

Title: **SPECIFICATION FOR PHASE
CONDUCTOR FOR
DISTRIBUTION LINES AND
SUBSTATIONS**

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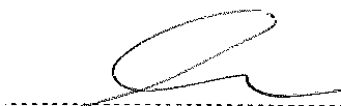
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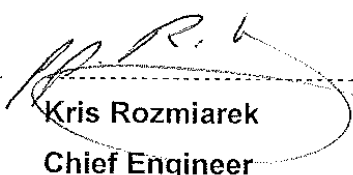
Approved by

Authorized by



Prashant Mathuradas
Senior Engineer

Date: **29/03/2017**



Kris Rozmiarek
Chief Engineer

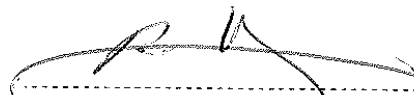
Date: **29/03/2017**



Riaz Vajeth
Senior Manager - LES

Date: **29/03/2017**

Supported by SCOT/SC



Riaz Vajeth
SCOT/SC Chairperson

Date: **29/03/2017**

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1. Introduction

This document specifies phase conductors for use in Distribution

2. Supporting clauses

2.1 Scope

This specification covers the technical requirements for conductors for use on Eskom Distribution overhead lines up to and including 132 kV. Details of particular requirements will be specified in schedule A of an enquiry document.

2.1.1 Purpose

None

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.2 Normative/informative references

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

The following documents contain provisions that, through reference in the text, constitute requirements of this specification. At the time of publication, the edition indicated was valid. All controlled documents are subject to revision, and parties to agreements based on this specification are encouraged to investigate the possibility of applying the most recent edition of the documents listed below. Information on currently valid national and international standards and specifications can be obtained from the Information Centre and Eskom Documentation Centre at Megawatt Park.

- [1] IEC 61089:1991, Round-wire concentric- lay overhead electrical stranded conductors.
- [2] Amendments to IEC 61089 to include conductors made of combinations of zinc-coated and aluminium-clad steel wires.
- [3] IEC 61394: 1997, Characteristics of greases for aluminium, aluminium alloy and steel bare conductors for overhead lines.
- [4] SABS 1507:1990, Electric cables with extruded solid dielectric insulation for fixed installations
- [5] SCSASABH1: Rev1, Distribution standard Part 6: Sub-transmission lines Section 2: Conductors
- [6] TRMSCAAD4:Rev.4, Phase conductor for transmission lines
- [7] SCSASABH1-Conductors

2.2.2 Informative

None

2.3 Definitions

2.3.1 General

| Definition | Description |
|---|---|
| All aluminium alloy conductors (AAAC) | A conductor comprising helically wound aluminium alloy wire |
| All aluminium conductors (AAC) | A conductor comprising helically wound hard drawn aluminium wire |
| Aluminium conductor, steel reinforced (ACSR) | A conductor comprising hard-drawn aluminium strands helically wound around steel reinforcing strands |
| Bare conductor | A conductor without any insulating covering |
| Capacity | The current capacity that will meet the design, security and safety criteria for a conductor. |
| Conductor | An electrical conductor arranged to be electrically connected to a source of electrical energy. |
| Earth wire (shield wire) | A conductor, connected to earth at some or all supports, that is suspended usually, but not necessarily, above the line conductors to provide a degree of protection against lightning strikes. |
| Everyday tension | The desired horizontal component of the conductor tensile stress that occurs at the annual mean temperature (15 °C) without wind load. |
| Preferred | To be selected from a choice of options, unless otherwise specified. |
| Sub-transmission voltage | A voltage that exceeds maximum medium voltage (33 kV) but is equal or less than 132 kV. |
| Ultimate design load | The load that all elements should just sustain without failure, during any specified duration. |
| Vibration damper | A device attached to a conductor or earth-wire in order to suppress or minimize vibrations due to wind. |

2.3.2 Disclosure classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 Abbreviations

| Abbreviation | Description |
|--------------|---|
| AAAC | All aluminium alloy conductors |
| AAC | All aluminium conductors |
| ACSR | Aluminium conductor steel reinforced |
| EDT | Everyday tension |
| GSW | Galvanized steel wire |
| OHSA | The Occupational Health and Safety Act, 1993 (Act 85 of 1993) |
| OPGW | Optical cable ground wire |

| Abbreviation | Description |
|--------------|---------------------------|
| UTS | Ultimate tensile strength |

2.5 Roles and responsibilities

Not applicable.

