Eskom	Standard	Technology

Title: **Full Tension Automatic System Fitting for Overhead Lines Standard**

Unique Identifier:	**240-75882302**
Alternative Reference Number:	**DSP_34-1082**
Area of Applicability:	**Engineering**
Documentation Type:	**Standard**
Revision:	**1**
Total Pages:	**23**
Next Review Date:	**March 2021**
Disclosure Classification:	**CONTROLLED DISCLOSURE**

Compiled by	Approved by	Authorised by
Barry Hill	Riaz Vajeth	Riaz Vajeth
Chief Engineer Civil	Senior Manager Lines Engineering Services	Senior Manager Lines Engineering Services
Date: 31/03/2016	Date: 31/03/2016	Date: 31/03/2016

Approved by
SCOT Chairperson
Riaz Vajeth
SCOT Chairperson
Date: 31/03/2016

PCM Reference: **Perform Line Engineering**
SCOT Study Committee Number/Name : **<number or name>**

Date: ……

PCM Reference: **Perform Line Engineering**
SCOT Study Committee Number/Name : **<number or name>**

CONTENTS

Page

TABLES

EXECUTIVE SUMMARY

This specification has been prepared on behalf of the Technical Steering Committee for Distribution (TESCOD). It has been approved by the committee for use by Eskom Distribution as a performance specification when purchasing full tension automatic fittings for medium-voltage overhead powerlines using bare conductors.

1. INTRODUCTION

None

1.1 KEYWORDS

Tension, automatic, fittings, overhead lines

2. SUPPORTING CLAUSES

2.1 SCOPE

This specification covers Distribution Group's requirements for the manufacture, testing and supply of current-carrying automatic fittings. It is applicable to fittings for bare ACSR, AAAC phase conductors (with the aluminium area not exceeding 120 mm2), bare galvanised steel wire and copper for use on a.c. system voltages from 1 kV up to and including 33 kV.

The tests prescribed will be used to evaluate the performance of the fittings on the associated conductors.

2.1.1 Purpose

None

2.1.2 Applicability

None

2.2 NORMATIVE/INFORMATIVE REFERENCES

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]ANSI C119.4: 1998, Connectors for use between aluminium to aluminium or aluminium to copper bare overhead conductors.

[2]IEC 60050-466:1990, International Electrotechnical vocabulary – Chapter 466: Overhead lines.

[3]IEC 61089:1991, Round wire concentric lay overhead electrical stranded conductors.

[4]ISO 2859-1:1989, Sampling procedures for inspection by attributes – Part 1: Sampling plans indexed by acceptable quality level (AQL) for lot-by-lot inspection.

[5]ISO 2859-2:1985, Sampling procedures for inspection by attributes – Part 2: Sampling plans indexed by limiting quality level (LQ) for isolated lot inspection.

[6]ISO 3951:1989, Sampling procedures and charts for inspection by variables for percent nonconforming.

[7]SABS IEC 61284:1997, Overhead lines – Requirements and tests for fittings.

[8]SABS ISO 7253:1984, Paints and varnishes – Determination of resistance to neutral salt spray.

[9]SABS ISO 9001:2000, Quality management systems -Requirements.

[10]BS 3288-1:1997, Insulator and conductor fittings for overhead power lines – Part 1: Performance and general requirements.

[11]DST 34-4 TESCOD Framework – Part 9: Buyers' Guide.

[12] 240-75883844 (DSP 34-329) Colour Coding spec

[13] 240-75521456(DSP_34-377): Rev 1, Specification for phase conductor for distribution lines

