



**Ergon Energy Corporation Limited**

# **Technical Specification for LV ABC and XLPE Cable Equipment and Fittings**

**ETS 01-07-01**



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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 1. Purpose and Scope

This specification sets out the requirements for the manufacture, testing and delivery of **LV ABC and XLPE cable equipment and fittings** for use on overhead electricity distribution systems in a totally exposed environment.

Items covered by this technical specification, are listed as follows:

| ITEM No. | ITEM DESCRIPTION   | STOCK CODE |
|----------|--|------------|
| 1        | TERMINATION, ABC, 25mm <sup>2</sup> , 2 3 or 4 Core, 2.5kN Failing Load, ETS 01-07-01 (scm) (P50)  | 0414092    |
| 2        | TERMINATION, ABC, 50/95mm <sup>2</sup> , 2 or 4 Core, ETS 01-07-01 (scm) (P10)   | 0414079    |
| 3        | CLAMP, INSULATION PIECING, Connector, IPC, 5/19mm Dia Bare AL Main, 6/35mm <sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P12)   | 0414121    |
| 4        | CLAMP, INSULATION PIECING, Connector, IPC, 3/14mm Dia Bare CU Main, 6/35mm <sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01(scmm) (P12)   | 0414131    |
| 5        | CLAMP, INSULATION PIECING, Connector, IPC, 25/95mm <sup>2</sup> Main, 6/35mm <sup>2</sup> Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P12)   | 0411207    |
| 6        | CLAMP, INSULATION PIECING, Connector, IPC, 35/95mm <sup>2</sup> Main, 35/95mm <sup>2</sup> Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)  | 0411215    |
| 7        | CLAMP, INSULATION PIECING, Connector, IPC, 50/120mm <sup>2</sup> Bare AL Main 35/95mm <sup>2</sup> IPC Tap C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)   | 0411223    |
| 8        | CONNECTOR, IPC, 95/240mm <sup>2</sup> Bare AL Main, 35/95mm <sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P4)   | 2406713    |
| 9        | CLAMP, INSULATION PIECING, Connector, IPC, 7/95mm <sup>2</sup> Bare CU Main, 35/95mm <sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)   | 0411231    |
| 10       | CLAMP, INSULATION PIECING, Connector, IPC, 50/95mm <sup>2</sup> Main, 4 x 6 35mm <sup>2</sup> IPC Taps, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10)  | 0409732    |
| 11       | CLAMP, INSULATION PIECING, Connector, IPC, 6/35mm <sup>2</sup> Bi-Metal Main, 4/35mm <sup>2</sup> Non-IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10)   | 0409727    |
| 12       | CLAMP, INSULATION PIECING, Connector, IPC, Neutral Bonding, 6/35mm <sup>2</sup> Bimetallic Main, 4/35mm <sup>2</sup> Non-IPC Tap, with Integrated 16mm <sup>2</sup> CU Insulted (Fully Ribbed) Earth Lead 800mm L , ETS 01-07-01(scmm) | 0409729    |
| 13       | BOX, Mains Connection Single Phase Supply Side Cable Range   | 0404986    |

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| ITEM No. | ITEM DESCRIPTION  | STOCK CODE |
|----------|---|------------|
|          | 10mm <sup>2</sup> To 35mm <sup>2</sup> C/W IPC Consumer Side Cable Range 4mm <sup>2</sup> To 35mm <sup>2</sup> NON-IPC, ETS 01-07-01 (scm) (P10)  |            |
| 14       | BOX, Mains Connection Three Phase Supply Side Cable Range 10mm <sup>2</sup> To 35mm <sup>2</sup> Cu/Al C/W IPC Consumer Side Cable Range 4mm <sup>2</sup> To 35mm <sup>2</sup> Cu/Al NON-IPC, ETS 01-07-01 (scm) (P6) | 0404990    |
| 15       | FUSEHOLDER, BASE AND CARRIER, 415V AC, 100 Amp, 6/35mm <sup>2</sup> , Service, ETS 01-07-01 (scm) (P20)   | 0426142    |
| 16       | FUSEHOLDER, BASE AND CARRIER, 415V AC, 160 Amp 6/95mm <sup>2</sup> , Service, IPC Terminals, to suit HRC DIN Size 00 Fuse Links, ETS 01-07-01 (scm) (P24)   | 0426146    |
| 17       | Strain clamp "bolted type" for 4 core 25mm <sup>2</sup> LV ABC  | 2407118    |
| 18       | Strain clamp "bolted type" for 2 core 25mm <sup>2</sup> LV ABC  | 2407119    |
| 19       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> C/W 10mm <sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm <sup>2</sup> , ETS 01-07-01 (scm) (P20)  | 0474723    |
| 20       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> C/W 10mm <sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)                                | 0104350    |
| 21       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> C/W 16mm <sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm <sup>2</sup> , ETS 01-07-01 (scm) (P20)  | 0474727    |
| 22       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> C/W 16mm <sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)                                | 0104349    |
| 23       | SLEEVE, Compression, NT, ABC, 25mm <sup>2</sup> , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P100)   | 0474710    |
| 24       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 16mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)  | 0474719    |
| 25       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 10mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)  | 0474714    |
| 26       | SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 6mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)   | 0104332    |
| 27       | SLEEVE, Compression, FT, ABC, 95mm <sup>2</sup> , Hex Die A/F 21.5mm, ETS 01-07-01 (scm) (P10)  | 0444008    |
| 28       | SLEEVE, Compression, FT, 50mm <sup>2</sup> ABC, Hex Die A/F 17.3mm, ETS 01-07-01 (scm) (P50)  | 2403511    |
| 29       | SLEEVE, Compression, FT, 25mm <sup>2</sup> ABC, Hex Die A/F 17.3mm <sup>2</sup> , ETS 01-07-01 (scm) (P50)  | 0474706    |
| 30       | LUG, Compression, Bi-Metal, 95mm <sup>2</sup> (ABC), Cu Palm, M12 Bolt Hole, Hex Die A/F 21.5mm, ETS 01-07-01 (scm)(P10)  | 0447015    |
| 31       | LUG, Compression, Bi-Metal, 50mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex Die A/F 17.3mm, ABC (scm)(P10)  | 2406373    |
| 32       | LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex   | 0447023    |

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| ITEM No. | ITEM DESCRIPTION   | STOCK CODE |
|----------|--|------------|
|          | Die A/F 14.0mm, ABC, ETS 01-07-01 (scm) (P10)  |            |
| 33       | LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M10 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm)(P10)                             | 0447021    |
| 34       | CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 25mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P200)  | 0104207    |
| 35       | CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 50mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100)  | 0104208    |
| 36       | CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 95mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100)  | 0104209    |
| 37       | CLAMP, Suspension ABC, 4 x 95mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)  | 104426     |
| 38       | CLAMP, Suspension, ABC, 2 x 50mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20) | 2403225    |
| 39       | CLAMP, Suspension, ABC, 2 x 95mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20) | 413447     |
| 40       | CLAMP, Suspension, ABC, 4 x 95mm <sup>2</sup> Galv For Bridging C/W Insulating Insert, ETS 01-07-01 (scm) (P30)                                      | 413443     |
| 41       | ROLLER BRACKET, for use with ABC Suspension Clamps, ETS 01-07-01 (scm)   | 104427     |
| 42       | YOKE BAR, 300 mm for use with ABC Suspension Clamps, ETS 01-07-01 (scm) (P10)  | 104428     |

## 2. References

### 2.1 Applicable Standards

The items shall be designed, manufactured and tested in accordance with the relevant parts of the following Standards and all amendments issued from time to time except where varied by this specification.

| STANDARD            | TITLE   |
|---------------------|---|
| AS 1154             | Insulator and conductors fittings for overhead power lines  |
| AS 1531             | Conductors - Bare overhead - Aluminium and aluminium alloy  |
| AS 1746             | Conductors - Bare overhead - Hard-drawn copper  |
| AS 1939             | Degrees of protection provided by enclosures for electrical equipment (IP Code)   |
| AS/NZS 6029.1       | Low voltage fuses – Fuses with enclosed fuse-links  |
| AS 2837 (withdrawn) | Wrought alloy steels – Stainless steel bars and semi-finished products  |
| AS/NZS 3560         | Electric cables – Cross-linked polyethylene insulated – Aerial bundled - For working voltages up to and including 0.6/1(1.2) kV |
| AS 3607             | Conductors - Bare overhead, aluminium and aluminium alloy – Steel reinforced  |

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| STANDARD        | TITLE  |
|-----------------|--|
| AS 3766         | Mechanical fittings for low voltage aerial bundled cables                                      |
| AS/NZS 3947     | Low-voltage switchgear and controlgear   |
| AS/NZS 4360     | Risk management  |
| AS/NZS 4396     | Connectors – Insulation piercing – For 0.6/1 kV aerial bundled cables                          |
| AS/NZS 4680     | Hot-dip galvanized (zinc) coatings on fabricated ferrous articles                              |
| AS/NZS 5000     | Electric Cables – Polymeric insulated, Part 1:For working voltages up to and including 0.6/1kV |
| AS/NZS ISO 9001 | Quality management systems – Requirements  |

## 3. Drawings

### 3.1 Drawings by the Purchaser

The following drawing forms part of this specification.

| DRAWING No. | ISSUE | TITLE                       |
|-------------|-------|-----------------------------|
| 865737-01   | A     | Three Phase Service Bracket |

### 3.2 Drawings by the Tenderer

The Tenderer shall supply with the Tender, detailed drawings, sketches or pamphlets of the items tendered.

## 4. Service Conditions

The items will be exposed to the following environmental conditions:

|                              |   |
|------------------------------|---|
| <b>Temperatures</b>          | 45°C summer day time<br>-5°C winter night time  |
| <b>Solar Radiation Level</b> | 1 000 W/m <sup>2</sup> with high ultraviolet content  |
| <b>Precipitation</b>         | Tropical summer storms with gust wind speeds above 160 km/h, and an annual rainfall in excess of 1 500 mm                               |
| <b>Humidity</b>              | Extended periods of relative humidity in excess of 90%  |
| <b>Pollution</b>             | Areas of coastal salt spray and/or industrial pollution with equivalent salt deposit densities in the range 2.0 to 3.0 g/m <sup>2</sup> |

## 5. Design and Construction

### 5.1 General

Ergon Energy is currently using low-voltage aerial bundled cables manufactured in accordance with AS/NZS 3560, for LV mains and to provide connection of services to customers. The following aluminium cable sizes are utilised:

- 2 core, 25mm<sup>2</sup>

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- 3 core, 25mm<sup>2</sup>
- 4 core, 25mm<sup>2</sup>
- 2 core, 50mm<sup>2</sup>
- 4 core, 50mm<sup>2</sup>
- 2 core, 95mm<sup>2</sup>
- 4 core, 95mm<sup>2</sup>

2 core, XLPE insulated, 6mm<sup>2</sup> copper cable is also used for connection to the street lighting system.

In addition to the above the Purchaser may use items covered under this specification on the following types of Low Voltage service cables.

- **Hard Drawn Copper PVC Insulated AS/NZS 5000.1**
- **Hard Drawn Copper XLPE Insulated AS/NZS 5000.1**
- **Aluminium HDPE Insulated AS/NZS 3560.1 but insulated with HDPE insulation to AS/NZS3808.**

Equipment used in the low voltage system must be suitable for connection to open wire aluminium conductors, open wire copper conductors and LV ABC. It must also be suitable for connection to existing and new customers' installations.

The Tenderer's attention is drawn to requirements of:

- Clause 10, SAMPLES
- Clause 14, TRAINING
- Clause 17, TOOLS AND EQUIPMENT
- Clause 18, FIELD TRIAL
- Clause 19, PHASING IN OF NEW EQUIPMENT

Evaluation of the Tender will consider the cost-effectiveness of the provision of the features listed under "Preferences" for each item.