2.6 Process for monitoring

Not applicable.

2.7 Related/supporting documents

Not applicable.

3. Requirements

3.1 General

Nothing in this specification shall lessen the obligations of the supplier detailed in any other documents forming part of an order.

The supplier shall be responsible for all aspects of quality relating to manufacture and packing of his product.

The manufacturer shall have in place quality systems and manufacturing procedures that comply with the requirements of the normative references.

Annex A contains a table listing Aluminium and Aluminium alloy conductors used in Eskom lines. The listed conductors shall comply with the Capacity ratings stipulated for each conductor.

3.2 Fabrication

- a) Each wire shall be marked with two uniform longitudinal indentations, situated 180° opposite each other, along its entire length. A deviation angle of 5 to 15 degrees below 180° shall be allowed to ensure proper contact between indent ring and wire. The dimension of the indent mark shall be 0,3 mm wide and the groove depth from 0,15mm down to 0,11 mm. The marking rollers shall undergo periodic dimension checking to ensure that the marking groove dimensions are within the specified limits. The indentations shall be performed after the wire drawing process, but before stranding. The indentations shall be clearly visible and shall not affect the original wire characteristics, distort the wire roundness or leave any sharp protrusions. The marking is protected by patent laws and shall be unique to Eskom. A manufacturer's conductor must be approved by Eskom, prior to the first production run being made with the Eskom markings.
- b) The location of all welds in individual aluminum wires shall be recorded. Copies of these records shall be forwarded to Eskom when the conductor is dispatched.
- c) Notwithstanding clause 5.5 of IEC 61089,
 - 1) there shall be no joint in any individual wire of a steel core containing less than seven wires.
 - 2) joints in individual wires of a steel core containing seven wires or more will be permitted, provided that
 - i. no two such joints are less than 15 m apart;
 - ii. each joint is made by resistance butt welding and is protected against corrosion by re-galvanising; and
 - iii. the diameter of the stranded core is not materially increased by the joint.

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- d) The wire shall be so stranded that the conductor is essentially free from the tendency to untwist or spring apart when cut. Steel cores shall be stranded on tubular or planetary stranders.
 - e) The completed conductor shall be uniformly cylindrical and shall be capable of withstanding normal handling during manufacturing, transportation, and installation without being deformed from its cylindrical form in such a way as to increase corona losses and radio interference.
 - f) If specified in schedule A of an enquiry document, the core and the inner layers of aluminium shall be greased with an approved grease complying with IEC 61394. A list of approved greases has been published in a bulletin by Distribution Technology. New greases shall be submitted to Distribution Technology for approval. Grease shall be uniformly applied by a method approved by Eskom in accordance with Case 4 of Annex C of IEC 61089. Only one type of grease shall be used on the steel core and all the aluminium layers on all conductors in an order. All aspects of manufacture and delivery of greased conductors shall be completed in such a manner that grease is not displaced toward the outer surface of the conductors. The greased conductor shall be delivered as specified above. Incorrectly greased conductor will be rejected by Eskom Distribution and replaced by the supplier. Incorrectly greased conductors
 - g) Aluminium conductors that require a cover shall be covered in accordance with SABS 1507 Table 8

3.3 Matched set requirements

- a) Matched sets of conductors shall be furnished in the lengths specified in schedule A of an enquiry document. Matched pairs shall be manufactured from a single length of steel core. Matched sets of four and six conductors shall consist of two or three matched pairs respectively. All the core wire for a matched set shall be produced from steel wires drawn from billets produced from one cast or heat.
- b) All lengths of steel core used for a matched set shall be produced on the same strander. Each drum of the matched set of conductors shall be produced on the same strander. Lay gears and the tooling set-up shall remain constant for each production run. Lay ratios shall not vary by more than 5 % over the entire order from one supplier.