Definitions and abbreviations

2.2.1 Normative

None

2.2.2 Informative

None

2.3 DEFINITIONS

Definition	Description
All aluminium alloy conductor (AAAC)	A stranded conductor of which all wires are made of aluminium alloy.
Aluminium conductor steel reinforced(ACSR)	A reinforced conductor with one or more layers of aluminium wire stranded around a core of galvanised steel wires.
Automatic Fitting	A mid-span full tension joint where the force necessary to grip the conductor is provided by a set of wedge shaped jaws that are set by the tension in the conductor. NOTE: These fittings are not recommended for jumpers (loop) or slack spans, as the device requires a minimum tension to set the jaws and ensure a good electrical connection.
Bimetallic Fitting	A fitting that is suitable for joining conductors of different materials.
Breaking Force	The tensile load applied under which a conductor finally breaks or becomes permanently deformed.
Dead-end tension joint	A joint inserted at the end of a conductor for attachment to an insulator tension set, designed to carry the full current and to provide mechanical termination of the conductor.
Fitting	Full tension automatic connectors or dead ends.
Mid-span full tension joint	A fitting inserted between two lengths of a conductor to provide electrical and mechanical continuity of the conductor under full tension.
Specified minimum failure load (SMFL)	The minimum load specified by the purchaser or declared by the manufacturer/supplier, at which mechanical failure shall not take

Definition	Description
	place.
Tension Fitting	A fitting designed to ensure electrical and mechanical continuity of the conductor under line tension.

2.3.1 Disclosure Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
AAAC	all aluminium alloy conductor
ACSR	aluminium conductor steel reinforced
AQL	acceptable quality level
IEC	International Electrotechnical Commission
ISO	International Organisation for Standardisation
M-value	marking load (in tension test)
SMFL	specified minimum failure load

2.5 ROLES AND RESPONSIBILITIES

None

2.6 PROCESS FOR MONITORING

None

2.7 RELATED/SUPPORTING DOCUMENTS

None

3. FULL TENSION AUTOMATIC SYSTEM FITTING FOR OVERHEAD LINES STANDARD

3.1 REQUIREMENTS

3.1.1 General

Nothing in this specification shall lessen the obligations of the manufacturer/supplier. The manufacturer/supplier shall be fully responsible for the fitting design and its satisfactory performance in service. Approval by Eskom shall not relieve the manufacturer/supplier of the responsibility for the adequacy of the design.

3.1.1.1 Workmanship

All fittings shall have a smooth finish, be free of defects and shall be of high quality workmanship.

3.1.1.2 Drawings

a. Design drawings of all fittings, shall be submitted to Distribution Technology for approval at the time of tendering.

b. All drawings shall clearly indicate all dimensions and tolerances.

c. The material grade and the treatment process required for individual items shall be clearly indicated on all drawings.

d. Drawings of fittings supplied to Eskom at tender stage shall clearly indicate the revision details, revision number and date of revision.

3.1.1.3 Tolerances

The manufacturer/supplier shall ensure that all tolerances are suitable for the dimension for which they are to be used.

3.1.1.4 Range of system

The fittings are required for making connections between various arrangements of stranded conductor. The conductor diameter range shall be identified by the colour code given for each fitting in table 1.

The conductor range to be catered for is:

a. ABC bare neutral: 35mm2 and 70 mm2;

b. AAAC: Acacia, 35, Pine, Oak;

c. ACSR: Magpie, Squirrel, Fox, Mink and Hare.

If fittings are range taking:

a. All colour codes shall be displayed on the surface of the fitting. The names of the standard conductors within the range of the fitting shall be indelibly marked on each fitting.

b. Standard Eskom ranges will be defined on the distribution buyers guide. If the manufactured range do not correlate with the buyers guide, the ranges must be presented to Distribution Technology.

Table 1: Standard conductors and colour codes

1	2	3	4	5	6	7
Type	Diameter	Stranding	mm2	kN	Current rating @ 75 °C Amps	Colour code
Acacia AAAC	6,24	7/2,08	23,79	6,69	133	Orange
Squirrel ACSR	6,33	6/1/2,11	20,98	8,20	130	Orange
Magpie ACSR	6,35	3/4/2,118	10,58	18,573	92	Green
35 AAAC	8,31	7/2,77	42,18	11,86	189	Blue