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## 5.1.1 Item 1: Termination, ABC, 25mm<sup>2</sup>, 2 3 or 4 Core, 2.5kN Failing Load, ETS 01-07-01 (scm) (P50)

Terminations shall have the following properties:

|                |  |
|----------------|--|
| <b>General</b> | <ul style="list-style-type: none"> <li>• Suit 25mm<sup>2</sup> LV ABC.</li> <li>• Suit 6mm<sup>2</sup> Copper, XLPE insulated cable.</li> <li>• Suit 2, 3 and 4 core cables.</li> <li>• Minimum failing load of 2.5kN.</li> <li>• Working load of 1kN.</li> <li>• "Wedge" type clamp.</li> <li>• Material in direct contact with the cable, shall be non-conducting.</li> <li>• All non-metallic materials shall be UV stabilised.</li> <li>• All metallic fittings, except those made of stainless steel, shall be hot dip galvanized. A minimum stainless steel grade 304 is required for stainless steel fittings.</li> <li>• Capability of attaching to a 'J' hook or eyebolt.</li> <li>• Fittings must be easy to apply from a pole top.</li> <li>• Cables should not require untwisting for the strain clamp to be applied.</li> <li>• Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.</li> <li>• One clamp to suit 25mm<sup>2</sup> 2, 3 and 4 core LV ABC and 2 core 6mm<sup>2</sup> Copper, XLPE insulated cable.</li> <li>• Clamp labelled with:             <ul style="list-style-type: none"> <li>- cable range</li> <li>- Ultimate load</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> </ul> |
|----------------|--|

## 5.1.2 Item 2: Termination, ABC, 50/95mm<sup>2</sup>, 2 or 4 Core, ETS 01-07-01 (scm) (P10)

Terminations shall have the following properties:

|                   |  |
|-------------------|--|
| <b>General</b>    | <p>One clamp to suit 50 - 95 mm<sup>2</sup>, up to 4 core LV ABC.</p> <ul style="list-style-type: none"> <li>• Minimum failing load of 45.0kN for 4x95 mm<sup>2</sup> LV ABC, 23.8kN for 4x50mm<sup>2</sup> LV ABC</li> <li>• Safe Working Load (SWL) of 14.9kN for 4 x95mm<sup>2</sup> LV ABC, 5kN for 4x50mm<sup>2</sup> LV ABC</li> <li>• "Bolted" type clamps.</li> <li>• Material in direct contact with the cable shall be non-conducting.</li> <li>• All non-metallic materials shall be UV stabilised.</li> <li>• All metallic fittings shall be protected against corrosion. A minimum stainless steel grade 304, or aluminium alloy, is required.</li> <li>• Capability of attaching to a M20 eyebolt.</li> <li>• Fittings must be easy to apply from a pole top.</li> <li>• Cables should not require untwisting for the strain clamp to be applied.</li> <li>• Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.</li> <li>• Clamp labelled with:             <ul style="list-style-type: none"> <li>- cable range</li> <li>- Ultimate load.</li> <li>- Manufacturer's identification</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> </ul> |
| <b>Preference</b> | <ul style="list-style-type: none"> <li>• Aluminium or Stainless Steel</li> </ul>   |

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## 5.1.3 Item 3: Clamp, Insulation Piecing, Connector, IPC, 5/19mm Dia Bare AL Main, 6/35mm<sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P12)

Connectors to open wire Al mains, shall have the following properties:

|                |  |
|----------------|--|
| <b>Main</b>    | <ul style="list-style-type: none"> <li>• Aluminium conductor range: 5mm to 19mm nominal diameter.</li> <li>• Non-IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13.0 mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must be aluminium only.</li> </ul>  |
| <b>Tap</b>     | <ul style="list-style-type: none"> <li>• Cable range: 6-35mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• End seal to prevent moisture ingress</li> <li>• UV stabilised viewing window</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13.0 mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> </ul> |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with: <ul style="list-style-type: none"> <li>- Cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> </ul>   |

## 5.1.4 Item 4: Clamp, Insulation Piecing, Connector, IPC, 3/14mm Dia Bare CU Main, 6/35mm<sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01(scm) (P12)

Connectors to open wire Cu mains, shall have the following properties:

|                |  |
|----------------|--|
| <b>Main</b>    | <ul style="list-style-type: none"> <li>• Copper conductor range: 3mm to 14mm nominal diameter.</li> <li>• Non-IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must be copper only.</li> </ul>   |
| <b>Tap</b>     | <ul style="list-style-type: none"> <li>• Minimum cable range: 6-35mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• End seal to prevent moisture ingress</li> <li>• UV stabilised viewing window</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13 mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> </ul> |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with:</li> </ul>  |

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|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>- Main conductor range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> <li>• IPC contacts must be pre-greased.</li> </ul> |
|--|---|

## 5.1.5 Item 5: Clamp, Insulation Piecing, Connector, IPC, 25/95mm<sup>2</sup> Main, 6/35mm<sup>2</sup> Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P12)

Connectors shall have the following properties:

|                   |   |
|-------------------|---|
| <b>Main</b>       | <ul style="list-style-type: none"> <li>• Service connector capable of mounting directly to 35-95mm<sup>2</sup> LV ABC.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> </ul>   |
| <b>Tap</b>        | <ul style="list-style-type: none"> <li>• Single tap connector.</li> <li>• Cable range: 6-35mm<sup>2</sup> nominal.</li> <li>• IPC.</li> <li>• End seal to prevent moisture ingress</li> <li>• UV stabilised viewing window</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper.</li> </ul>   |
| <b>General</b>    | <ul style="list-style-type: none"> <li>• Connector is labelled with: <ul style="list-style-type: none"> <li>- Main cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Fastenings shall be stainless steel: <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade 304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding.</li> </ul> |
| <b>Preference</b> | <ul style="list-style-type: none"> <li>• A test point for contact to bare metal via probe is desirable</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tap conductor end cap which will offer resistance to bird attack</li> <li>• Preference will be given to connectors with tinned copper. / copper alloy insulation piercing teeth.</li> </ul>  |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 5.1.6 Item 6: Clamp, Insulation Piercing Connector, IPC, 35/95mm<sup>2</sup> Main, 35/95mm<sup>2</sup> Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)

The connectors shall have the following properties:

|                    |  |
|--------------------|--|
| <b>Main</b>        | <ul style="list-style-type: none"> <li>• Connector capable of mounting directly to 35-95mm<sup>2</sup> LV ABC.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> </ul>  |
| <b>Tap</b>         | <ul style="list-style-type: none"> <li>• Cable range: 35-95mm<sup>2</sup> nominal LV ABC.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper</li> </ul>  |
| <b>General</b>     | <ul style="list-style-type: none"> <li>• Connector is labelled with:             <ul style="list-style-type: none"> <li>- Main cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Fastenings shall be stainless steel:             <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade -304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding</li> </ul>                              |
| <b>Preferences</b> | <ul style="list-style-type: none"> <li>- A test point for contact to bare metal via probe is desirable</li> <li>- Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>- Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth</li> <li>- Preference will be given to connectors with a removable bird proof end cap for the tap conductor.</li> <li>- Preference will be given to connectors with tap conductor end cap which will offer resistance to bird attack</li> <li>- Preference will be given to connectors with two bolts</li> </ul> |

## 5.1.7 Item 7: Clamp, Insulation Piercing, Connector, IPC, 50/120mm<sup>2</sup> Bare AL Main 35/95mm<sup>2</sup> IPC Tap C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)

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## 5.1.8 Item 8: CONNECTOR, IPC, 95/240mm<sup>2</sup> Bare AL Main, 35/95mm<sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P4)

Connectors to open wire aluminium mains, shall have the following properties:

|                |   |
|----------------|---|
| <b>Main</b>    | <ul style="list-style-type: none"> <li>• Aluminium conductor range: 50-150mm<sup>2</sup> and 95-240mm<sup>2</sup> as applicable.</li> <li>• Non-IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium only without causing damage to the conductor.</li> </ul>  |
| <b>Tap</b>     | <ul style="list-style-type: none"> <li>• Cable range: 35-95mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• End seal to prevent moisture ingress</li> <li>• Preference will be given to connectors with tinned copper insulation piercing teeth</li> <li>• Preference will be given to connectors with a removable bird proof end cap for the tap conductor</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper.</li> </ul>  |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with: <ul style="list-style-type: none"> <li>- Main conductor range and type (ie Aluminium)</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Preference will be given to connectors with two bolts</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Fastenings shall be stainless steel: <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade 304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding</li> </ul> |

## 5.1.9 Item 9: Clamp, Insulation Piecing, Connector, IPC, 7/95mm<sup>2</sup> Bare CU Main, 35/95mm<sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20)

Connectors to open wire copper mains, shall have the following properties:

|             |   |
|-------------|---|
| <b>Main</b> | <ul style="list-style-type: none"> <li>• Copper conductor range: 7-95mm<sup>2</sup>.</li> <li>• Non-IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must be copper only without causing damage to the conductor.</li> </ul> |
| <b>Tap</b>  | <ul style="list-style-type: none"> <li>• Cable range: 35-95mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• End seal to prevent moisture ingress.</li> <li>• Preference will be given to connectors with tinned copper insulation piercing</li> </ul>   |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



|                |  |
|----------------|--|
|                | <ul style="list-style-type: none"> <li>teeth.</li> <li>• Preference will be given to connectors with a removable bird proof end cap for the tap conductor.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing Tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper.</li> </ul>  |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with: <ul style="list-style-type: none"> <li>- Main conductor range and type (ie copper)</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Preference will be given to connectors with two bolts.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Fastenings shall be stainless steel: <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade 304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding.</li> </ul> |

## 5.1.10 Item 10: Clamp, Insulation Piecing, Connector, IPC, 50/95mm<sup>2</sup> Main, 4 x 6 35mm<sup>2</sup> IPC Taps, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10)

Multiple service connectors shall have the following properties:

|                |  |
|----------------|--|
| <b>Main</b>    | <ul style="list-style-type: none"> <li>• Connector capable of mounting directly to 35-95mm<sup>2</sup> LV ABC to AS 3560.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13/17mm across flats) and suits existing tooling - refer Clause 17.</li> </ul>   |
| <b>Tap</b>     | <ul style="list-style-type: none"> <li>• Minimum 4 x tap connectors.</li> <li>• Cable range: 6-35mm<sup>2</sup> nominal LV ABC.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13.0mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium or copper</li> </ul>   |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with: <ul style="list-style-type: none"> <li>- Main cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy</li> </ul> |

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|  |   |
|--|---|
|  | <p>insulation piercing teeth</p> <ul style="list-style-type: none"> <li>• Preference will be given to connectors with two bolts</li> <li>• A test point must be available for contact to bare metal via probe.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Fastenings shall be stainless steel:<br/>Bolts - Grade 316<br/>Nuts - Grade 304</li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding.</li> </ul> |
|--|---|

## 5.1.11 Item 11: Clamp, Insulation Piercing, Connector, IPC, 6/35mm<sup>2</sup> Bi-Metal Main, 4/35mm<sup>2</sup> Non-IPC Tap, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10)

Connectors shall have the following properties:

|   |   |
|---|---|
| <b>Main (Supply Corporation's Side)</b> | <ul style="list-style-type: none"> <li>• Cable range: 6mm<sup>2</sup> to 35mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Bolt coloured "black".</li> <li>• Connector must suit aluminium or copper</li> </ul>   |
| <b>Tap (House Side)</b>                 | <ul style="list-style-type: none"> <li>• Cable range: 4 mm<sup>2</sup> to 35mm<sup>2</sup>.</li> <li>• Non-IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Bolt coloured "grey".</li> <li>• Connector must suit annealed copper.</li> </ul>  |
| <b>General</b>                          | <ul style="list-style-type: none"> <li>• Connector is labelled with :- <ul style="list-style-type: none"> <li>- Main cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- The 2 sides clearly labelled to differentiate between the "supply" and "house" sides</li> <li>- House side cable strip length</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• A test point for contact to bare metal via probe is desirable</li> </ul> |
| <b>Preferences</b>                      | <ul style="list-style-type: none"> <li>- Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>- Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> </ul>  |

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## 5.1.12 Item 12: Clamp, Insulation Piercing, Connector, IPC, Neutral Bonding, 6/35mm<sup>2</sup> Bimetallic Main, 4/35mm<sup>2</sup> Non-IPC Tap, with Integrated 16mm<sup>2</sup> CU Insulated (Fully Ribbed) Earth Lead 800mm L , ETS 01-07-01(scm)

The connector shall have the following properties:

|                |  |
|----------------|--|
| <b>Main</b>    | <ul style="list-style-type: none"> <li>• Cable range: 6-50mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit aluminium and copper.</li> </ul>   |
| <b>Tap</b>     | <ul style="list-style-type: none"> <li>• cable range: 6-35mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Connector must suit copper.</li> </ul>   |
| <b>General</b> | <ul style="list-style-type: none"> <li>• Connector is labelled with :-             <ul style="list-style-type: none"> <li>- Main conductor range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• IPC contacts must be pre-greased.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• IPC supplied with <b>separate</b> earth lead (Fully ribbed XLPE insulated 16mm<sup>2</sup> copper cable). The free length of the cable after insertion into the connector is to be approximately 500 mm long and pre-fitted with a M10 lug sealed to prevent water migration.</li> <li>• All components to be packaged in a sealed plastic bag.</li> <li>• Fastenings shall be stainless steel:             <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade 304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding.</li> </ul> |