3.4 Lay ratios

Lay ratios shall be in accordance with IEC 61089 if not specified in schedule A of an enquiry document.

3.5 Length

The length of conductor on a drum shall not vary by more than +2 % and –0 % from the nominal length. The variation in length between conductors forming a matched set shall not exceed 20 m. Only one continuous length of conductor per drum shall be permitted. The accuracy of measurement shall be $\pm 0,5$ %.

3.6 Conductor Markings

Only marked conductors shall be used in Eskom projects. Marked conductors shall be obtained only from Eskom approved suppliers.

Eskom will provide tenderers for contracted projects with the list of approved suppliers. The tender enquiry will clearly indicate the details of free issue conductor when Eskom wishes to provide marked conductors or for the tenderer to procure marked conductors from an approved supplier, on behalf of Eskom.

Eskom will maintain ownership of the marked conductors at all times. Conductor suppliers may sell marked conductors only to those contractors who can prove that they will be used on Eskom projects. Eskom will provide those contractors with the necessary proof, indicating the name of the project and the quantities required. The contractor must obtain the letter of proof from Eskom Group Procurement. The contractor shall arrange for the return of unused, waste and off-cuts of marked conductors to Eskom.

4. Tests

- a) The supplier shall carry out sample production tests, and the results shall be made available to Eskom within 14 days of completion.
- b) A complete set of conductor type tests certificates, in accordance with IEC 61089, must be submitted for at least one conductor per design (e.g. 6/1), at tender stage. This set of type tests will qualify the design range at tender stage. Before a conductor is supplied to Eskom, a full set of type tests for the conductor must be submitted to Distribution Technology.
- c) If the lay ratio of a conductor is not in accordance with IEC 61089, a type test will be required for the conductor at the tender stage.
- d) The tenderer will give Eskom Distribution a good estimate of the creep each conductor can expect over a 20-year lifespan. The estimate must be given with full details of the calculation thereof.
- e) All conductors that deviate from this specification or schedule A will be rejected. If deviations from the specification are unavoidable, written acceptance of those deviations shall be obtained from Eskom.
- f) Test certificates showing the results of sample production tests shall be retained by the supplier for a minimum of five years, whereas test certificates showing results of type tests shall be retained on permanent record by the supplier for Eskom's inspection.

5. Packaging and Marking

- a) All conductors shall be supplied on returnable steel drums or non-returnable wooden drums as specified in schedule A of an enquiry document.
- b) For multi-layered constructions the conductor shall be wound onto the drums to form complete layers. Each layer shall fill the width of the drum before the next layer is wound on. Drums not wound in this manner will be rejected. Conductor drums where conductors are damaged when taken off the drum due to an incorrectly wound conductor shall be replaced by the manufacturer.
- c) An acceptable method of holding the conductor end shall be used, to ensure that no relative movement of conductor occurs between the uppermost uncompleted layer and the completed layer directly below it. Details of the proposed holding method shall accompany the tender offer, and shall be subject to Eskom's approval.
- d) Heavy weatherproof paper, cardboard or other suitable material shall be placed between the conductor and barrel and flange surfaces of steel drums. This material shall remain attached to the drum during unreeling.
- e) Wood lagging shall be used to protect the conductor. Four steel straps shall be used to secure the lagging on steel drums. The battens shall be nailed to the flanges of wooden drums and two steel straps shall be provided around each drum to prevent easy removal of the battens. The length of the nails used shall be at least 10 mm less than the distance from the outside of the battens to the top of the conductor on the drum. Care shall be taken to prevent the nails from protruding through the surface of the flange.
- f) Imported conductor shall have weatherproof material inserted between the two outermost layers of conductor and wrapped over the outermost layer. The supplier of imported conductors must arrange the arrival dates and times of shipments with Eskom Distribution Quality Assurance so that the conductor can be land-tested before it is released.
- g) Timber for wooden cable drums shall be treated with CCA (Copper Chrome Arsenic) to 16kg/cubic metre of wood, this to be in accordance with SANS 754.

The CCA shall be to SANS 673, to have a total concentration of 14g/litre of solution.

