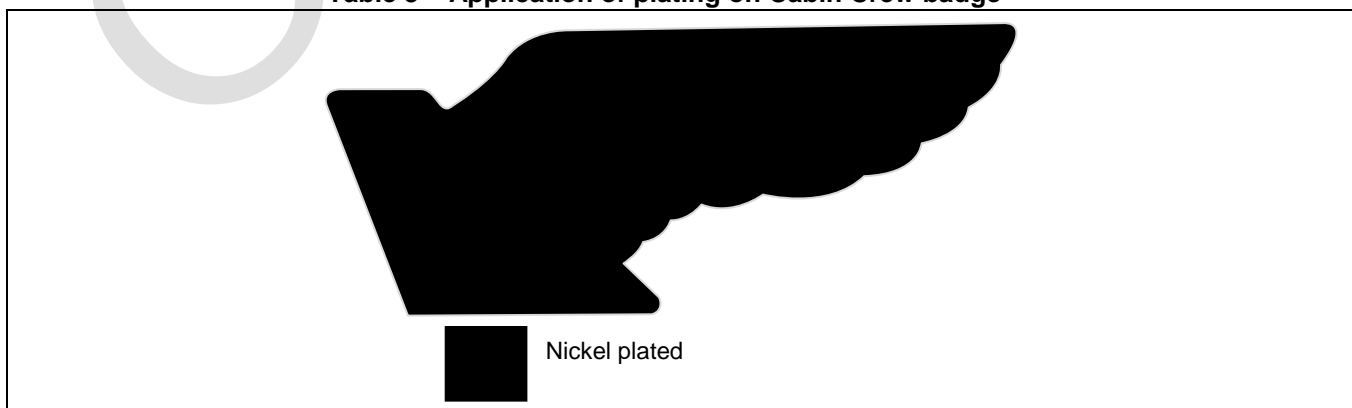


Table 3 – Application of plating on Cabin Crew badge



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9. Workmanship

Each badge shall be:

- ♦ die-cut, made and finished with acceptable standards throughout
- ♦ of uniform and acceptable make, colour and finish

Shall be free from defects that:

- ♦ affect their appearance
- ♦ affect their serviceability (or both)

The badge shall be free from:

- ♦ burrs, rough or sharp edges
- ♦ surface blemishes

The soldering shall be:

- ♦ clean
- ♦ strong
- ♦ smooth
- ♦ free from flux and excess soldering

10. Finishing

10.1 Polishing

The polishing shall:

- ♦ be carried out prior to the plating of the badges
- ♦ be carried out until an acceptable smooth and even surface is obtained
- ♦ not cause any loss of definition of the design

10.2 Gold plating

The significant surface, reverse of badge and prongs of the FLIGHT DECK CREW badge and LOAD MASTER badge shall be electroplated with gold:

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)

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- ♦ 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:

- ♦ 1 µm 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 badge

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 badge 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 badge on removal from the acid solution
- ♦ more than 6 pinpoint defects on the obverse or reverse of the badge

10.3 Nickel plating

The significant surface, reverse of badge and prongs of the CABIN CREW badge shall be electroplated with nickel:

- ♦ 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:

- ♦ 5 µm at any point

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10.4 Painting and epoxy-coating

The paint shall:

- ♦ be heat resistant
- ♦ non-fading
- ♦ be an acceptable match to the colours as given in table 2
- ♦ be confined to the area prescribed by the design
- ♦ be covered with epoxy coating
 - be an acceptable clear epoxy resin coating
 - be of acceptable hardness
 - be of nominal thickness 0,5 mm
- ♦ when viewed at a distance of 350 mm, be free from the following defects (applicable to the paint and epoxy coating): bubbles, spots, inclusions, cracks, crazing

11. Packing and marking

11.1 Packing

11.1.1 General

The badges shall be:

- ♦ delivered in a commercially dry condition
- ♦ so packed that they will not be damaged in transit or in storage
- ♦ individually packed in a plastics envelope with a pull and press opening of suitable size and shape
- ♦ then be packed in a bulk plastics envelope
- ♦ then, unless otherwise specified in the order or contract, acceptably packed for transportation in acceptable bulk containers

11.1.2 Contents of bulk plastics envelope:

- ♦ each bulk plastics envelope shall have the same TYPE and AMOUNT of badges (per consignment)

11.1.3 Contents of bulk container:

- ♦ total mass of each packed bulk container shall not exceed 25 kg
- ♦ each bulk container shall have the same TYPE and AMOUNT of badges (per consignment)

NOTE: *Only the last bulk container of each consignment may be an exception to the rule with regards to quantities (where relevant). If this is the case, the supplier will mark this container with a clearly visible red sticker at each outer end of the lid for easy identification.*

11.2 Marking

11.2.1 Individual plastics envelope

Each individual plastics envelope to be clearly marked with the following information:

- ♦ the item description (Designation)
- ♦ the Item Number

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- ♦ the month and year of manufacture

11.2.2 Bulk plastics envelope

Each bulk plastics envelope to be clearly marked with the following information:

- ♦ the item description (Designation)
- ♦ the Item Number
- ♦ the quantity

11.2.2 Bulk containers

Each bulk container shall have a label securely attached to the outside. This label shall be visible when the containers are stacked and shall provide the information in legible and indelible markings as follows:

- ♦ the manufacturer's name or trade mark or both
- ♦ the order number or contract number
- ♦ the item description (designation)
- ♦ the quantity
- ♦ the month and year of manufacture
- ♦ the Item Number
- ♦ the invoice number(s)
- ♦ the total mass of the packed container
- ♦ the SABS Inspection Certificate Number
- ♦ the VAT number of the contractor

11.3 Additional marking

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

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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 South African Bureau of Standards *.