Fox ACSR	8,37	6/1/2,79	36,68	13,10	190	Blue
Pine AAAC	10,94	7/3,61	71,65	20,20	262	Red
Mink ACSR	10,98	6/1/3,66	63,13	21,90	260	Red
Oak AAAC	14,09	7/4,65	118,90	33,33	359	Brown
Hare ACSR	14,16	6/1/4,72	104,98	36,00	360	Brown
LV ABC – bare neutral						
35	6.6 - 7,5	7/2,5	35	10,3	130	Pink
70	7.7 – s8,4	7/2,8	50	14,2	205	Yellow
Copper						
0.025 (SQ. IN.)	5,67	3/2.64	16,44	6,77	120	
0.05 (SQ. IN.)	8,05	3/3.73	32,85	12,94	185	
0.1 (SQ. IN.)	10,4	7/3.45	65,6	26,09	277	
NOTE 1: Conductors as per IEC 601089. NOTE 2: The types and quantities of fittings required will be specified in schedule A of an enquiry document. Note 3: Not to be used on steel wires.						

3.1.1.5 General principles of the design

The automatic fittings shall be manufactured for installation with Eskom's standard installation methods for automatic fittings.

The fittings shall be manufactured for the purpose of connecting two pieces of conductor in tension.

Once the conductor is set in the jaws, the connection shall not be reversible. The connection shall be mechanically and electrically sound.

The fittings shall be designed to allow their application using Eskom live line techniques.

All components shall be free of sharp edges; burrs, voids and brittleness of fittings shall be avoided.

All fittings shall incorporate a staked-in plug, or centre stop, positioned at the centre of the sleeve barrel.

All materials used for manufacture of automatic fittings shall not age in any way such that type test results do not reflect the true performance of the in-service joint.

In order to ensure that conductors are inserted correctly into fittings, conductor caps shall be placed in either opening of the fitting. These caps should also ensure that no contaminants enter into the fitting before installation.

The fittings, when applied to the appropriate conductor, shall comply with the electrical and mechanical requirements of this specification and retain these characteristics during the normal life of thirty years in an outdoor environment.

3.1.1.6 Electrical criteria

The fittings shall:

a. provide satisfactory distribution of current in the jointed conductors by ensuring total surface contact with all outer strands,

b. sustain the passage of service current and short-circuit current without excessive heating that could be detrimental to the performance of the fitting,

c. not increase the resistance of the connection or conductor in the fascinity of the joint,

d. they shall provide the lowest possible emission of radio interference voltage, and

e. shall not contribute to corona levels.

3.1.1.7 Mechanical criteria

The mounted fittings shall:

a. be unaffected by conductor motion and vibrations, as well as changes of tension, temperature and any other environmental conditions experienced while in service;

b. be resistant to intergranular and stress corrosion;

c. have no deteriorating effect on the conductor, after being installed in accordance with Eskom installation procedure / standards;

d. include systems that prevent the loosening of fitting during its serviceable life;

e. withstand loads related to installation, maintenance, and service; and

f. withstand a tensile force equal to but not less than 95% of the SMFL of the conductor.

3.1.2 electrical jointing compound

Jointing compound is required to provide low initial contact resistance and to prevent deterioration of the contact due to oxidation or corrosion, by excluding air and moisture from the contact surface.

The jointing compound shall be:

a. non-toxic and non-flammable;

b. stable over a wide temperature range (the melting point shall be not less than 100 °C); and

c. neutral, relative to the metals being connected.

All fittings shall be pre-filled with an adequate amount of the jointing compound. The type of compound and its chemical breakdown shall be stated in schedule B of an enquiry document.

3.1.3 intsallation of fittings

The manufacturer of the fittings shall submit an installation instruction document to Eskom, with the recommendations regarding the cleaning treatment to be used and the type of jointing compound. The manufacturers methodology of installation shall then be evaluated for consistency with standard Eskom practices.

3.1.4 document

The manufacturer shall provide the following documentation with every tender:

- Detailed installation instructions.
- Details of the operation of the fitting.