## 5.1.13 Item 13: Box, Mains Connection Single Phase Supply Side Cable Range 10mm<sup>2</sup> To 35mm<sup>2</sup> C/W IPC Consumer Side Cable Range 4mm<sup>2</sup> To 35mm<sup>2</sup> NON-IPC, ETS 01-07-01 (scm) (P10)

## 5.1.14 Item 14: Box, Mains Connection Three Phase Supply Side Cable Range 10mm<sup>2</sup> To 35mm<sup>2</sup> Cu/Al C/W IPC Consumer Side Cable Range 4mm<sup>2</sup> To 35mm<sup>2</sup> Cu/Al NON-IPC, ETS 01-07-01 (scm) (P6)

Mains Connection Boxes shall have the following properties:

|   |  |
|---|--|
| <b>Main (Supply Corporation's Side)</b> | <ul style="list-style-type: none"> <li>• Cable range: 6mm<sup>2</sup> to 35mm<sup>2</sup>.</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13mm across flats) and suits existing tooling - refer Clause 17.</li> <li>• Bolt coloured "black".</li> </ul> |
|---|--|



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|                         |   |
|-------------------------|---|
|                         | <ul style="list-style-type: none"> <li>• Connector must suit aluminium and copper.</li> </ul>   |
| <b>Tap (House Side)</b> | <ul style="list-style-type: none"> <li>• Cable range: 4mm<sup>2</sup> to 35mm<sup>2</sup>.</li> <li>• Non-IPC.</li> <li>• Connection must be re-useable and fitted with a shear head for initial installation.</li> <li>• Fixing method suits existing tooling - refer Clause 17.</li> <li>• Bolt coloured "grey".</li> <li>• Connector must suit annealed copper.</li> </ul>   |
| <b>General</b>          | <ul style="list-style-type: none"> <li>• IP 56 minimum rating for box.</li> <li>• IP 66 minimum rating for cable entry.</li> <li>• MCB is labelled with: <ul style="list-style-type: none"> <li>- Main cable range</li> <li>- Tap cable range</li> <li>- Shear head torque</li> <li>- The 2 sides clearly labelled to differentiate between the "supply" and "house" sides</li> <li>- "Active" and "Neutral" positions</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• A test point for contact to bare metal via probe is desirable</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Front cover to lift off horizontally when in the installed position.</li> </ul> |
| <b>Preference</b>       | <ul style="list-style-type: none"> <li>• Connector to be compatible with Item 11.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> </ul>  |

**5.1.15 Item 15: Fuseholder, Base and Carrier, 415V AC, 100 Amp, 6/35mm<sup>2</sup>, Service, ETS 01-07-01 (scm) (P20)**

**5.1.16 Item 16: Fuseholder, Base and Carrier, 415V AC, 160 Amp 6/95mm<sup>2</sup>, Service, IPC Terminals, to suit HRC DIN Size 00 Fuse Links, ETS 01-07-01 (scm) (P24)**

Fuseholder device shall have the following properties:

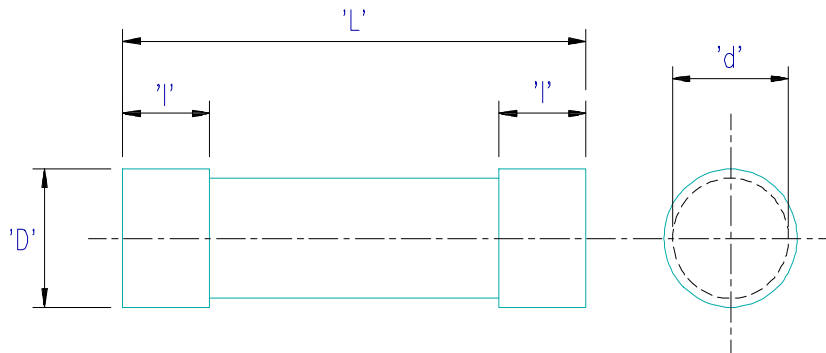
|                   |   |
|-------------------|---|
| <b>Connectors</b> | <ul style="list-style-type: none"> <li>• Minimum cable range: 6-35mm<sup>2</sup> or 35-95mm<sup>2</sup> as applicable (Aluminium or Copper).</li> <li>• IPC.</li> <li>• Shear head and non-shear head.</li> <li>• Bolt has hexagonal head (13 mm across flats 100A disconnecter- 13/17mm across flats 160A disconnecter ) and suits existing tooling - refer Clause 17.</li> <li>• Must be bi-metallic.</li> <li>• Preference will be given to items with a conductor weather shield which does not require alteration to suit the complete conductor range.</li> <li>• Preference will be given to connectors with tinned copper / copper alloy insulation piercing teeth.</li> <li>• Preference will be given to connectors with a shear head having a yellow indicator that remains in place until the shear head is correctly sheared and visible from ground level.</li> <li>• Top orientation of connector bolts to prevent contact with live parts.</li> <li>• Connector bolt heads to be insulated from conductor.</li> </ul> |
|-------------------|---|

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|                       |  |
|-----------------------|--|
| <p><b>General</b></p> | <ul style="list-style-type: none"> <li>• Fuse switch disconnecter is labelled with:             <ul style="list-style-type: none"> <li>- Cable range</li> <li>- Shear head torque</li> <li>- Maximum fuse rating</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> <li>• Electrical contacts must be pre-greased.</li> <li>• Non-metallic material shall be UV stable.</li> <li>• Capable of attachment to:-             <ul style="list-style-type: none"> <li>- Pole;</li> <li>- Service bracket detailed in drawing 865737-01.</li> </ul> </li> <li>• Base of the 100A fuse carrier to be UV stabilised and of a lighter colour to the housing in order to assist with location at night.</li> <li>• The base of the 160A fuse carrier, together with the hinges, is to be UV stabilised (Black), with a reflective finish to assist in location at night.</li> <li>• The base of the fuse carrier to incorporate a two digit house numbering system. The details to be provided in the tender.</li> <li>• Supplied complete with bolt for mounting to service bracket.</li> <li>• Fastenings shall be stainless steel:             <ul style="list-style-type: none"> <li>Bolts - Grade 316</li> <li>Nuts - Grade 304</li> </ul> </li> <li>• Stainless steel bolts and nuts if provided shall be suitably greased to prevent binding</li> <li>• For Item 15 the fuse must be able to be removed and installed from the ground with the use of a "pig tail" operating stick as shown below:</li> </ul> <div data-bbox="550 1115 1120 1473" data-label="Diagram"> </div> <ul style="list-style-type: none"> <li>• For Item 16 the fuse carrier must be able to be opened, removed and closed from the ground with the use of a "hook stick"</li> <li>• Item 15 -The fuse / disconnect unit 100A shall provide for cartridge fuses as detailed below.</li> </ul> |
|                       | <ul style="list-style-type: none"> <li>• Item 16 - The fuse disconnect unit 160A shall provide for fuse link 160A DIN size 00, and a minium power loss of 12 Watts.</li> </ul>   |

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| FUSE LINKS (20 to 100A) |              |                   |                     | FUSE HOLDER    |
|-------------------------|--------------|-------------------|---------------------|----------------|
| Minium Power Loss       | Length       | Length of end cap | Diameter of end cap | Current Rating |
| (watts)                 | (L)          | (l)               | (D)                 | (amps)         |
| 9.0                     | $57 \pm 1.0$ | $16 \pm 0.5$      | $22.2 \pm 0.1$      | 100            |

**Note:** The Tenderers are requested to comment on the maximum power dissipation (watt loss) of the fuse links that the items tendered can accommodate safely in the service environment.

## 5.1.17 Item 17: Strain Clamp “Bolted Type” for 4 core 25mm<sup>2</sup> insulated cable

Strain clamps shall have the following properties:

|                |  |
|----------------|--|
| <b>General</b> | <ul style="list-style-type: none"> <li>• Suit 25mm<sup>2</sup> LV ABC.</li> <li>• Suit 4 core cables.</li> <li>• Minimum failing load of 2.5kN.</li> <li>• Working load of 1Kn.</li> <li>• "Bolted" type clamp.</li> <li>• Material in direct contact with the cable, shall be non-conducting.</li> <li>• All non-metallic materials shall be UV stabilised.</li> <li>• All metallic fittings, except those made of stainless steel, shall be hot dip galvanized. A minimum stainless steel grade 304 is required for stainless steel fittings</li> <li>• Capability of attaching to a 'J' hook (Closed Eye)</li> <li>• Fittings must be easy to apply from a pole top.</li> <li>• Cables should not require untwisting for the strain clamp to be applied.</li> <li>• Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.</li> <li>• One clamp to suit 25mm<sup>2</sup> 4 core LV XLPE insulated cable.</li> <li>• Clamp labelled with:             <ul style="list-style-type: none"> <li>- Cable range</li> <li>- Ultimate load</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar</li> </ul> </li> </ul> |
|----------------|--|

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## 5.1.18 Item 18: Strain Clamp “Bolted Type” for 2 core 25mm<sup>2</sup> insulated cable

Strain clamps shall have the following properties:

|                |  |
|----------------|--|
| <b>General</b> | <ul style="list-style-type: none"> <li>• Suit 25mm<sup>2</sup> LV ABC.</li> <li>• Suit 2 core cables.</li> <li>• Minimum failing load of 2.5kN</li> <li>• Working load of 1kN</li> <li>• "Bolted" type clamp.</li> <li>• Material in direct contact with the cable, shall be non-conducting.</li> <li>• All non-metallic materials shall be UV stabilised.</li> <li>• All metallic fittings, except those made of stainless steel, shall be hot dip galvanized. A minimum stainless steel grade 304 is required for stainless steel fittings</li> <li>• Capability of attaching to a 'J' hook (Closed Eye)</li> <li>• Fittings must be easy to apply from a pole top.</li> <li>• Cables should not require untwisting for the strain clamp to be applied.</li> <li>• Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.</li> <li>• One clamp to suit 25mm<sup>2</sup> 2 core LV XLPE insulated cable.</li> <li>• Clamp labelled with :-             <ul style="list-style-type: none"> <li><input type="checkbox"/> cable range</li> <li><input type="checkbox"/> Ultimate load</li> <li><input type="checkbox"/> Manufacturer's identification.</li> <li><input type="checkbox"/> Manufacturer's Batch identification or similar</li> </ul> </li> </ul> |
|----------------|--|

## 5.1.19 Item 19: Sleeve, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)

## 5.1.20 Item 20: Sleeve, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)

## 5.1.21 Item 21: Sleeve, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)

## 5.1.22 Item 22: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)

The compression sleeves shall have the following properties.

- |   |
|---|
| <ul style="list-style-type: none"> <li>• Suitable for 25mm<sup>2</sup> LV ABC cable.</li> <li>• Compression type.</li> <li>• Fully insulated.</li> <li>• Pre-fitted with 225mm of single ribbed or fully ribbed insulated copper cable tails with cross sectional area 10mm<sup>2</sup> or 16mm<sup>2</sup> as applicable.</li> <li>• Suit 14.0mm across flat (A/F) die size.</li> <li>• Sleeve is labelled with:             <ul style="list-style-type: none"> <li>- Main cable size</li> <li>- Tail cable size</li> <li>- Die size</li> <li>- Cable stripping length.</li> <li>- Number, location and sequence of compressions.</li> <li>- Manufacturer's identification.</li> <li>- Manufacturer's Batch identification or similar.</li> </ul> </li> <li>• Must be pre-greased.</li> <li>• End seals provided for water proofing of cable entry.</li> </ul> |
|---|

# Technical Specification for LV and XLPE Cable Equipment and Fittings

**5.1.23 Item 23: SLEEVE, Compression, NT, ABC, 25mm<sup>2</sup>, Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P100)**

**5.1.24 Item 24: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> to 16mm<sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)**

**5.1.25 Item 25: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> to 10mm<sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)**

**5.1.26 Item 26: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> to 6mm<sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)**

The compression sleeves shall have the following properties.