5.1 Marking

Further to 7.2 of IEC 61089 and Eskom's General Conditions of Purchase, the following requirements shall also be met:

- a) The drums for a matched set of conductors shall be marked:
 - 1) 1A and 1B for matched pairs; and
- b) 1A, 1B and 1C for matched trips, etc.
- c) The actual measured length and net mass of conductor shall be marked on each drum in black stenciled lettering of 50 mm height on the drum side, eg "FOX – 1 500m – 225kg".
- d) Drums of greased conductors shall be marked "Greased with (the product name)".
- e) All drum markings pertaining to a previous order shall be painted over or otherwise satisfactorily obliterated.
- f) All conductor drums destined for Eskom projects shall be branded with Eskom signature (logo and logotype) on one of its flat sides (the flange).

The Eskom signature shall be printed in Eskom Blue or Black only on the white-coloured background.

For metal drums and wooden drums, a portion of the flange surface shall be painted in white to provide rectangular background on which the signature shall be printed in Eskom Blue or Black only. The width (or height) of the white rectangular background shall be three times the diameter of the "circle" part of the Eskom signature. The printed Eskom signature shall appear central onto the white rectangular background leaving a space equal to one signature "circle" on both front and back ends.

The Eskom logo printing shall be made using silkscreen technique or other equivalent techniques which shall be demonstrated to and approved by Distribution Technology.

The dimensions of complete Eskom signatures shall be a minimum length and width (height) of 82 mm and 21 mm respectively.

All other printing on the flange shall be positioned so as to ensure a minimum clearance of one logo "circle" diameter away from the Eskom signature.

The copy of the Eskom signature and standard printing guidelines are shown in Annex B.

- g) Red Round Mark: The Opposite end of a conductor drum (not bearing the Eskom logo) shall be marked (stamped) with a red circle of 200mm diameter to augment the logo for forensic purposes.
- h) Batch numbering
 - Each drum shall be identified with its batch number pertaining to stock order.
- i) Standard drum sizes

Non-returnable wooden drums shall have dimensions in accordance with Table 1.

Table 1: Standard drum sizes for overhead conductor

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|--|------------------|---------------|----------------------------|----------------------------|---------------|-----------------------------|-------------------------------------|
| Type and Code name | Diameter (mm) | Length (m) | Drum size | | | | |
| | | | Flange diameter (mm) | Barrel diameter (mm) | Width (mm) | Flange thickness (mm) | Spindle hole diameter (mm) |
| ACSR – Squirrel | 6,33 | 1500 | 900 | 400 | 500 | 50 | 92 |
| ACSR – Magpie | 6,35 | 1500 | 900 | 400 | 500 | 50 | 92 |
| ACSR – Fox | 8,37 | 1500 | 900 | 400 | 500 | 50 | 92 |
| ACSR – Mink | 10,98 | 1500 | 900 | 400 | 650 | 50 | 92 |
| ACSR – Hare | 14,16 | 1500 | 1200 | 600 | 900 | 50 | 92 |
| ACSR – Wolf | 18,13 | 2000 | 1300 | 700 | 900 | 50 | 92 |
| ACSR – Chickadee | 18,87 | 2000 | 1300 | 700 | 900 | 50 | 92 |
| ACSR – Bear | 23,45 | 2000 | 1000 | 1000 | 900 | 76 | 92 |
| ACSR – Kingbird | 23,90 | 1500 | 2000 | 1000 | 900 | 76 | 92 |
| ACSR – Tern | 27,00 | 1500 | 2200 | 1100 | 1050 | 76 | 92 |
| AAC – Hornet | 16,25 | 1000 | 1000 | 500 | 650 | 50 | 92 |
| AAC – Centipede | 26,46 | 1000 | 2000 | 1000 | 800 | 76 | 92 |
| AAC – Bull | 38,25 | 1000 | 2400 | 1200 | 900 | 76 | 92 |
| AAAC – Acacia | 6,24 | 1500 | 900 | 400 | 500 | 50 | 92 |
| AAAC – 35 | 8,31 | 1500 | 900 | 400 | 500 | 50 | 92 |
| AAAC – Pine | 10,83 | 1500 | 900 | 400 | 650 | 50 | 92 |
| AAAC – Oak | 13,95 | 1500 | 1200 | 600 | 900 | 50 | 92 |
| Bending factor = ACSR 35D = AAC 30D = AAAC 30D | | | | | | | |