3.1.5 quality assurance

A quality management system shall be employed to provide assurance of the quality of the fittings during the manufacturing process. The quality management system shall comply with the requirements of SABS ISO 9001:2000

3.1.6 buyers guide

The relevant buyer's guide numbers are:

Buyers Guide	Sap Number	Description
Full tension automatics		
DDT 3228	0186845	JOINT FULL TEN AUTO SQUIRRELL & FOX
DDT 3228	0186846	JOINT FULL TEN AUTO MINK/PINE
DDT 3228	0165580	JOINT ,FULL TEN AUTO HARE/OAK
Full tension automatic dead ends		
DDT 3231	0211857	DEAD END, FULL TEN, AUTO SQUIRREL & FOX
DDT 3231	0218758	DEAD END, FULL TEN, AUTO MINK/ PINE
DDT 3231	0218759	DEAD END, FULL TEN, AUTO HARE/OAK

3.2 TESTS

3.2.1 General

Tests shall be performed to establish the design characteristics of the fittings when installed on the relevant conductor and to ensure compliance with all requirements specified. Tests shall be conducted on new fittings in the same state as they are normally supplied. Unless otherwise specified, tests shall be conducted at ambient temperatures between 15 °C and 30 °C. Type tests shall be conducted by an independent accredited organisation or person approved by SANAS and Eskom Distribution Technology. Eskom reserves the right to witness any or all of these tests. The manufacturer/supplier shall demonstrate an ability to enable Eskom to witness any test.

Conductors used for the tests shall be new clean conductors that are in accordance with SCSSCAAY5. The conductor used in the test shall be tested mechanically, to ascertain that the breaking strength is within the limits specified in IEC 61089.

Manufacturer/suppliers are requested to indicate their compliance with this specification at the tendering stage and shall submit all the required type tests (in accordance with table 4), design drawings and samples. If the fittings offered have been tested for compliance with an internationally accepted standard, Eskom may accept those test reports as equivalent tests for the tests covered by this specification. These type test reports and alternative test standards shall be submitted with their tender, for Eskom's consideration.

The qualifying type tests need not be performed if they were successfully completed for a previous Eskom tender, provided that the design and material have not been changed or modified in any way. The type test certificates of completed successful type tests previously submitted, shall be submitted with the current inquiry. Any change in components shall be indicated at the time of tender. Reference to the appropriate enquiry for which the tests were successfully completed, shall be included in the current enquiry.

The fittings shall be mounted on the conductors in accordance with the technical specification of the manufacturer meeting the requirements stipulated in 4.4.

The transfer of test certificates between manufacturers will not be allowed.

All fittings shall be stamped with the part number unique to each fitting and manufacturer. Each part number shall have a corresponding test certificate.

3.2.2 Qualifying tests

Tests to be performed on fittings are divided into three groups. Type tests, sample tests and routine tests. The testing procedures and conformance criteria, for most of the tests required, are set out in IEC 61284. The qualifying tests are given in table 2.

1	2	3
Joints	Type of fitting	
	Mid span full Tension joint	Dead-ends
Tests		
Sampling and visual inspection1)	xxx	xxx
Dimension and material verification1)	xxx	xxx
Mechanical tension tests2)	xx	xx
Heat cycle tests 3)	x	
Corrosion test4)	x	x
xxx = Type tests, sample tests and routine tests. xx = Type tests and sample tests only. x = Type tests only.		
NOTE 1: The sampling, visual inspection, dimensional and material verification is not a test done separately from any of the other tests. These two procedures should form part of all other tests done on fittings such that the fitting can be traced back to all type test certificates. The dimensional verification should be done with reference to a design drawing. This design drawing should be included with all test reports for the fitting and be signed and stamped by the testing engineer for the testing facility. The unique product code (e.g. es122) for each fitting must be displayed on design drawings and engraved on the fitting.		

3.2.2.1 Type tests

Type tests are intended to establish design characteristics. They are normally only performed once and repeated only when the design or the material of the fitting is changed. The results of type tests are recorded as evidence of compliance with the design requirements. Prior to the type test, a sample to be tested must be selected and sample tested according to procedures ISO 2859-1 and ISO 2859-2 (inspection and attributes) and to ISO 3951 (inspection by variables).

3.2.2.2 Sample test

Sample tests are intended to verify the quality of materials and workmanship.