- Suitable for connecting 25mm<sup>2</sup> LV ABC mains to 25mm<sup>2</sup> Aluminium / copper or 6 to 16mm<sup>2</sup> copper cables.
- Compression type.
- Fully insulated.
- Suit 14.0mm across flat (A/F) die size.
- Sleeve is labelled with:
  - Main cable size
  - Tap cable size and type (Cu or Al)
  - Die size
  - Cable stripping length
  - Number, location and sequence of compressions.
  - Manufacturer's identification.
  - Manufacturer's Batch identification or similar
- Must be pre-greased.
- End seals provided for water proofing of cable entry.

**5.1.27 Item 27: Sleeve, Compression, FT, ABC, 95mm<sup>2</sup>, Hex Die A/F 21.5mm, ETS 01-07-01 (scm) (P10)**

**5.1.28 Item 28: Sleeve, Compression, FT, 50mm<sup>2</sup> ABC, Hex Die A/F 17.3mm, ETS 01-07-01 (scm) (P50)**

**5.1.29 Item 29: Pre-insulated full tension compression sleeve**

**5.1.30 25-25mm<sup>2</sup> LV ABC (17.3 A/F die).**

The compression sleeves shall have the following properties.

- Suitable for connecting nominated LV ABC mains.
- Compression type
- Fully insulated.
- Rated for full tension of nominated cable size.
- Suit across flat (A/F) die sizes nominated
- Sleeve is labelled with:
  - Cable size
  - Die size
  - Cable stripping length
  - Number, location and sequence of compressions.
  - Manufacturer's identification.
  - Manufacturer's Batch identification or similar
- Must be pre-greased.
- End seals provided for water proofing of cable entry.

# Technical Specification for LV and XLPE Cable Equipment and Fittings

**5.1.31 Item 30: LUG, Compression, Bi-Metal, 95mm<sup>2</sup> (ABC), Cu Palm, M12 Bolt Hole, Hex Die A/F 21.5mm, ETS 01-07-01 (scm)(P10)**

**5.1.32 Item 31: LUG, Compression, Bi-Metal, 50mm<sup>2</sup>, Cu Palm, M12 Bolt Hole, Hex Die A/F 17.3mm, ABC (scm)(P10)**

**5.1.33 Item 32: LUG, Compression, Bi-Metal, 25mm<sup>2</sup>, Cu Palm, M12 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm) (P10)**

**5.1.34 Item 33: LUG, Compression, Bi-Metal, 25mm<sup>2</sup>, Cu Palm, M10 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm)(P10)**

The pre-insulated compression lugs shall have the following properties.

- Suitable for terminating nominated LV ABC mains
- Compression type
- Fully insulated.
- Suit across flat (A/F) die sizes nominated
- Item is labelled with:
  - Cable size
  - Die size
  - Cable stripping length
  - Number, location and sequence of compressions.
  - Manufacturer's identification.
  - Manufacturer's Batch identification or similar
- Must be pre-greased.
- End seal provided for water proofing of cable entry.
- Preference will be given to lugs with a seal at the palm end to prevent ingress of moisture between the insulation and the metal barrel. Details of sealing to be provided in the tender submission.
- Provided with copper terminal palm.
- Palm holes dimensions as nominated.

**5.1.35 Item 34: CAP, Protective, Dust and Moisture Seal End Cap, Suit 25mm<sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P200)**

**5.1.36 Item 35: CAP, Protective, Dust and Moisture Seal End Cap, Suit 50mm<sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100)**

**5.1.37 Item 36: CAP, Protective, Dust and Moisture Seal End Cap, Suit 95mm<sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100)**

- Suitable for water proofing the ends of LV ABC mains
- Push on type
- Fully insulated.
- Item is labelled with:
  - Cable size
  - Manufacturer's identification.
  - Manufacturer's Batch identification or similar
- Must be pre-greased.

# Technical Specification for LV and XLPE Cable Equipment and Fittings

5.1.38 Item 37: **CLAMP, Suspension ABC, 4 x 95mm<sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)**

5.1.39 Item 38: **CLAMP, Suspension, ABC, 2 x 50mm<sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)**

5.1.40 Item 39: **CLAMP, Suspension, ABC, 2 x 95mm<sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)**

5.1.41 Item 40: **CLAMP, Suspension, ABC, 4 x 95mm<sup>2</sup> Galv For Bridging C/W Insulating Insert, ETS 01-07-01 (scm) (P30)**

- cable range: 50mm<sup>2</sup> or 95mm<sup>2</sup>, 2 and 4 core as applicable
- Suitable for mounting on Hook Bolt.
- Material in direct contact with the cable shall be non-conducting.
- All non-metallic materials shall be UV stabilised.
- All metallic fittings shall be protected against corrosion. A minimum stainless steel grade 304, or aluminium alloy, is required.
- Fittings must be easy to apply from a pole top.
- Items 37, 38 and 39 to be suitable for use with Item 41 Roller bracket
- Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.
- Clamp labelled with:
  - Cable range
  - Ultimate load.
  - Manufacturer's identification.
  - Manufacturer's Batch identification or similar.
- Manufacturer's identification

5.1.42 Item 41: **Roller Bracket, for use with ABC Suspension Clamps, ETS 01-07-01 (scm)**

5.1.43 Item 42: **Yoke Bar, 300 mm for use with ABC Suspension Clamps, ETS 01-07-01 (scm) (P10)**

- Roller bracket suitable for use with items 37, 38 and 39.
- Suitable for mounting on Hook Bolt.
- Yoke bar to have 300mm spacing between attachment points.
- Material in direct contact with the cable shall be non-conducting.
- All non-metallic materials shall be UV stabilised.
- All metallic fittings shall be protected against corrosion. A minimum stainless steel grade 304, or aluminium alloy, is required.
- Fittings must be easy to apply from a pole top.
- Capability of being fitted to the cable without disassembly. All parts shall be captive during fitting to the cable.
- Bracket labelled with:
  - Cable range
  - Ultimate load.
  - Manufacturer's identification
  - Manufacturer's Batch identification or similar.

## 6. Technical Characteristics

The specified requirements with respect to dimensions, electrical and mechanical characteristics of the fittings, are summarised in **Attachment 1**.

## 7. Performance and Testing

### 7.1 Type Testing

7.1.1 Type test certificates are to be submitted for ALL items Tendered.

#### 7.1.2 Items #1 and #2 (Terminations)

Terminations shall be type tested in accordance with the requirements of AS 3766, or as detailed in Clause 5.2, using cables that meet the minimum requirements of adhesion for an X-90 cable to AS 3560.

#### 7.1.3 Items #3 to #12 inclusive (Connectors)

Insulation piercing connectors shall be type tested in accordance with the requirements of AS 4396 using cables listed in Clause 5.1 of this specification.

#### 7.1.4 Items #15 and #16 (Fuse/disconnect devices)

The fuse / disconnect devices shall be type tested in accordance with the requirements of Supplement 1 of AS/NZS 3947.3.

For fuse disconnectors where the design could lead to surface tracking in polluted environments, manufacturers shall provide evidence of testing undertaken on the fuse disconnector in a polluted environment to demonstrate that no damage to the fuse disconnectors is sustained. Where this type of testing is deemed necessary it shall be in the form of a one (1) week test in a salt fog environment with a voltage of 600 V a.c. connected on a three (3) phase assembly mounted on a metallic support bracket which shall be earthed.

The type test shall include the temperature rise tests using the fuse links nominated in Clause 5.13 and cables nominated in Clause 5.1 of this specification. The cable combinations shall include:

##### (A) LV fuse switch disconnector 100A: (Item #15)

- 25mm<sup>2</sup> Al XLPE-16mm<sup>2</sup> Cu PVC Annealed
- 25mm<sup>2</sup> Al HDPE-25mm<sup>2</sup> Al HDPE
- 25mm<sup>2</sup> Al XLPE-25mm<sup>2</sup> Al XLPE
- 16mm<sup>2</sup> Cu PVC-16mm<sup>2</sup> CU PVC
- 10mm<sup>2</sup> Cu PVC-10mm<sup>2</sup> CU PVC

##### (B) LV fuse switch disconnector 160A: (Item #16)

- 95mm<sup>2</sup> Al XLPE-95mm<sup>2</sup> Al XLPE
- 50mm<sup>2</sup> Al XLPE-50mm<sup>2</sup> Al XLPE
- 25mm<sup>2</sup> Cu PVC-25mm<sup>2</sup> CU PVC
- 35mm<sup>2</sup> Cu PVC-35mm<sup>2</sup> CU PVC
- 50mm<sup>2</sup> Cu PVC-50mm<sup>2</sup> CU PVC
- 16mm<sup>2</sup> Cu PVC-16mm<sup>2</sup> CU PVC Annealed

#### 7.1.5 Items 19 to 33 (Compression sleeves and lugs)

These items shall be type tested in accordance with the requirements of AS 3766 using cables listed in Clause 5.1 of this specification as appropriate. Holding strength tests are required to be carried out on the full tension compression sleeves only.



# Technical Specification for LV and XLPE Cable Equipment and Fittings

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## 7.2 Sample Tests

- 7.2.1 All items shall be sample tested in accordance with the requirements of AS 3766, AS 3947.3 or AS 4396 as applicable.
- 7.2.2 Sample test certificates shall be supplied with each delivery of fittings (ie. not by separate mail) and the lot numbers shall be marked on the sample test certificate and the packaging of the lot delivered.

## 8. Risk Assessment

### 8.1 Compliance

The Tenderer warrants (without limiting any other warranties or conditions implied by law) that all Goods have been produced, sold and delivered to the Principal in compliance with all applicable laws (including all workplace health and safety and electrical safety legislation, codes of conduct and the Principal's Workplace Health & Safety and Electrical Safety Conditions)

### 8.2 Formal Risk Assessment

Items Tendered shall have been subjected to a formal risk assessment prior to acceptance. It is preferred that Tenderers perform the risk assessment of the equipment Tendered, and provide the resultant documentation with their Tender. Where risk assessment documentation is not provided, submissions may be deemed incomplete and not included in the Tender evaluation process.

### 8.3 AS/NZS 4360 Risk Management

Any documented risk assessment, which accompanies the Tender, must meet the requirements of AS/NZS 4360 Risk Management as a minimum standard. It is preferred that the risk assessment methodology uses an energy model to identify hazards.

### 8.4 Hazards

The risk assessment(s) must identify hazards to the corporation personnel, public and property associated with:

- The installation of the equipment;
- The operation and maintenance of the equipment during life expectancy; and
- Dismantling/disposal of equipment at end of life.

### 8.5 Risk Assessment Schedule

The 'Risk Assessment' schedule included with this specification is to be completed by the Tenderer. Note the schedule contains a generic set of questions designed to cover the entire purchaser's plant and materials and the Tenderer is only required to complete those items applicable to the product Tendered.

## 9. Quality Assurance

### 9.1 Purchasers Policy

It is the Purchaser's policy to procure goods, equipment and services from sources that demonstrate the ability to supply quality products.

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 9.2 Documentary Evidence

Documentary evidence shall be provided concerning the level of quality system certification associated with the supplier and/or manufacturer. This documentation shall include the Capability Statement associated with the Quality System Certification.

## 9.3 Quality Certification Program

Tenderers shall provide details of their program to upgrade their Quality Certification to meet the requirements of ISO 9001.

## 10. Samples

### 10.1 Production Samples

The Tenderer must submit, when requested, one (1) production sample of each item Tendered to assist in the evaluation of the Tender. Samples shall be delivered to the address nominated within five (5) working days of the request. The Tenderer shall allow the cost of supply and delivery of samples in the Tendered prices.

The requirement for samples may be waived for the following conditions.

- a) The Tendered item is currently under contract or has previously been supplied to Ergon Energy under contract and there have been no changes to the design or material.
- b) The Tendered items have been supplied to Ergon Energy for approval prior to this Tender and there have been no changes to the design or material.

### 10.2 Sample Delivery

Each sample shall be delivered freight free, suitably packaged and labelled with the following information:

|   |
|---|
| <b>Name of Supplier and this Contract No.</b>             |
| <b>Contract Item Numbers</b>                              |
| <b>Any supporting data on features or characteristics</b> |

## 11. Packaging and Marking

### 11.1 General

Each packaged lot shall be marked with the following information:

|  |
|--|
| <b>Manufacturers Name</b>                      |
| <b>Order Number</b>                            |
| <b>Contract No.</b>                            |
| <b>Item Description &amp; Ergon stock code</b> |
| <b>Pack Size</b>                               |
| <b>Pack Weight</b>                             |

Installation instructions will be included in the packaging of each item.