6. Authorization

This document has been seen and accepted by:

| Name and surname | Designation |
|------------------|--|
| P Moyo | Power Delivery Engineering GM (Acting) |
| V Singh | Power Plant Technologies Manager |
| RA Branfield | OHL Study Committee Chairman |

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7. Revisions

| Date | Rev | Compiler | Remarks |
|------------|-----|----------|---|
| March 2017 | 1 | | Document reformatted on to new template, with new document number. No content change. This document supersedes document DSP_34-377 |
| Jan 2012 | 1 | - | Compiled By: M Rapapa |
| | | - | 3 year review |
| Mar 2007 | 0 | | Document approved |
| Oct 2006 | 5A | | Correction of UTS figures for Kingbird, etc. Wood drum treatment specified. Document re-formatted and a new reference number issued, changed from DISSCAAY5 to 34-377 and Batch numbering on drum included in the packaging requirements, Sub-Transmission voltage redefined. Wood treatment for drums specified. |
| Sept 2004 | 5 | | Correction of UTS figures for Kingbird, etc. Wood drum treatment specified. Document re-formatted and a new reference number issued, changed from DISSCAAY5 to 34-377 and Batch numbering on drum included in the packaging requirements, Sub-Transmission voltage redefined. Wood treatment for drums specified. |
| May 2004 | 4 | | Annex A is referenced in 4.1 under "General" containing a table of conductor standard sizes used in Eskom with mechanical and electrical performance data, general spelling errors corrected, question numbering in impact assessment form in Annex C corrected. Document approved |
| Aug 2003 | 2A | | Allowance to under-supply conductor length by 30% for 5% of the total order has been removed from the "Length" clause. Die size for conductor marking stipulated. Conductor drums for Eskom to bear Eskom signature. 90°C Ampacity ratings for conductors removed. Document title extended to include "AND SUBSTATIONS" |
| Oct 2003 | 3 | | Document approved |
| Feb 2001 | 2 | | General revision and updates. |

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| | | | |
|----------|---|--|---|
| May 2001 | 1 | | <p>The tender clarifications found the technical specification to be lacking in the following areas:</p> <p>The covering for covered conductor needed to be clearly specified. Clause 4.2.7 was added with this regard.</p> <p>The type test requirements were revised to show that design tests are required at the tender stage and full type tests are required at the purchasing stage. Clause 5.2 covers this issue.</p> <p>The drum length for Wolf and Bear were revised to 2000 meters. The conductor manufacturers requested this change. Table 1 contains the standard drum lengths.</p> <p>Included more temperature ratings in Annex A.</p> |
| Nov 1999 | 0 | | Document issued. |

8. Development team

The following people were involved in the development of this document:

- Monyane Rapapa
- Bob Branfield

9. Acknowledgements

Not applicable.