Unless otherwise agreed between the purchaser and the manufacturer/supplier, the sampling plan procedures according to ISO 2859-1 and ISO 2859-2(inspection and attributes) and to ISO 3951 (inspection by variables) shall be applied.

For each sample test, the type of inspection (by attributes or by variables and detailed procedures inspection level, acceptable quality level, single, double or multiple sampling, etc.) shall be agreed between the purchaser and the manufacturer/supplier.

NOTE: Sampling inspection by variables is an acceptance sampling procedure to be used in place of inspection by attributes when it is more appropriate to measure on some continuous scale characteristic(s) under consideration. In the case of failure load test and similar expensive tests, better discrimination between acceptance quality and objective quality is available with acceptance sampling by variables than by attributes for the same sample size.

The purpose of the sampling process may also be important in the choice between a variables or attributes plan. For example, a purchaser may choose to use an attributes acceptance sampling plan to ensure that parts in a shipment lot are within a required dimensional tolerance; the manufacturer may make measurements under a variables sampling plan of the same dimensions because he is concerned with gradual trends or changes which may affect his ability to provide shipment lots which meet the AQL.

3.2.2.3 Routine tests

Routine tests are intended to prove conformance of fittings to specific requirements and shall be made on every fitting. The tests shall not damage the fitting.

3.2.2.4 Quantity testes

Unless otherwise specified, a minimum of 4 (four) samples of each size and type of fitting shall be tested. Each test sample shall comply with all the acceptance criteria applicable to the fitting.

3.2.3 Visual inspection and verification of dimensions

Prior to any test to be done on fittings, a visual inspection shall be completed to confirm that the fittings to be tested have dimensions that conform to the manufacturer’s design drawings. The manufacturer shall supply the relevant drawings indicating all critical dimensions and tolerances for the fittings.

All test samples shall be submitted to Distribution Technology after testing is completed.

3.2.4 Mechanical tension tests

Tensile tests shall be done in accordance with IEC 61284.The following criteria shall be used where specified in the IEC 61284:

a. The SMFL for all conductors shall be 95% of the rated tensile strength.

b. The M value referred to in the IEC 61284 tensile tests, shall be 20 % of the SMFL.

c. The section of the test where 60 % of SMFL is held shall be for a minimum of 1 min.

d. For the remainder of the test Option a) (as in IEC 61284) shall be used.

All the relevant acceptance criteria in IEC 61284 shall be satisfied, to ensure that a specimen complies.

3.2.5 Heat cycle test

Heat cycle test shall be performed as described in IEC 61284 and as a class A type joint or as described in ANSI C119.4 class A.

3.2.6 Corrosion test

Test four fittings and a reference conductor with a length equal to a joint shall be tested. The joints must be installed in accordance with installation procedures specified by the supplier.

3.2.6.1 Test procedure

Place the four fittings and reference conductor in an airtight salt spray cabinet for 1000h in accordance with SABS ISO 7253.

A graph of resistance verses time for the duration of the test shall show that there is no significant change in the electrical characteristics of the clamps from there original product resistance and the resistance of the reference conductor. The resistance measurements shall be taken at the beginning of the test and every 100 hours thereafter. These readings shall be taken without stopping the salt spray mechanism or removing the joints out of the salt spray chamber.

3.2.6.2 Acceptance criteria

After corrosion testing:

a. all four fittings shall be free of any traces of detrimental corrosion and all the markings specified shall be legible under normal viewing; and

b. The initial resistances of each joint shall not differ by more than 30 % from the mean of the initial resistance of the four fittings.

c. The electrical resistance of the joint measured shall not exceed the initial resistance by 50%.

d. The graph of resistance shall demonstrate with reasonable probability that the rise in resistance shall not show any sudden increases or irregularities in the gradient. This graph will be subject to the approval by Distribution Technology.

3.2.7 Test certificates and samples

3.2.7.1 Qualifying type test

One hard copy and one electronic copy of all type-test reports for fittings offered shall be supplied to Eskom for approval. Certificates supplied for previous tenders shall be re-submitted.