# Technical Specification for LV and XLPE Cable Equipment and Fittings

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## 12. Service Performance

Suppliers shall state:

- (a) the period of service achieved by the items Tendered within Australian service conditions;
- (b) Australian electricity supply authorities who have a service history of the items Tendered; AND
- (c) Contact names and phone numbers of relevant employees of those supply authorities who can verify the service performance claimed.

## 13. Reliability

### 13.1 Service Life

Suppliers are required to comment on the reliability of the equipment and the performance of the materials Tendered for a service life of 25 years under the specified systems and environmental conditions. Tenderers shall also comment on the compatibility of the equipment Tendered with HDPE insulated aluminium ABC, XLPE insulated copper cables and PVC insulated copper cables.

### 13.2 Evidence in Support of Reliability

Such comments shall include evidence in support of the reliability and performance claimed including information on Failure Mode and Effect Analysis.

## 14. Training

### 14.1 Training Material

Training material in the form of drawings, instructions and/or audio visuals (in CD format) are required to be provided for the items accepted under the tender. The Tenderers shall allow the cost of production and delivery of training material in the tendered prices.

### 14.2 Training Topics

The training materials should include but not be limited to the following topics:

- Handling
- Storage
- Application (particularly in areas of heavy coastal pollution)
- Installation
- Maintenance
- Environmental performance
- Electrical performance
- Mechanical performance
- Disposal

### 14.3 Training Audio Visuals

The successful Tenderer is required to provide training audio visuals for the Purchaser's staff/contractors in the correct use of all items to be supplied under the contract. Training audio visuals are to be supplied BEFORE the 1st deliveries are made under the contract.

# Technical Specification for LV and XLPE Cable Equipment and Fittings

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The format and content of the audio visuals will be subject to negotiation between the Purchaser and the successful tenderer concerned. It is expected that as a minimum, the audio visuals will detail the correct installation practice for all items covered by the contract.

The number of audio visuals required, in CD format, is thirty (30). Permission shall be given to the Purchaser to make additional copies if required.

In the production of the audio visuals, the Purchaser will make available suitable staff and equipment to demonstrate the recommended installation techniques.

## 15. Environmental Considerations

Suppliers are required to comment on the environmental soundness of the design and the materials used in the manufacture of the items Tendered. In particular, comments should address such issues as recycling and disposal at the end of service life.

## 16. Information to be Provided

### 16.1 Specific Technical Requirements

The specific technical requirements for the items Tendered shall be as stated in **Attachment 1** of this specification. The supplier shall provide all details requested by **Attachment 1** and shall guarantee such data.

### 16.2 Checklist of Supporting Documentation

**Attachment 2** details a checklist for the Risk Assessment information which is required to be submitted with the Tender.

**Attachment 3** details a checklist of supporting technical documentation which is required to be submitted with the Tender.

## 17. Tools and Equipment

The following is a schedule of tools which trucks are currently fitted with or which tradespeople carry:

- Small hand-held ratchets with 13 & 17mm sockets
- Hauling lines
- Torque wrench (10-50Nm)
- Pig tail/link stick
- "Bandit" tool
- Wood drills (10mm, 14mm, 18mm and 22mm)
- General trades person's tools (screwdrivers, knives, pliers etc.)

**NOTE:** All equipment to be fitted to timber poles must be able to be installed using both the ratchet spanners specified AND power tools.

A list of all tools required for the installation of the items Tendered is to be provided. The evaluation of Tenders will take into account the requirement for any tools additional to those in the schedule above.

## 18. Field Trial

Every item of equipment not previously supplied to or approved by Ergon Energy for inclusion in the low voltage system may, at the discretion of Ergon Energy, be subject to a comprehensive and successful field trial.

Adequate samples will be required so that Ergon Energy may undertake trials at several depots. Modifications will be required to adjust equipment based on feed back from the trials. A final set of trials will be undertaken with fully type tested, full production, versions of the equipment.

Trial items will be purchased at the Tender price. All costs associated with the modifications to meet the reasonable requirements of this specification shall be borne by the Tenderer.

## 19. Phasing in of New Equipment

Equipment not previously purchased or approved for use on the low voltage insulated system will not be phased in directly at the end of the field trials, but be subject to the following conditions being met prior to adoption.

- a) Demonstration of the capability to produce the full production models of the items required at a production capacity able to meet the needs of Ergon Energy.
- b) The successful Tenderer will also be required to have, in their store, a minimum buffer stock of each item as agreed with Ergon Energy.

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 20. Attachment 1 – Technical Details

| Item 1:<br>TERMINATION, ABC, 25mm <sup>2</sup> , 2 3 or 4 Core, 2.5kN<br>Failing Load, ETS 01-07-01 (scm) (P50) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Aluminium conductor size - LV ABC (mm <sup>2</sup> )  | 25                       |                     |
| Copper conductor size - insulated (mm <sup>2</sup> )  | 6                        |                     |
| Number of cores - Aluminium   | 2, 3 and 4               |                     |
| Number of cores - Copper  | 2                        |                     |
| Minimum failing load (kN)   | 2.5                      |                     |
| Working load (kN)   | 1                        |                     |
| Are clamps of a "wedge" design? (yes/no)  | Yes                      |                     |
| Is material that is in contact with cable, non-metallic? (yes/no)   | Yes                      |                     |
| Are non-metallic materials UV stabilised? (yes/no)  | Yes                      |                     |
| Type of corrosion protection of metallic fittings<br>(Grade of Stainless Steel)                                 |                          |                     |
| Can clamp be readily attached to 'J' hook & eyebolt? (yes/no)   | Yes                      |                     |
| Do cables require to be untwisted in order to apply strain clamp? (yes/no)                                      |                          |                     |
| Are clamps marked in accordance with Clause 5.1? (yes/no)   |                          |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 2:<br>TERMINATION, ABC, 50/95mm <sup>2</sup> , 2 or 4 Core, ETS 01-07-01 (scm) (P10) | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Manufacturer's Name and Address   |                       |                  |
| Country of Manufacture  |                       |                  |
| Manufacturer's Catalogue No.  |                       |                  |
| Manufacturer's Drawing No.  |                       |                  |
| Type Test Certificate No.   |                       |                  |
| Aluminium conductor range (mm <sup>2</sup> )  | 50-95                 |                  |
| Number of cores   | 2-4                   |                  |
| Minimum failing load : 4x95 LV ABC<br>4x50 LV ABC (kN)                                    | 45.0<br>23.8          |                  |
| Safe Working Load 4x95 LV ABC<br>4x50 LV ABC (kN)   | 14.9<br>5.0           |                  |
| Are clamps of a "bolted" design? (yes/no)   | Yes                   |                  |
| Is material that is in contact with cable, non-metallic? (yes/no)                         | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)  | Yes                   |                  |
| Type of corrosion protection of metallic fittings<br>(Grade of Stainless Steel)           |                       |                  |
| Can clamp be readily attached to an M20 eyebolt?(yes/no)                                  | Yes                   |                  |
| Do cables require to be untwisted in order to apply strain clamp? (yes/no)                |                       |                  |
| Are clamps marked in accordance with Clause 5.1? (yes/no)                                 |                       |                  |
| Pack Size   |                       |                  |
| Pack Weight (kg)  |                       |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 3:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>5/19mm Dia Bare AL Main, 6/35mm <sup>2</sup> IPC Tap, C/W<br>Stainless Steel Fasteners, ETS 01-07-01 (scm) (P12) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Mains conductor range (mm <sup>2</sup> )  | 5-19                     |                     |
| Is main bolt non-IPC? (yes/no)  | Yes                      |                     |
| Does main bolt have shear head + non-shear head? (yes/no)   | Yes                      |                     |
| <b>Main bolt:</b>   |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13                       |                     |
| Does main connector suit aluminium? (yes/no)  | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )  | 6-35                     |                     |
| Is tap bolt IPC? (yes/no)   | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                      |                     |
| <b>Tap bolt:</b>  |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13                       |                     |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                      |                     |
| Number of tap-offs:   | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1? (yes/no)   | Yes                      |                     |
| Are contacts pre-greased? (yes/no)  | Yes                      |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_



# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 4:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>3/14mm Dia Bare CU Main, 6/35mm <sup>2</sup> IPC Tap, C/W<br>Stainless Steel Fasteners, ETS 01-07-01(scm) (P12) | Specified<br>Requirement | Guaranteed<br>Value |
|--|--------------------------|---------------------|
| Manufacturer's Name and Address  |                          |                     |
| Country of Manufacture   |                          |                     |
| Manufacturer's Catalogue No.   |                          |                     |
| Manufacturer's Drawing No.   |                          |                     |
| Type Test Certificate No.  |                          |                     |
| Mains conductor diameter range (mm)  | 3–14                     |                     |
| Is main bolt non-IPC? (yes/no)   | Yes                      |                     |
| Does main bolt have shear head + non-shear head? (yes/no)  | Yes                      |                     |
| <b>Main bolt:</b>  |                          |                     |
| <input type="checkbox"/> Material  |                          |                     |
| <input type="checkbox"/> Size  |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)   | 13                       |                     |
| Does main connector suit copper? (yes/no)  | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )   | 6-35                     |                     |
| Is tap bolt IPC? (yes/no)  | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)  | Yes                      |                     |
| <b>Tap bolt:</b>   |                          |                     |
| <input type="checkbox"/> Material  |                          |                     |
| <input type="checkbox"/> Size  |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)   | 13                       |                     |
| Does the tap connector suit Al and Cu? (yes/no)  | Yes                      |                     |
| Number of tap-offs:  | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1? (yes/no)  | Yes                      |                     |
| Are contacts pre-greased? (yes/no)   | Yes                      |                     |
| Pack Size  |                          |                     |
| Pack Weight (kg)   |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 5:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>25/95mm <sup>2</sup> Main, 6/35mm <sup>2</sup> Tap, C/W Stainless Steel<br>Fasteners, ETS 01-07-01 (scm) (P12) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Mains conductor range (mm <sup>2</sup> )  | 35-95                    |                     |
| Is main bolt IPC? (yes/no)  | Yes                      |                     |
| Does main bolt have shear head + non-shear head?<br>(yes/no)  | Yes                      |                     |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)                       | 13/17                    |                     |
| Is main connector bi-metallic? (yes/no)   | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )  | 6-35                     |                     |
| Is tap bolt IPC? (yes/no)   | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                      |                     |
| <b>Tap bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)                        | 13/17                    |                     |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                      |                     |
| Number of tap-offs:   | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1?<br>(yes/no)  | Yes                      |                     |
| Are contacts pre-greased? (yes/no)  | Yes                      |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

SIGNATURE OF TENDERER: \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 6:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>35/95mm <sup>2</sup> Main, 35/95mm <sup>2</sup> Tap, C/W Stainless Steel<br>Fasteners, ETS 01-07-01 (scm) (P20) | Specified<br>Requirement | Guaranteed<br>Value |
|--|--------------------------|---------------------|
| Manufacturer's Name and Address  |                          |                     |
| Country of Manufacture   |                          |                     |
| Manufacturer's Catalogue No.   |                          |                     |
| Manufacturer's Drawing No.   |                          |                     |
| Type Test Certificate No.  |                          |                     |
| Mains conductor diameter range (mm <sup>2</sup> )  | 35-95                    |                     |
| Is main bolt IPC? (yes/no)   | Yes                      |                     |
| Does main bolt have shear head + non-shear head?<br>(yes/no)   | Yes                      |                     |
| <b>Main bolt:</b>  |                          |                     |
| <input type="checkbox"/> Material  |                          |                     |
| <input type="checkbox"/> Size  |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)   | 13/17                    |                     |
| Is main connector bi-metallic? (yes/no)  | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )   | 35-95                    |                     |
| Is tap bolt IPC? (yes/no)  | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)  | Yes                      |                     |
| <b>Tap bolt:</b>   |                          |                     |
| <input type="checkbox"/> Material  |                          |                     |
| <input type="checkbox"/> Size  |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)   | 13/17                    |                     |
| Does the tap connector suit Al and Cu? (yes/no)  | yes                      |                     |
| Number of tap-offs:  | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1?<br>(yes/no)   | Yes                      |                     |
| Are contacts pre-greased? (yes/no)   | Yes                      |                     |
| Pack Size  |                          |                     |
| Pack Weight (kg)   |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 7:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>50/120mm <sup>2</sup> Bare AL Main 35/95mm <sup>2</sup> IPC Tap C/W<br>Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Mains conductor range (mm <sup>2</sup> )  | 50-150                   |                     |
| Is main bolt IPC? (yes/no)  | No                       |                     |
| Does main bolt have shear head + non-shear head?<br>(yes/no)  | Yes                      |                     |
| <b>Main bolt:</b>   |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13/17                    |                     |
| Does the main connector suit aluminium? (yes/no)  | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )  | 35-95                    |                     |
| Is tap bolt IPC? (yes/no)   | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                      |                     |
| <b>Tap bolt:</b>  |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13/17                    |                     |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                      |                     |
| Number of tap-offs:   | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1?<br>(yes/no)  | Yes                      |                     |
| Are contacts pre-greased? (yes/no)  | Yes                      |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 8:<br>CONNECTOR, IPC, 95/240mm <sup>2</sup> Bare AL Main,<br>35/95mm <sup>2</sup> IPC Tap, C/W Stainless Steel Fasteners,<br>ETS 01-07-01 (scm) (P4) | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Manufacturer's Name and Address   |                       |                  |
| Country of Manufacture  |                       |                  |
| Manufacturer's Catalogue No.  |                       |                  |
| Manufacturer's Drawing No.  |                       |                  |
| Type Test Certificate No.   |                       |                  |
| Mains conductor range (mm <sup>2</sup> )  | 95-240                |                  |
| Is main bolt IPC? (yes/no)  | No                    |                  |
| Does main bolt have shear head + non-shear head? (yes/no)   | Yes                   |                  |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)         | 13/17                 |                  |
| Does the main connector suit aluminium? (yes/no)  | Yes                   |                  |
| Tap cable range (mm <sup>2</sup> )  | 35-95                 |                  |
| Is tap bolt IPC? (yes/no)   | Yes                   |                  |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                   |                  |
| <b>Tap bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)          | 13/17                 |                  |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                   |                  |
| Number of tap-offs:   | 1                     |                  |
| Are connectors marked in accordance with Clause 5.1? (yes/no)   | Yes                   |                  |
| Are contacts pre-greased? (yes/no)  | Yes                   |                  |
| Pack Size   |                       |                  |
| Pack Weight (kg)  |                       |                  |

