



Technical Specifications of  
Overhead Line Materials for Distribution Network



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## 1. Purpose and Scope

This specification sets out the **guideline requirements** for the **supply of materials used on Distribution Network**.

## 2. Standards

All items/materials and equipment **manufactured shall conform** under **these specifications** with **latest applicable standards of AS/NZS, ANSI, IEC, NFC, IEEE, BS** except otherwise specified in this document.

Applicable Standards	Description
AS 3609	Insulators – Porcelain Stay Type – Voltages greater than 1000 V a.c.
AS 2947	Insulators – Porcelain and Glass for Overhead Power Lines – Voltages greater than 1000 V a.c.
AS 1154.1	Insulator and Conductor Fittings for Overhead Power Lines
ANSI C119.4	Electric Connectors – Connectors for use between Al-Al, Al-Cu Conductors designed for Normal Operation at or below 93°C and Cu-Cu Conductors designed for Normal operation at or below 100°C
IEC 61238-1	Compression and Mechanical Connectors for Power Cables for Rated Voltages up to 1kV
IEC 61952	Insulators for Overhead Voltage Lines – Composite Line Post Insulators for A.C. Systems for with a Nominal Voltage greater than 1000V
ISO 1461	Hot Dip Galvanized Coatings on Fabricated Iron and Steel
ANSI/IEEE C37.41	Design Tests for High Voltages ( >1000V) Fuses and Accessories
ANSI/IEEE C37.42	High Voltages ( > 1000V) Fuses and Accessories
IEC 60282	High Voltage Fuses

## 3. Material List and Quantity

Material	Specification						Reference	Quantity
Polymer Line Post Insulator 33kV 22kV	Nominal Voltage	Creepage Distance	Dry Arching Distance	Spec Cantilever Load	Imp Withstand Voltage	Power Freq. Voltage	IEC 61952 ISO 1461	2000 2000
	<b>For 33kV</b>							
	35kV	900mm	350mm	12.5kN	2000kV	95kV		
	<b>For 22kV</b>							
	25kV	600mm	255mm	12.5kN	150kV	75kV		
<b>Material: Housing – HTV Silicone (Grey) with FRP Core End Fittings must be Galvanized Steel Conforming to Standard ISO 1461</b>								

<p><b>LV Porcelain Pin Insulator with Spindle</b></p>	<p>Material: Porcelain            Finish: Glazed – Sky Blue or Light Grey            Mechanical Failing Load – 7kN (Cantilever)            LV Insulator Spindle: 244mm x M16 Bolt, top screw must be AS 2947 Pattern ‘B’</p> <p>Note: LV Porcelain Pin and Spindle are to packed Separately</p>	<p>AS 3608            AS 2947</p>	<p>5000</p>								
<p><b>Cleavis Thimble – Straining Eye</b></p>	<p>Material – Cast Aluminum Alloy with a Natural finish            Minimum Failing Load – 70kN            Straining Eye – 40kN</p>	<p>AS 1154.1</p>	<p>1000</p>								
<p><b>CPI Wedge Tap Connector</b></p>	<p>Material: Aluminum Alloy            Finish: Tinned            Shear Bolts Wedge Tap Connector            Electrical Rating Class A</p> <p>Connection Sizes</p> <table border="1" data-bbox="360 800 1198 951"> <thead> <tr> <th>Main Line</th> <th>Tap Off Line</th> </tr> </thead> <tbody> <tr> <td>Wasp (13.2mm)</td> <td>Wasp (13.2mm)</td> </tr> <tr> <td>Wasp (13.2mm)</td> <td>Copper 120mm<sup>2</sup> (14.10mm)</td> </tr> <tr> <td>Fly (10.2mm)</td> <td>Copper 120mm<sup>2</sup> (14.10mm)</td> </tr> </tbody> </table> <p><b>Jointing Compound must be present on Contact Surfaces</b></p>	Main Line	Tap Off Line	Wasp (13.2mm)	Wasp (13.2mm)	Wasp (13.2mm)	Copper 120mm <sup>2</sup> (14.10mm)	Fly (10.2mm)	Copper 120mm <sup>2</sup> (14.10mm)	<p>ANSI C119.4            IEC 61238-1</p>	<p>2000            2000            2000</p>
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<p><b>HV Fuse Links</b>            5A            3A            2A</p>	<p>ANSI/IEEE C37.41            ANSI/IEEE C37.42            IEC 60282</p>	<p>300            250            200</p>									

**Type Test required for all items above and a type test Report shall also be provided. Signed and Certified**

#### 4. Drawings

The tenderer to supply with the tender detailed drawings and pictures of the items tendered.

#### 5. Local Environment Conditions

The items/materials as listed are **exposed** to the following **environmental conditions**.

Factors	Conditions
Temperatures	Ranges from 20 <sup>0</sup> C -45 <sup>0</sup> C
Solar Radiation	1000 W/m <sup>2</sup>
Humidity	Relative humidity in excess of 90%
Precipitation	Range of 3000 mm to 6000 mm rainfall annually Exposure to winds in excess of 250km/hr.
Pollution	Salt spray and salt deposit densities on coastal areas and pollution ranging from 3.0g/m <sup>2</sup> to 4.50g/m <sup>2</sup>

## 6. Quality Assurance

The manufacturer shall possess certified certificate of Quality Assurance under the ISO 9001:2015, ISO 9001:2008 is also acceptable for the factory where the materials were manufactured. The bidders must provide with the bid a copy of the ISO Certificate certified as a true copy of the original by the manufacturer.

## 7. Tests

All items in this tender are referenced to Standards specified. It is important for the Tenderer **“To provide Type Test Reports with the Offer as specified in each Reference Standards specified in Clause 3 of this tender”** failure to do so will lead to rejection of the Bid. .

## 8. Routine Tests

Each set of items shall be subjected to the routine tests conforming to the standards specified for each item which shall be furnished with the equipment during manufacturing process.

## 9. Additional Requirement

For each piece of item manufactured, the name of the manufacturer, the manufacturing year and also important information such as failing capacity and operational extents must be engraved onto the item where possible.