3.2.7.2 Production sample test

Eskom does not require copies of sample test certificates but the manufacturer shall retain these certificates for a period of at least 2 years.

3.2.7.3 Traceability

The test certificates for each fitting shall be traceable by reference to the manufacturer's serial/fitting reference number marked on the fitting. A design drawing shall be included in each test certificate and signed/stamped by the testing facility as checked against sample tested.

3.2.7.4 Samples

One set of new samples of each item specified shall be submitted for approval before general manufacture commences. The type-tested samples shall be submitted with first offer made on Eskom national tenders

3.3 MARKING/PACKING/DOCUMENTATION

3.3.1 Identification and markings

All fittings shall be clearly and durably marked with the following:

a. The manufacturer's name or identification mark;

b. the manufacturers item serial number or the fitting reference number;

c. the batch number;

d. the code names of the conductors or a reasonable abbreviations for conductor codes (of minimum width of 5 x 10 mm around the circumference of the joint) for which the joint is intended, as used by Eskom;

e. the Eskom standard conductor colour codes for which they are intended;

3.3.2 packing requirements

The automatic joints shall be packed in a sealed plastic bag with a small package of grease sufficient for the joint. Identical fittings shall be packed together in sealed transparent plastic bags. The thickness of all the plastic material used for plastic bags shall be not less than 100 µm.

The fittings supplied in large quantities shall be bulk packed in suitable containers. The net weight in each container shall not exceed 30 kg.

On the outside of each container the following information shall be provided:

a. product description;

b. product code or part number;

c. name of manufacturer and contact details;

d. number of components of each type in the container;

e. address of the destination;

f. Eskom's purchase order number;

g. Eskom's material SAP number(s).

If the product is supplied by a third party supplier (e.g. importers, agents, etc.) the container shall also bear the following information on the outside of the container:

a. name of the supplier / agent

b. contact details of the supplier / agent

4. AUTHORISATION

This document has been seen and accepted by:

Name & surname	Designation
Barry Hill	Chief Engineer Electrical
Bharat Haridass	Senior Consultant Engineering
Riaz Vajeth	Senior Manager Lines Engineering Services

5. REVISIONS

Date	Compiled	Rev.	Remarks
March 2016	BP Hill	1	Document re-numbered and in the new format approved through the TDAC process
Feb 2014	BP Hill	1	No change in content, change in format. This document supersedes document number DSP _34-1082 Approver changed from B McLaren to Bharat Haridass Authoriser changed from M.N Bailey to Riaz Vajeth
Nov 2010	B.P Hill	0	Compiled By: B P Hill
			Document number change from DSP0034 to DSP 34-1082. Added colour coding spec, new format spec.
April 05		1	Revised logo etc 5.1 type tests shall be conducted by an independent accredited organisation or person approved by SANAS and Eskom Distribution Technology. Eskom reserves the right to witness any or all of these tests. 4.6 The relevant buyer's guide numbers added as per 02 TB 010: Document reference number changed from SCS to DIS 6.2 revised packaging requirements This document replaces DSP0034.
April 01		0	Document issued.

6. DEVELOPMENT TEAM

The following work group compiled this specification:

- Gareth Stanford Distribution Technology
- David Bavin Technology and Quality Central

- Barry Hill — Distribution Technology
- Kris Rozmiarek — Distribution Technology

The following interested manufacturers assisted in the preparation of this document:

- P Hawes — Maclean Power Systems
- R S E Martin — Eberhardt Martin
- B Brown — Brokor Technologies

7. ACKNOWLEDGEMENTS

None

APPENDIX A: 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:

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:

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

Comment:

2.4 When will new stock be available?

Comment:

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

Comment:

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:

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

Comment: (N/A during commenting phase)

3 Implementation timeframe

3.1 Time period for implementation of requirements.

This is a revision document.

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

N/A

4 Buyers Guide and Power Office

4.1 Does the Buyers Guide or Buyers List need updating?

No

APPENDIX A: IMPACT ASSESSMENT
(continued)

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

None for this revision:

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

none:

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?

none:

5 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?