Annex A – Review of names and codes of conductors
(informative)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
|------|-----------|-----------------------------|------------------|------------------------|----------|--------------|-------------------------|--|-----|------|-----|------|------|------|------|------|----|
| Type | Name | Full code | Abbreviated code | Overall/ core diameter | UTS (kN) | Mass (kg/km) | DC resist @ 20°C (Ω/km) | Current Rating (N – Normal & E – Emergency) | | | | | | | | | |
| | | | | | | | | 50°C | | 60°C | | 70°C | | 80°C | | 90°C | |
| | | | | | | | | N | E | N | E | N | E | N | E | N | E |
| ACSR | Magpie | 10.6-A1/S1A-3/4/2.118 | 10.6-A1/S1A | 6.35 | 18.57 | 139.7 | 2.707 | 33 | 40 | 47 | 52 | 58 | 62 | 67 | 70 | | |
| ACSR | Squirrel | 21.0-A1/S1A-6/1/2.11 | 21.0-A1/S1A | 6.33/2.11 | 8.02 | 85.2 | 1.3677 | 106 | 135 | 130 | 160 | 149 | 181 | 165 | 198 | | |
| ACSR | Fox | 36.7-A1/S1A-6/1/2.79 | 36.7-A1/S1A | 8.37/2.79 | 13.10 | 149.0 | 0.7822 | 148 | 192 | 184 | 228 | 210 | 258 | 233 | 283 | | |
| ACSR | Mink | 63-A1/S1A-6/1/3.66 | 63-A1/S1A | 11.0/3.66 | 21.90 | 254.4 | 0.4555 | 209 | 272 | 258 | 324 | 297 | 367 | 330 | 402 | | |
| ACSR | Hare | 105.0-A1/S1A-6/1/4.72 | 105.0-A1/S1A | 14.16/4.72 | 36.04 | 423.9 | 0.2733 | 292 | 380 | 357 | 454 | 408 | 515 | 455 | 565 | | |
| ACSR | Wolf | 158.1-A1/S1A-30/7/2.59 | 158.1-A1/S1A | 18.13/7.77 | 69.2 | 730 | 0.1828 | 378 | 501 | 473 | 602 | 548 | 683 | 610 | 751 | | |
| ACSR | Chickadee | 200.9-A1/S1A-18/1/3.77 | 200.9-A1/S1A | 18.87/3.77 | 44.9 | 643.0 | 0.1427 | 433 | 576 | 541 | 690 | 625 | 786 | 698 | 864 | | |
| ACSR | Bear | 264.4-A1/S1A-30/7/3.35 | 264.4-A1/S1A | 23.45/10.05 | 112 | 1220 | 0.1093 | 529 | 715 | 663 | 860 | 770 | 976 | 859 | 1076 | | |
| ACSR | Kingbird | 322.3-A1/S1A-18/1/4.78 | 322.3-A1/S1A | 23.88/4.78 | 71.32 | 1028.0 | 0.0895 | 590 | 793 | 738 | 955 | 855 | 1088 | 956 | 1196 | | |
| ACSR | Tern | 403.8-A1/S1A-45/3.38+7/2.25 | 403.8-A1/S1A | 27.00/6.75 | 98.70 | 1340.0 | 0.0718 | 611 | 814 | 784 | 991 | 911 | 1138 | 1023 | 1257 | | |
| AAC | Hornet | 157.6-A1-19/3.25 | 157.6-A1 | 16.25 | 26.50 | 435.0 | 0.1825 | | | | | | | | | | |
| AAC | Centipede | 415.2-A1-37/3.78 | 415.2-A1 | 26.46 | 67.20 | 1150.0 | 0.0694 | | | | | | | | | | |
| AAC | Bull | 865.4-A1-61/4.25 | 865.4-A1 | 38.25 | 139.00 | 2412.0 | 0.0334 | | | | | | | | | | |
| AAAC | Acacia | 23.8-A2-7/2.08 | 23.8-A2 | 6.24 | 6.69 | 65.0 | 1.39 | 114 | 142 | 140 | 169 | 160 | 191 | 177 | 210 | | |
| AAAC | 35 | 42.2-A2-7/2.77 | 42.2-A2 | 8.31 | 11.86 | 115.0 | 0.785 | 163 | 204 | 200 | 243 | 229 | 275 | 254 | 303 | | |
| AAAC | Pine | 71.7-A2-7/3.61 | 71.7-A2 | 10.83 | 20.2 | 196.0 | 0.462 | 227 | 288 | 279 | 343 | 320 | 389 | 355 | 427 | | |
| AAAC | Oak | 118.9-A2-7/4.65 | 118.9-A2 | 13.95 | 33.33 | 325.2 | 0.277 | 312 | 402 | 385 | 482 | 443 | 544 | 490 | 597 | | |

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Annex B – The Eskom signature – printing guide and format (informative)

The Eskom Signature (logo and logotype) printing guide

The Eskom Signature (logo and logotype) must be used together as a unit. The logo (“circle”) and the logotype (the word “Eskom”) must always appear together as one unit.

a) Colour specifications:

The corporate signature may only appear in the **Eskom corporate blue** or in **black** or in **white**.

Pantone 287C

100%C + 70%M + 0%Y + 10%K

To match colours, swatches must always be used. Previously printed material must never be used for colour matching.