SIGNATURE OF TENDERER: \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 9:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>7/95mm <sup>2</sup> Bare CU Main, 35/95mm <sup>2</sup> IPC Tap, C/W<br>Stainless Steel Fasteners, ETS 01-07-01 (scm) (P20) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Mains conductor diameter range (mm <sup>2</sup> )   | 7-95                     |                     |
| Is main bolt IPC? (yes/no)  | No                       |                     |
| Does main bolt have shear head + non-shear head?<br>(yes/no)  | Yes                      |                     |
| <b>Main bolt:</b>   |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13/17                    |                     |
| Does the main connector suit copper? (yes/no)   | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )  | 35-95                    |                     |
| Is tap bolt IPC? (yes/no)   | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                      |                     |
| <b>Tap bolt:</b>  |                          |                     |
| <input type="checkbox"/> Material   |                          |                     |
| <input type="checkbox"/> Size   |                          |                     |
| <input type="checkbox"/> Across flats measurement (mm)  | 13/17                    |                     |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                      |                     |
| Number of tap-offs:   | 1                        |                     |
| Are connectors marked in accordance with Clause 5.1?<br>(yes/no)  | Yes                      |                     |
| Are contacts pre-greased? (yes/no)  | Yes                      |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 10: CLAMP, INSULATION PIECING, Connector, IPC, 50/95mm <sup>2</sup> Main, 4 x 6 35mm <sup>2</sup> IPC Taps, C/W Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10) | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Main cable range (mm <sup>2</sup> )  | 35-95                 |                  |
| Is main connector IPC? (yes/no)  | Yes                   |                  |
| Does main connector have shear head + non-shear head? (yes/no)   | Yes                   |                  |
| <b>Main bolt:</b>  |                       |                  |
| <input type="checkbox"/> Material  |                       |                  |
| <input type="checkbox"/> Size  |                       |                  |
| <input type="checkbox"/> Across flats measurement (mm)   | 13/17                 |                  |
| Number of tap connectors   | 4 (minimum)           |                  |
| Tap cable range (mm <sup>2</sup> )   | 6 - 35                |                  |
| Is tap connector IPC? (yes/no)   | Yes                   |                  |
| Does tap bolt have shear head + non-shear head? (yes/no)   | Yes                   |                  |
| <b>Tap bolt:</b>   |                       |                  |
| <input type="checkbox"/> Material  |                       |                  |
| <input type="checkbox"/> Size  |                       |                  |
| <input type="checkbox"/> Across flats measurement (mm)   | 13                    |                  |
| Does the tap connector suit Al and Cu? (yes/no)  | Yes                   |                  |
| Is connector marked in accordance with Clause 5.1? (yes/no)  | Yes                   |                  |
| Are contacts pre-greased? (yes/no)   | Yes                   |                  |
| Can testing be carried out without disconnection? (yes/no)   | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)   | Yes                   |                  |
| Type of corrosion protection for metallic fittings   |                       |                  |
| Pack Size  |                       |                  |
| Pack Weight (kg)   |                       |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Items 11:<br>CLAMP, INSULATION PIECING, Connector, IPC,<br>6/35mm <sup>2</sup> Bi-Metal Main, 4/35mm <sup>2</sup> Non-IPC Tap, C/W<br>Stainless Steel Fasteners, ETS 01-07-01 (scm) (P10) | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Mains cable range (mm <sup>2</sup> )  | 6-35                     |                     |
| Is main connector IPC? (yes/no)   | Yes                      |                     |
| Does main connector have shear head + non-shear head? (yes/no)  | Yes                      |                     |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)<br><input type="checkbox"/> Colour      | 13<br>Black              |                     |
| Does the main connector suit Al and Cu? (yes/no)  | Yes                      |                     |
| Tap cable range (mm <sup>2</sup> )  | 6-35                     |                     |
| Is tap connector non-IPC? (yes/no)  | Yes                      |                     |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                      |                     |
| <b>Tap bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)<br><input type="checkbox"/> Colour       | 13<br>Grey               |                     |
| Does the tap connector suit Al and Cu? (yes/no)   | Yes                      |                     |
| Are connectors marked in accordance with Clause 5.1? (yes/no)   | Yes                      |                     |
| Are contacts pre-greased? (yes/no)  | Yes                      |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_



# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 -TECHNICAL DETAILS...(Cont'd)

| <b>Item 12:</b><br><b>CLAMP, INSULATION PIECING, Connector, IPC, Neutral Bonding, 6/35mm<sup>2</sup> Bimetallic Main, 4/35mm<sup>2</sup> Non-IPC Tap, with Integrated 16mm<sup>2</sup> CU Insulated (Fully Ribbed) Earth Lead 800mm L , ETS 01-07-01(scm)</b> | <b>Specified Requirement</b> | <b>Guaranteed Value</b> |
|---|------------------------------|-------------------------|
| Manufacturer's Name and Address   |                              |                         |
| Country of Manufacture  |                              |                         |
| Manufacturer's Catalogue No.  |                              |                         |
| Manufacturer's Drawing No.  |                              |                         |
| Type Test Certificate No.   |                              |                         |
| Mains cable range (mm <sup>2</sup> )  | 6–35                         |                         |
| Is main connector IPC? (yes/no)   | Yes                          |                         |
| Does main connector have shear head + non-shear head? (yes/no)  | Yes                          |                         |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)   | 13                           |                         |
| Does the main connector suit Al and Cu? (yes/no)  | Yes                          |                         |
| Tap cable range (mm <sup>2</sup> )  | 6-35                         |                         |
| Is tap connector IPC? (yes/no)  | Yes                          |                         |
| Does tap bolt have shear head + non-shear head?(yes/no)   | Yes                          |                         |
| <b>Tap bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)  | 13                           |                         |
| Does the tap connector suit Cu? (yes/no)  | Yes                          |                         |
| Are connectors marked in accordance with Clause 5.1? (yes/no)   | Yes                          |                         |
| Are contacts pre-greased? (yes/no)  | Yes                          |                         |

(continued next page)

# Technical Specification for LV and XLPE Cable Equipment and Fittings



| <b>Item 12:</b><br><b>CLAMP, INSULATION PIECING, Connector, IPC, Neutral Bonding, 6/35mm<sup>2</sup> Bimetallic Main, 4/35mm<sup>2</sup> Non-IPC Tap, with Integrated 16mm<sup>2</sup> CU Insulated (Fully Ribbed) Earth Lead 800mm L , ETS 01-07-01(scm)</b> | <b>Specified Requirement</b> | <b>Guaranteed Value</b> |
|---|------------------------------|-------------------------|
| <b>XLPE Insulated copper lead:</b>  |                              |                         |
| <input type="checkbox"/> Size (mm <sup>2</sup> )  | 16                           |                         |
| <input type="checkbox"/> Overall length (mm)  | 500                          |                         |
| <input type="checkbox"/> Location   | Separate                     |                         |
| <input type="checkbox"/> Size of pre-fitted terminal lug  | M10                          |                         |
| Pack Size   |                              |                         |
| Pack Weight (kg)  |                              |                         |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Items 13 & 14:<br>Single and Three Phase Mains Connection Boxes  | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Main cable range (mm <sup>2</sup> )  | 6-35                  |                  |
| Is main connector IPC? (yes/no)  | Yes                   |                  |
| Does main connector have shear head + non-shear head? (yes/no)   | Yes                   |                  |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)<br><input type="checkbox"/> Colour | 13<br>Black           |                  |
| Does the main connector suit Al and Cu? (yes/no)   | Yes                   |                  |
| Tap cable range (mm <sup>2</sup> )   | 4-35                  |                  |
| Is tap connector non-IPC (yes/no)  | Yes                   |                  |
| Does tap bolt have shear head + non-shear head? (yes/no)   | Yes                   |                  |
| <b>Main bolt:</b><br><input type="checkbox"/> Material<br><input type="checkbox"/> Size<br><input type="checkbox"/> Across flats measurement (mm)<br><input type="checkbox"/> Colour | 13<br>Grey            |                  |
| Does the tap connector suit Al and Cu? (yes/no)  | Yes                   |                  |
| (continued next page)  |                       |                  |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



| Items 13 & 14:<br>Single and Three Phase Mains Connection Boxes | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Mounting Arrangement as per "CLIPSAL"<br>Part No.050/4 (yes/no) | Yes                   |                  |
| Additional mounting arrangements available? (yes/no)            |                       |                  |
| IP rating for box (minimum)                                     | IP 56                 |                  |
| IP rating for cable entry (minimum)                             | IP 66                 |                  |
| Is MCB marked in accordance with Clause 5.1? (yes/no)           | Yes                   |                  |
| Are contacts pre-greased? (yes/no)                              | Yes                   |                  |
| Will MCB accommodate optional earth lead? (yes/no)              | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)              | Yes                   |                  |
| Type of corrosion protection for metallic fittings              |                       |                  |
| Can front cover be removed horizontally? (yes/no)               | Yes                   |                  |
| <b>Item #13</b>   |                       |                  |
| Pack Size   |                       |                  |
| Pack Weight (kg)  |                       |                  |
| <b>Item #14</b>   |                       |                  |
| Pack Size   |                       |                  |
| Pack Weight (kg)  |                       |                  |