No

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

Done already

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

Yes

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

no

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

Comment:

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:

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

Yes slightly in that the lower part below the gound be coated with an epoxy coating to prevent corrosion in aggressive soils

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

Hardware

6 Training or communication

6.1 Is training required?

No was done previously: (If NO then 6.2 – 6.6 will be N/A)

APPENDIX A: SAMPLE HEADING FOR APPENDIX
(concluded)

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

Comment:

6.3 State designations of personnel that will require training.

Comment:

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

Comment:

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:

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

Comment:

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

TESCOD

7 Special tools, equipment, software

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

None

7.2 Are there stock numbers available for the new equipment?

N/A

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

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

none

Comment:

……

……

……

Impact assessment completed by:

Name: Barry Hill _____

Designation: Chief engineer Distribution Technology _____

APPENDIX B: TECHNICAL SCHEDULES A AND B FOR FULL TENSION AUTOMATIC MID-SPAN JOINT

Schedule A gives Distribution Group's requirements.

The manufacturer/supplier shall complete schedule B in full.

Deviations/modifications/alterations from the requirements specified in schedule A shall be well documented in the deviation schedule.

Schedule A: Purchaser's specific requirements

Schedule B: Guarantees and technical particulars of equipment offered

Item	Description	Schedule A	Schedule B
1.1	Fitting suitable for following conductor: conductor code names or neutral size	35 mm2 ABC bare neutral 70 mm2 ABC bare neutral MAGPIE/ SQRL-ACACI/ FOX-35/ MNK-PINE/ HAR-OAK	_____
1.2	Trade name of the fitting	xxxxxxxxxx	_____
1.3	Name of the manufacturer	xxxxxxxxxx	_____
1.4	Manufacturer's part number	xxxxxxxxxx	_____
1.5	Catalogue reference number	xxxxxxxxxx	_____
1.6	Alloy used and any treatment of material	xxxxxxxxxx	_____
1.7	Wall thickness and tolerance mm	xxxxxxxxxx	_____
1.8	Overall length mm	xxxxxxxxxx	_____

APPENDIX B: TECHNICAL SCHEDULES A AND B
(continued)

Item	Description	Schedule A	Schedule B
2	**Electrical jointing compound**		
2.1	Trade name	xxxxxxxxxx	_____
2.2	Type of compound	xxxxxxxxxx	_____
2.3	Recommended quantity per fitting	xxxxxxxxxx	_____
2.4	Are fittings pre-filled and sealed before dispatch?	Yes	_____
2.5	Source of supply	xxxxxxxxxx	_____
2.6	Temperature rating:		_____
	Continuous	120°C	_____
	max. under short-circuit conditions	150°C	_____
2.7	Method of marketing i.e. per tube, drum, etc.	per tube	_____
3	**Marking/packing/documentation**		
3.1	Is a drawing of the fitting supplied?	Yes/No	_____
3.2	Are the detailed installation instructions of the fitting provided?	Yes/No	_____
3.3	Are fittings marked correctly as per SCSSCAAG5?	Yes/No	_____
4	**Test**		
4.1	Accredited person/organisation	SABS/CSIR	_____
4.2	Type test certificates required for:		_____
4.2.1	Sample and Visual test	Yes/No	_____
4.2.2	Damage and Failure load test	Yes/No	_____
4.2.3	Tensile test	Yes/No	_____
4.2.4	Heat cycle test	Yes/No	_____
4.2.5	Corrosion test	Yes/No	_____

APPENDIX B: TECHNICAL SCHEDULES A AND B
(concluded)

Deviation schedule
for
Full tension automatic mid-span joint

1 Any deviations/modifications/alternations offered to this specification shall be listed below with reasons for the departures.

2 No deviations/modifications/alternations offered to the specification will be recognised unless listed on this schedule.

3 If no deviations/modifications/alternations are offered, this schedule must be marked “Not applicable”.

Specification/Schedule page number	Specification/Schedule clause number	Proposed deviation/modification/ alternative