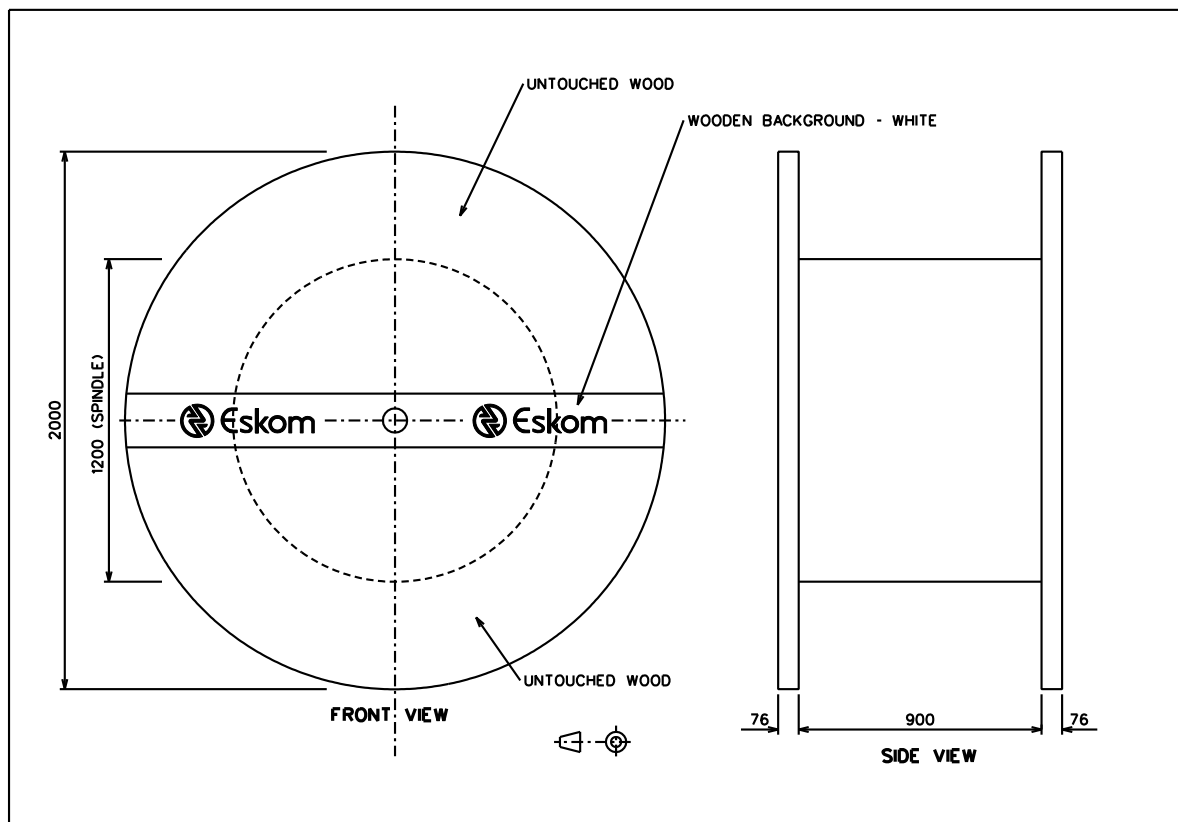
b) Corporate signature isolation area:

There should always be a minimum clear area around the signature. This minimum is equal to the full diameter of the logo (“circle”).

c) Relationship between the logo and the logotype:

The relationship between the logo and the logotype must always be followed exactly as indicated in the graphic. The measurement between the logo (“circle”) and the logotype (word “Eskom”) is twice the line-width of the “circle”.

Typical size wooden drum showing Eskom branded flange



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The Eskom signature (logo and logotype) format



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Annex C – Impact assessment

(Normative)

Impact assessment form to be completed for all documents.

1) Guidelines

- All comments must be completed.
- Motivate why items are N/A (not applicable)
- Indicate actions to be taken, persons or organisations responsible for actions and deadline for action.
- Change control committees to discuss the impact assessment, and if necessary give feedback to the compiler of any omissions or errors.

2) Critical points

2.1 Importance of this document. E.g. is implementation required due to safety deficiencies, statutory requirements, technology changes, document revisions, improved service quality, improved service performance, optimised costs.