BS 6001-1:1991, *Sampling Procedures for Inspection by Attributes – Part 1: Sampling schemes indexed by acceptable quality limit (AQL) for lot-by-lot inspection.*

SANS 1303-1, *Wrought copper alloys Part 1: Chemical composition of copper-zinc alloys (non-leaded and leaded).*

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

13. Special conditions of tender

See Annex A.

14. Sampling and compliance with the specification

See Annex B.

* **Standards South Africa: Tel. +27 (0) 12 4287911**

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ANNEX A

(Normative)

Special conditions of tender

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

A-2 STANDARD SAMPLES, PRE-PRODUCTION STAMPINGS

A-2.1 GENERAL PROCEDURE

A-2.1.1 Plaster models/Computer generated designs and lead impressions

When a new design of the badge is required or when a new hob or die has to be made, a plaster/computer generated design shall have been made and approved by the South African Airways before the die is cut for the production of lead impressions. Two lead impressions of each size shall then be submitted to the South African Airways for approval. When any change to an existing hob or die has been made, two lead impressions shall be submitted to the South African Airways, for approval.

A-2.1.2 Pre-production samples

Written approval of lead impressions will be sent to the manufacturer, who, on receipt of approval, may produce the **4 pre-production** samples that are, after approval, to become standard samples.

A-2.2 STANDARD SAMPLES

In the case of new designs, or where any change has been made to the design of the hob or die, or when called for by the South African Airways, three standard samples shall be submitted to the South African Bureau of Standards, and **AN ADDITIONAL FOURTH SAMPLE SHALL BE SENT TO THE END-USER FOR APPROVAL**, prior to production being commenced by the manufacturer. Each of these samples shall conform exactly in detail, colour, form and finish to the badges that are to be manufactured during production. Each sample will be mounted on a card (of suitable size) that is sealed and signed by the South African Bureau of Standards **AND THE END-USER**. On approval by the inspecting authority, the four pre-production samples will become standard samples and the cards will be treated as follows:

Note: Approval of this sample will not involve any property that requires assessment by a destructive test, but will be limited to approval of construction, design, colour, dimensions, polish and general finish.

- 1) Samples 1 and 2 will be permanently retained by the South African Airways as master samples;
- 2) Sample 3 will be permanently retained by the South African Bureau of Standards;
- 3) Sample 4 will be sent by the South African Bureau of Standards to the successful tenderer, who shall associate this sample with the order for the badge(s) required. A manufacturer shall not commence production until the fourth sample has been received from the South African Bureau of Standards.

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A-3 INSPECTIONS AND TESTING

- A-3.1** The badges 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 badges supplied to this specification may be in progress.
- A-3.2** The contractor shall inspect the finished badges for compliance with the specification before submitting them to the inspecting authority for final inspection.
- A-3.3** Before acceptance, the badges shall have been inspected and tested by the inspecting authority and found to comply with the requirements of the specification

A-4 DOCUMENTATION

One container of each consignment shall be marked "DOCUMENTS" and in addition to the badges, 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:
 - 1. The order number
 - 2. The financial authority number;
 - 3. A full description of the consignment, e.g. quantity, etc

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ANNEX B

(Normative)

Sampling and compliance with the specification

B-1 Sampling

B-1.1 Sample for inspection

From the lot, draw at random the number of badges shown in column 2 of table B.1, relative to the appropriate lot size given in column 1.

B-1.2 Sample for testing

From the lot, or after inspection, from the samples drawn in accordance with B-1.1 above, draw at random the appropriate number of badges as relevant, shown in column 4 of table B.1.

B-2 Compliance with the specification

B-2.1 The lot shall be deemed to comply with the requirements of the specification if:

B-2.1.1 on inspection of the sample taken in accordance with B-1.1, the number of defectives found does not exceed the appropriate acceptance number given in column 3 of table B.1;

B-2.1.2 on testing the sample taken in accordance with B-1.2, no defectives are found.

Table B.1 - Lot sizes of badges

1	2	3	4
Lot size	Sample for inspection ¹⁾		Sample for testing ²⁾
	Sample size	Acceptance No. (AQL = 1.5)	
25 - 90	8	0	3
91 - 280	32	1	3
281 - 500	50	2	5
501 - 1200	80	3	5
1201 - 3200	125	5	8
3201 - 10 000	200	7	8
10 001 - 35 000	315	10	13
35001 - 150 000	500	14	20

Note: AQL = Acceptance Quality Limit

¹⁾ Based on table II-A of BS 6001 for general inspection level II.

²⁾ Based on table II-A of BS 6001 for special inspection level S-2.

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VERSION	DATE	AMENDMENTS	CHECKED	
			NAME	INIT.
1	June 2007	First Release		
2	May 2013	Second release		
3	April 2014	Complete redo of specification		

ORIGINAL

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