**SIGNATURE OF TENDERER:**

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| <p><b>Item 15: FUSEHOLDER, BASE AND CARRIER, 415V AC, 100 Amp, 6/35mm<sup>2</sup>, Service, ETS 01-07-01 (scm) (P20)</b></p> <p><b>Item 16: FUSEHOLDER, BASE AND CARRIER, 415V AC, 160 Amp 6/95mm<sup>2</sup>, Service, IPC Terminals, to suit HRC DIN Size 00 Fuse Links, ETS 01-07-01 (scm) (P24)</b></p> | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Manufacturer's Name and Address   |                       |                  |
| Country of Manufacture  |                       |                  |
| Manufacturer's Catalogue No.  |                       |                  |
| Manufacturer's Drawing No.  |                       |                  |
| Type Test Certificate No.   |                       |                  |
| Cable range: (mm <sup>2</sup> )   | 6-35 & 25-95          |                  |
| Are connectors IPC? (yes/no)  | Yes                   |                  |
| Do connectors have shear heads + non-shear heads? (yes/no)  | Yes                   |                  |
| <p><b>Main bolt:</b></p> <p><input type="checkbox"/> Material</p> <p><input type="checkbox"/> Size</p> <p><input type="checkbox"/> Across flats measurement (mm)</p>  | 13 & 13/17            |                  |
| Does the connector suit Al and Cu? (yes/no)   | Yes                   |                  |
| Do connector bolts have "top" orientation? (yes/no)   | Yes                   |                  |
| Are connector bolt heads insulated from the conductor? (yes/no)   | Yes                   |                  |
| Is device marked in accordance with Clause 5.2? (yes/no)  | Yes                   |                  |
| Are contacts pre-greased? (yes/no)  | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)  | Yes                   |                  |
| <p>Is device capable of attachment to:</p> <p><input type="checkbox"/> pole;</p> <p><input type="checkbox"/> service bracket detailed in Drawing 865737-01</p>  | <p>Yes</p> <p>Yes</p> |                  |
| (continued following page)  |                       |                  |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



| Item 15: FUSEHOLDER, BASE AND CARRIER, 415V AC, 100 Amp, 6/35mm <sup>2</sup> , Service, ETS 01-07-01 (scm) (P20)<br><br>Item 16: FUSEHOLDER, BASE AND CARRIER, 415V AC, 160 Amp 6/95mm <sup>2</sup> , Service, IPC Terminals, to suit HRC DIN Size 00 Fuse Links, ETS 01-07-01 (scm) (P24) | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Colour of Housing  |                       |                  |
| Colour of Base of Fuse Carrier   |                       |                  |
| Is bolt supplied for mounting to service bracket? (Yes/No)   | Yes                   |                  |
| Type of corrosion protection for metallic fittings   |                       |                  |
| Can Item #15 fuse be removed from the ground using "pig tail" operating stick?   | Yes                   |                  |
| Can Item #16 fuse carrier be opened, removed and closed from the ground using a "hook stick"?  |                       |                  |
| Will the units accommodate the fuse links as detailed in Clause 5.2? (yes/no)  | Yes                   |                  |
| Is "gooseneck" adaptor available? (yes/no)   |                       |                  |
| Do the units meet the cyclic load test requirements of Supplement 1 of AS 3947.3 (yes/no)  | Yes                   |                  |
| Maximum rated power acceptance of the switch fuse in the service environment. (Watts)  | Tenderer to nominate  |                  |
| <b>Pack Size Item #15</b>  |                       |                  |
| Pack Weight (kg)   |                       |                  |
| Availability of spare fuse carriers (Item #17) (yes/No)  | Yes                   |                  |
| <b>Pack Size Item #16</b>  |                       |                  |
| Pack Weight (kg)   |                       |                  |
| Availability of spare fuse carriers (Item #18) (yes/No)  | Yes                   |                  |

SIGNATURE OF TENDERER:

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 17:<br>Strain clamp "bolted type" for 4 core 25 mm <sup>2</sup> insulated cable | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Aluminium conductor size - LV ABC (mm <sup>2</sup> )                                 | 25                    |                  |
| Number of cores – Aluminium  | 4                     |                  |
| Minimum failing load (kN)  | 2.5                   |                  |
| Working load (kN)  | 1                     |                  |
| Are clamps of a "bolted" design? (yes/no)  | Yes                   |                  |
| Is material that is in contact with cable, non-metallic? (yes/no)                    | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)                                   | Yes                   |                  |
| Type of corrosion protection of metallic fittings<br>(Grade of Stainless Steel)      |                       |                  |
| Can clamp be readily attached to 'J' hook & eyebolt? (yes/no)                        | Yes                   |                  |
| Do cables require to be untwisted in order to apply strain clamp? (yes/no)           |                       |                  |
| Are clamps marked in accordance with Clause 5.3? (yes/no)                            |                       |                  |
| Pack Size  |                       |                  |
| Pack Weight (kg)   |                       |                  |

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 18:<br>Strain clamp "Bolted type" for 2 core 25 mm <sup>2</sup><br>insulated cable | Specified<br>Requirement | Guaranteed<br>Value |
|---|--------------------------|---------------------|
| Manufacturer's Name and Address   |                          |                     |
| Country of Manufacture  |                          |                     |
| Manufacturer's Catalogue No.  |                          |                     |
| Manufacturer's Drawing No.  |                          |                     |
| Type Test Certificate No.   |                          |                     |
| Aluminium conductor size - LV ABC (mm <sup>2</sup> )                                    | 25                       |                     |
| Number of cores - Aluminium   | 2                        |                     |
| Minimum failing load (kN)   | 2.5                      |                     |
| Working load (kN)   | 1                        |                     |
| Are clamps of a "Bolted" design? (yes/no)   | Yes                      |                     |
| Is material that is in contact with cable, non-metallic? (yes/no)                       | Yes                      |                     |
| Are non-metallic materials UV stabilised? (yes/no)                                      | Yes                      |                     |
| Type of corrosion protection of metallic fittings<br>(Grade of Stainless Steel)         |                          |                     |
| Can clamp be readily attached to 'J' hook & eyebolt? (yes/no)                           | Yes                      |                     |
| Do cables require to be untwisted in order to apply strain clamp? (yes/no)              |                          |                     |
| Are clamps marked in accordance with Clause 5.4? (yes/no)                               |                          |                     |
| Pack Size   |                          |                     |
| Pack Weight (kg)  |                          |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_



# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| <p>Items 19: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)</p> <p>Items 20: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)</p> <p>Items 21: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)</p> <p>Items 22: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)</p> | Specified Requirement    | Guaranteed Value |
|---|--------------------------|------------------|
| Manufacturer's Name and Address   |                          |                  |
| Country of Manufacture  |                          |                  |
| Manufacturer's Catalogue No.  |                          |                  |
| Manufacturer's Drawing No.  |                          |                  |
| Type Test Certificate Nos.<br><input type="checkbox"/> Item 19<br><input type="checkbox"/> Item 20<br><input type="checkbox"/> Item 21<br><input type="checkbox"/> Item 22  |                          |                  |
| Mains cable size (mm <sup>2</sup> )   | 25                       |                  |
| Are the sleeve fully insulated? (yes/no)  | Yes                      |                  |
| Colour of insulation  | Black                    |                  |
| Is the insulation UV stabilised (Yes/No)  | Yes                      |                  |
| Across flat dimensions of the compression die (mm)  | 14.0                     |                  |
| Pre-fitted tail length<br><input type="checkbox"/> Item 19-10mm <sup>2</sup> single ribbed XLPE insulated Cu (mm)<br><input type="checkbox"/> Item 20-10mm <sup>2</sup> fully ribbed XLPE insulated Cu (mm)<br><input type="checkbox"/> Item 21-16mm <sup>2</sup> single ribbed XLPE insulated Cu (mm)<br><input type="checkbox"/> Item 22-16mm <sup>2</sup> fully ribbed XLPE insulated Cu (mm)  | 225<br>225<br>225<br>225 |                  |
| Are the sleeves suitable for Aluminium? (yes/no)  | Yes                      |                  |
| Are sleeves marked in accordance with Clause 5.5? (yes/no)  | Yes                      |                  |
| Are sleeves pre-greased? (yes/no)   | Yes                      |                  |
| Are sleeves provided with end seals to prevent moisture ingress Yes/No  | Yes                      |                  |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



|   | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| <p>Items 19: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)</p>                             |                       |                  |
| <p>Items 20: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 10mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)</p> |                       |                  |
| <p>Items 21: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated Prefitted Tail, Hex Die A/F 14.0mm<sup>2</sup>, ETS 01-07-01 (scm) (P20)</p>                             |                       |                  |
| <p>Items 22: SLEEVE, Compression, NT, ABC 25mm<sup>2</sup> C/W 16mm<sup>2</sup> Cu Insulated (Fully Ribbed) Prefitted Tail For use on Neutral only , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P20)</p> |                       |                  |
| <p>Pack Sizes</p>   |                       |                  |
| <p>Pack Weights (kg)</p>  |                       |                  |

SIGNATURE OF TENDERER:

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 23: SLEEVE, Compression, NT, ABC, 25mm <sup>2</sup> , Hex Die A/F 14.0mm, ETS 01-07-01 (scm) (P100)  | Specified Requirement                          | Guaranteed Value |
|---|--|------------------|
| Item 24: SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 16mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)   |  |                  |
| Item 25: SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 10mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)   |  |                  |
| Item 26: SLEEVE, Compression, NT, ABC 25mm <sup>2</sup> to 6mm <sup>2</sup> Cu, Hex Die A/F 14.0mm, ETS 01-07-01 (scm)(P100)  |  |                  |
| Manufacturer's Name and Address   |  |                  |
| Country of Manufacture  |  |                  |
| Manufacturer's Catalogue No.  |  |                  |
| Manufacturer's Drawing No.  |  |                  |
| Type Test Certificate Nos<br><input type="checkbox"/> Item 23 :<br><input type="checkbox"/> Item 24 :<br><input type="checkbox"/> Item 25 :<br><input type="checkbox"/> Item 26 :   |  |                  |
| Mains cable size (mm <sup>2</sup> )   | 25   |                  |
| Tap cable size and type<br><input type="checkbox"/> Item 23 : (mm <sup>2</sup> )/type<br><input type="checkbox"/> Item 24 : (mm <sup>2</sup> )/type<br><input type="checkbox"/> Item 25 : (mm <sup>2</sup> )/type<br><input type="checkbox"/> Item 26 : (mm <sup>2</sup> )/type | 25/Al/Cu<br>16/Copper<br>10/Copper<br>6/Copper |                  |
| Are the sleeve fully insulated? (yes/no)  | Yes  |                  |
| Colour of insulation  | Black  |                  |
| Is the insulation UV stabilised (Yes/No)  | Yes  |                  |
| Across flat dimensions of the compression die (mm)  | 14.0   |                  |
| Are the sleeves suitable for both Al and Cu? (yes/no)   | Yes  |                  |
| Are sleeves marked in accordance with Clause 5.5? (yes/no)  | Yes  |                  |
| Are sleeves pre-greased? (yes/no)   | Yes  |                  |
| Are sleeves provided with end seals to prevent moisture ingress Yes/No  | Yes  |                  |
| Pack Sizes  |  |                  |
| Pack Weights (kg)   |  |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

# Technical Specification for LV and XLPE Cable Equipment and Fittings



| Item 27: SLEEVE, Compression, FT, ABC, 95mm <sup>2</sup> , Hex Die A/F 21.5mm, ETS 01-07-01 (scm) (P10)<br>Item 28: SLEEVE, Compression, FT, 50mm <sup>2</sup> ABC, Hex Die A/F 17.3mm, ETS 01-07-01 (scm) (P50)<br>Item 29: SLEEVE, Compression, FT, 25mm <sup>2</sup> ABC, Hex Die A/F 17.3mm, ETS 01-07-01 (scm) (P50) | Specified Requirement   | Guaranteed Value |
|---|-------------------------|------------------|
| Manufacturer's Name and Address   |                         |                  |
| Country of Manufacture  |                         |                  |
| Manufacturer's Catalogue No.  |                         |                  |
| Manufacturer's Drawing No.  |                         |                  |
| Type Test Certificate No.<br><input type="checkbox"/> Item 27:<br><input type="checkbox"/> Item 28:<br><input type="checkbox"/> Item 29:  |                         |                  |
| Mains cable sizes<br><input type="checkbox"/> Item 27 : (mm <sup>2</sup> )<br><input type="checkbox"/> Item 28 : (mm <sup>2</sup> )<br><input type="checkbox"/> Item 29 : (mm <sup>2</sup> )  | 95-95<br>50-50<br>25-25 |                  |
| Are the sleeve fully insulated? (yes/no)  | Yes                     |                  |
| Colour of insulation  | Black                   |                  |
| Is the insulation UV stabilised (Yes/No)  | Yes                     |                  |
| Across flat dimensions of the compression die :<br><input type="checkbox"/> Item 27 : (mm)<br><input type="checkbox"/> Item 28 : (mm)<br><input type="checkbox"/> Item 29 : (mm)  | 21.5<br>17.3<br>17.3    |                  |
| Are the sleeves suitable for both Al and Cu? (yes/no)   | Yes                     |                  |
| Are sleeves marked in accordance with Clause 5.5? (yes/no)  | Yes                     |                  |
| Are sleeves pre-greased? (yes/no)   | Yes                     |                  |
| Are sleeves provided with end seals to prevent moisture ingress Yes/No  | Yes                     |                  |
| Pack Sizes  |                         |                  |
| Pack Weights (kg)   |                         |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings

## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 30: LUG, Compression, Bi-Metal, 95mm <sup>2</sup> (ABC), Cu Palm, M12 Bolt Hole, Hex Die A/F 21.5mm, ETS 01-07-01 (scm)(P10)<br>Item 31: LUG, Compression, Bi-Metal, 50mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex Die A/F 17.3mm, ABC (scm)(P10)<br>Item 32: LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm) (P10)<br>Item 33: LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M10 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm)(P10) | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Manufacturer's Name and Address   |                       |                  |
| Country of Manufacture  |                       |                  |
| Manufacturer's Catalogue No.  |                       |                  |
| Manufacturer's Drawing No.  |                       |                  |
| Type Test Certificate No.<br><input type="checkbox"/> Item 30:<br><input type="checkbox"/> Item 31:<br><input type="checkbox"/> Item 32 and 33:   |                       |                  |
| Mains cable sizes<br><input type="checkbox"/> Item 30: (mm <sup>2</sup> )<br><input type="checkbox"/> Item 31: (mm <sup>2</sup> )<br><input type="checkbox"/> Items 32 and 33: (mm <sup>2</sup> )   | 95<br>50<br>25        |                  |
| Are the sleeves of lugs fully insulated? (yes/no)   | Yes                   |                  |
| Colour of insulation  | Black                 |                  |
| Is the insulation UV stabilised (Yes/No)  | Yes                   |                  |
| Across flat dimensions of the compression die:<br><input type="checkbox"/> Item 30 : (mm)<br><input type="checkbox"/> Item 31 : (mm)<br><input type="checkbox"/> Items 32 and 33: (mm)  | 21.5<br>17.3<br>14.0  |                  |
| Are the lugs suitable for terminating LV ABC? (yes/no)  | Yes                   |                  |
| Are lugs marked in accordance with Clause 5.5? (yes/no)   | Yes                   |                  |
| Are lugs pre-greased? (yes/no)  | Yes                   |                  |
| Are lugs provided with copper palms with specified hole sizes? (Yes/No)   | Yes                   |                  |
| Are lugs provided with end seals to prevent moisture ingress at the cable entry end Yes/No  | Yes                   |                  |
| Are lugs provided with end seals to prevent moisture ingress at the palm end Yes/No   | Yes                   |                  |
| Pack Sizes  |                       |                  |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



| Item 30: LUG, Compression, Bi-Metal, 95mm <sup>2</sup> (ABC), Cu Palm, M12 Bolt Hole, Hex Die A/F 21.5mm, ETS 01-07-01 (scm)(P10)<br>Item 31: LUG, Compression, Bi-Metal, 50mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex Die A/F 17.3mm, ABC (scm)(P10)<br>Item 32: LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M12 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm) (P10)<br>Item 33: LUG, Compression, Bi-Metal, 25mm <sup>2</sup> , Cu Palm, M10 Bolt Hole, Hex Die A/F 14.0mm, ABC, ETS 01-07-01 (scm)(P10) | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Pack Weights (kg)   |                       |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 34: CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 25mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P200)<br><br>Item 35: CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 50mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100)<br><br>Item 36: CAP, PROTECTIVE, DUST AND MOISTURE SEAL END CAP, Suit 95mm <sup>2</sup> ABC Cables, ETS 01-07-01 (scm) (P100) | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Aluminium conductor range (mm <sup>2</sup> )   | 25, 50, 95            |                  |
| Number of cores  | 1                     |                  |
| Is material that is in contact with cable, non-metallic?<br>(yes/no)   | Yes                   |                  |
| Are non-metallic materials UV stabilised?<br>(yes/no)  | Yes                   |                  |
| Are clamps marked in accordance with Clause 5.6?<br>(yes/no)   |                       |                  |
| Pack Size  |                       |                  |
| Pack Weight (kg)   |                       |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 37: CLAMP, Suspension ABC, 4 x 95mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)<br>Item 38: CLAMP, Suspension, ABC, 2 x 50mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)<br>Item 39: CLAMP, Suspension, ABC, 2 x 95mm <sup>2</sup> Alum Roller type C/W insulating Insert Clamp to have roller attachment holes, ETS 01-07-01 (scm) (P20)<br>Item 40: CLAMP, Suspension, ABC, 4 x 95mm <sup>2</sup> Galv For Bridging C/W Insulating Insert, ETS 01-07-01 (scm) (P30) | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Aluminium conductor range (mm <sup>2</sup> )   | 50-95                 |                  |
| Number of cores  | 2-4                   |                  |
| Minimum failing load : 4x95 LV ABC<br>2x50 LV ABC<br>2x95 LV ABC<br>(kN)   |                       |                  |
| Are clamps of a "bolted" design? (yes/no)  | Yes                   |                  |
| Is material that is in contact with cable, non-metallic? (yes/no)  | Yes                   |                  |
| Are non-metallic materials UV stabilised? (yes/no)   | Yes                   |                  |
| Type of corrosion protection of metallic fittings (Grade of Stainless Steel)   |                       |                  |
| Can clamp be readily attached to an M20 hook bolt.? (yes/no)   | Yes                   |                  |
| Do cables require to be untwisted in order to apply clamp? (yes/no)  |                       |                  |
| Are clamps marked in accordance with Clause 5.7? (yes/no)  |                       |                  |
| Pack Size  |                       |                  |
| Pack Weight (kg)   |                       |                  |

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 - TECHNICAL DETAILS...(Cont'd)

| Item 41: ROLLER BRACKET, for use with ABC Suspension Clamps, ETS 01-07-01 (scm) | Specified Requirement | Guaranteed Value |
|---|-----------------------|------------------|
| Manufacturer's Name and Address   |                       |                  |
| Country of Manufacture  |                       |                  |
| Manufacturer's Catalogue No.  |                       |                  |
| Manufacturer's Drawing No.  |                       |                  |
| Type Test Certificate No.   |                       |                  |
| Aluminium conductor range (mm <sup>2</sup> )                                    | 50-95                 |                  |
| Number of cores   | 2-4                   |                  |
| Is material that is in contact with cable, non-metallic?<br>(yes/no)            | Yes                   |                  |
| Are non-metallic materials UV stabilised?<br>(yes/no)                           | Yes                   |                  |
| Type of corrosion protection of metallic fittings<br>(Grade of Stainless Steel) |                       |                  |
| Are the clamps suitable for use with items 37, 38 and 39?<br>(yes/no)           | Yes                   |                  |
| Are clamps marked in accordance with Clause 5.8?<br>(yes/no)                    |                       |                  |
| Pack Size   |                       |                  |
| Pack Weight (kg)  |                       |                  |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## ATTACHMENT 1 -TECHNICAL DETAILS...(Cont'd)

| Item 42: YOKE BAR, 300 mm for use with ABC Suspension Clamps, ETS 01-07-01 (scm) (P10) | Specified Requirement | Guaranteed Value |
|--|-----------------------|------------------|
| Manufacturer's Name and Address  |                       |                  |
| Country of Manufacture   |                       |                  |
| Manufacturer's Catalogue No.   |                       |                  |
| Manufacturer's Drawing No.   |                       |                  |
| Type Test Certificate No.  |                       |                  |
| Steel Grade  | AS 3679.1-250         |                  |
| Mounting centres for bracket (mm)  | 300                   |                  |
| Can yoke bar be readily attached to an M20 hook bolt? (Yes/No)                         | Yes                   |                  |
| Minimum failing load (kN)  |                       |                  |
| Are the yoke bar suitable for use with items 37, 38 and 39.? (Yes/No)                  | Yes                   |                  |
| Type of corrosion protection   |                       |                  |
| Pack Size Item   |                       |                  |
| Pack Weight (kg)   |                       |                  |

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# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 21. Attachment 2 – Risk Assessment

The Tenderer shall complete the relevant items (as applicable):

| Clause Ref. | Particulars   | Tenderer's Response |
|-------------|---|---------------------|
| 1.          | Have Risk Assessments been carried out on equipment Tendered which meet the requirements of AS/NZS 4360 (Yes/No)  |                     |
| 2.          | Have copies of such risk assessments been included with the Tender (Yes/No)                                       |                     |
| 3.          | What is the weight of the components to be moved (for example - cable box covers/drawout circuit breaker trucks)? |                     |
| 4.          | How often do the components have to be moved?   |                     |
| 5.          | Are space restrictions associated with:   |                     |
| 5.1         | Manual/materials handling tasks   |                     |
| 5.2         | Installation/maintenance  |                     |
| 5.3         | Operating procedures?   |                     |
| 6.          | Is there provision for the use of mechanical lifting devices?   |                     |
| 7.          | Is the load stable?   |                     |
| 8.          | What is the level of coupling? (poor/fair/good) (eg. are operating handles fitted with grips)                     |                     |
| 9.          | What are the push/pull/rotational forces required to operate the equipment:                                       |                     |
| 9.1         | When new?   |                     |
| 9.2         | During life expectancy?   |                     |
| 10.         | Do "above ground" work surfaces have adequate fall protection (eg. slip resistant surface, handrails)?            | N.A.                |
| 11.         | Do the work positions require undesirable postures such as:   |                     |
| 11.1        | Bending   |                     |
| 11.2        | Stretching  |                     |
| 11.3        | Twisting  |                     |
| 12.         | What postures are required to be sustained over what period of time?  |                     |
| 13.         | What movements are repetitive and for what duration?  |                     |
| 14.         | What are the sound pressure levels (expressed in dB(A))?  | N.A.                |
| 15.         | What hazardous substances are used/produced (including after failure) such as:                                    |                     |
| 15.1        | Dust  |                     |

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## Attachment 2 – Risk Assessment... (Cont'd)

| Clause Ref. | Particulars   | Tenderer's Response |
|-------------|---|---------------------|
| 15.2        | Gas   |                     |
| 15.3        | Fume  |                     |
| 15.4        | Emissions, Flames   |                     |
| 15.5        | Mist  |                     |
| 15.6        | Liquid  |                     |
| 15.7        | Solids  |                     |
| 16.         | Are the hazardous substances controls compatible with normal operational requirements?                        |                     |
| 17.         | Is a Safety Data Sheet for all hazardous substances provided?   |                     |
| 18.         | What are the expected hazardous changes/by-products associated with the deterioration of a substance?         |                     |
| 19.         | Is there any possible contact with energised components?  |                     |
| 20.         | What are the levels of radiation emitted?   |                     |
| 21.         | When in service, are any normally accessible areas hot/cold enough to be a hazard?                            | N.A.                |
| 22.         | Are there any biological hazards?   |                     |
| 23.         | Are there any mechanical hazards (eg. nip in points, exposed moving components)?                              |                     |
| 24.         | Are mechanical hazards appropriately controlled (eg. guarding, lockouts)?                                     |                     |
| 25.         | Are load limits established and clearly identified?   |                     |
| 26.         | Are gauges clearly visible and easily interpreted?  |                     |
| 27.         | Are control movements consistent with established Australian conventions (eg. switch "UP" position is "OFF")? |                     |
| 28.         | What is the degree of whole body or hand/arm vibration? (Hz)  |                     |
| 29.         | Are projectiles generated?  |                     |
| 30.         | Are special tools required/identified/supplied?   |                     |
| 29.         | What are the hazards associated with equipment failure?   |                     |

**SIGNATURE OF TENDERER:** \_\_\_\_\_

# Technical Specification for LV and XLPE Cable Equipment and Fittings



## 22. Attachment 3 – Technical Document Checklist

| Clause Ref.  | Particulars  | Tenderer's Response |
|--|--|---------------------|
| Have full and comprehensive details been submitted <b>WITH</b> the Tender documents associated with each of the following items? |  |                     |
| 3.2  | Drawings of all items Tendered   | Yes/No              |
| 5.1.16   | Maximum power dissipation (watt loss) of the fuse links that the items tendered can accommodate safety.  | Yes/No              |
| 7.1.1  | Type Test Certificates   | Yes/No              |
| 8.5  | Risk Assessment: Completed <b>Attachment 2</b>   | Yes/No              |
| 9.2  | Documentary evidence of the Quality System Certification of <b>BOTH</b> the <b>SUPPLIER</b> and the <b>MANUFACTURER</b> (including <b>Capability Statement</b> ) | Yes/No              |
| 9.3  | Program to upgrade Quality Certification to meet the requirements of AS 9001   | Yes/No              |
| 12   | Service Performance  | Yes/No              |
| 13   | Reliability including performance with the different types of cables listed in Clause 5.1.   | Yes/No              |
| 14   | Training materials   | Yes/No              |
| 15   | Environmental considerations   | Yes/No              |
| 16   | Information to be Provided: Completed <b>Attachment 1, 2 and 3</b>   | Yes/No              |
| 17   | Tools and Equipment  | Yes/No              |

NAME OF TENDERER:

ADDRESS OF TENDERER: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ FOR AND ON BEHALF OF TENDERER

DATE: \_\_\_\_\_