Comment: Revision and standardisation for the specification for Distribution lines to conform to IARC specifications format.

2.2 If the document to be released impacts on statutory or legal compliance - this need to be very clearly stated and so highlighted.

Comment: Compliance to referenced specification(s) in Clause 2 (Normative References)

2.3 Impact on stock holding and depletion of existing stock prior to switch over.

Comment: Not applicable (N/A) as the material type does not change

2.4 When will new stock be available?

Comment: N/A

2.5 Has the interchangeability of the product or item been verified - i.e. when it fails is a straight swap possible with a competitor's product?

Comment: N/A as item is not a specialised product from one source

2.6 Identify and provide details of other critical (items required for the successful implementation of this document) points to be considered in the implementation of this document.

Comment: Steel wire drums ordered for Eskom projects must always bear the Eskom marking as stated.

2.7 Provide details of any comments made by the Regions regarding the implementation of this document.

Comment: Document to be published as it is "No further comments but Keywords"

3) Implementation timeframe

3.1 Time period for implementation of requirements.

Comment: Packaging and labelling requirements to be complied with on orders made according to this specification with immediate effect.

3.2 Deadline for changeover to new item and personnel to be informed of DX wide change-over.

Comment: Changes to be effected immediately on orders made in accordance with this specification.

4) Buyers Guide and Power Office

4.1 Does the Buyers Guide or Buyers List need updating?

Comment: Yes

4.2 What Buyer's Guides or items have been created?

Comment: N/A

4.3 List all assembly drawing changes that have been revised in conjunction with this document.

Comment: Referred to HV Lines Study Committee

4.4 If the implementation of this document requires assessment by CAP, provide details under 5

4.5 Which Power Office packages have been created, modified or removed?

Comment: N/A

5) CAP / LAP Pre-Qualification Process related impacts

5.1 Is an ad-hoc re-evaluation of all currently accepted suppliers required as a result of implementation of this document?

Comment: N/A

5.2 If NO, provide motivation for issuing this specification before Acceptance Cycle Expiry date.

Comment: Sisonke orders will be made based on this specification

5.3 Are ALL suppliers (currently accepted per LAP), aware of the nature of changes contained in this document?

Comment: Yes

5.4 Is implementation of the provisions of this document required during the current supplier qualification period?

Comment: Yes

5.5 If Yes to 5.4, what date has been set for all currently accepted suppliers to comply fully?

Comment: On publication of this specification.

5.6 If Yes to 5.4, have all currently accepted suppliers been sent a prior formal notification informing them of Eskom's expectations, including the implementation date deadline?

Comment: Yes

5.7 Can the changes made, potentially impact upon the purchase price of the material/equipment?

Comment: No

5.8 Material group(s) affected by specification: (Refer to Pre-Qualification invitation schedule for list of material groups)

Comment: N/A

6) Training or communication

6.1 Is training required?

Comment: N/A

6.2 State the level of training required to implement this document. (E.g. awareness training, practical / on job, module, etc.)

Comment: N/A

6.3 State designations of personnel that will require training.

Comment: NA

6.4 Is the training material available? Identify person responsible for the development of training material.

Comment: N/A

6.5 If applicable, provide details of training that will take place. (E.G. sponsor, costs, trainer, schedule of training, course material availability, training in erection / use of new equipment, maintenance training, etc).

Comment: N/A

6.6 Was Technical Training Section consulted w.r.t module development process?

Comment: N/A

6.7 State communications channels to be used to inform target audience.

Comment: N/A

7) Special tools, equipment, software

7.1 What special tools, equipment, software, etc will need to be purchased by the Region to effectively implement?

Comment: N/A

7.2 Are there stock numbers available for the new equipment?

Comment: N/A

7.3 What will be the costs of these special tools, equipment, software?

Comment: N/A

8) Finances

8.1 What total costs would the Regions be required to incur in implementing this document? Identify all cost activities associated with implementation, e.g. labour, training, tooling, stock, obsolescence

Comment: N/A

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Impact assessment completed by:

Name: M Rapapa_____

Designation: Engineer_____