



## Technical Specifications of Distribution Line Materials



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## 1. Purpose and Scope

This specification sets out the **guideline requirements** for the **supply of overhead conductors used on totally exposed 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
IEC 61230	Live Working – Portable equipment for Earthing or Earthing and Short-Circuiting
AS 1222	Steel Conductors and Stays – Bare Overhead
AS/NZS 2857-1986	Timber Drums for Insulated Electric Cables and Bare Conductors
AS 3822	Test Methods for Bare Overhead Conductors
AS/NZS 4680	Timber Drums for Insulated electric cables and bare conductors
NFC 33020	Connectors and Fittings for Low Voltage – Insulated Overhead Materials
IEC 61952	Standards Insulators for Overhead Lines – Composite Line Post Insulators for AC with Nominal Voltage
ISO 1461	Standard Galvanizing Specifications

## 3. Material List and Quantity

Material	Specification	Reference	Quantity
<b>Shackle Strap</b>	Mild Steel with Hot Dip Galvanized Finish, Min Failing Load 10kN, Minimum Average Zinc Coating Mass 600g/m <sup>3</sup> Dimensions: 250 x 32 x 18 mm Holes	AS/NZS4680: 2006 AS1154.1	5000
<b>Shackle Insulator</b>	Porcelain with glazed blue/light grey Finish, Mechanical Loading 20kN	AS3608	5000
<b>Low Voltage Insulator with Spindle Pin</b>	Porcelain with glazed blue/light grey Finish, Mechanical Loading 7kN  Pin Head should be Pattern 'B' conforming to AS 2947 Pin Bolt should	AS3608	5000
<b>Non Tension Fly</b>	AAC Compression, Extruded Aluminum Alloy with Natural Finish , Electrical Rating Class A  <i>Jointing Compound must be present inside the contacts</i>	IEC61284	1000
<b>Pole Fuse Holder</b>	Polymer Housing with Tinned Copper Alloy Contacts, Rated Voltage 0.6/1kV, Rated Current Fuse Links 100A	IEC50947-3 IEC60269-2	3000

<b>Steel Clevis Thimble</b>	Cast Ductile Iron with Hot Dip Galvanized Finish 120kN - Straining Eye - 40kN Minimum Zinc Coating 600g/m <sup>3</sup>	AS/NZS4689: 2006	1000																		
<b>IPC Connector Single Service Tap</b>	<p>Insulation Piercing Connector            Material – Copper Alloy with Tinned Contacts            Fully insulated body            Electrical Rating – LV insulated body            Size: Main – 35mm<sup>2</sup>- 150mm<sup>2</sup>            Tap Off – 6mm<sup>2</sup>- 35mm<sup>2</sup></p> <p><i>Joining Compound must be present on insulation piercing contacts. Insulation Piercing Connector shall conform to NFC33-020 requirements</i></p>	NFC33020	4000																		
<b>IPC Connector Double Service Tap</b>	<p>Insulation Piercing Connector            Material – Copper Alloy with Tinned Contacts            Fully insulated body            Electrical Rating – LV insulated body            Size: Main – 35mm<sup>2</sup>- 150mm<sup>2</sup>            2 x Tap Off – 6mm<sup>2</sup>- 35mm<sup>2</sup></p> <p><i>Joining Compound must be present on insulation piercing contacts. Insulation Piercing Connector shall conform to NFC33-020 requirements</i></p>	NFC33020	4000																		
<b>Jumper Pin 22kV</b>	<table border="1" data-bbox="391 1016 1177 1188"> <thead> <tr> <th>Nominal Voltage</th> <th>Creepage Distance</th> <th>Dry Arching Distance</th> <th>Spec Cantilever Load</th> <th>Imp Withstand Voltage</th> <th>Power Freq. Voltage</th> </tr> </thead> <tbody> <tr> <td colspan="6" style="text-align: center;"><b>For 22kV</b></td> </tr> <tr> <td>25kV</td> <td>600mm</td> <td>255mm</td> <td>12.5kN</td> <td>150kV</td> <td>75kV</td> </tr> </tbody> </table> <p><b>Material: Housing – HTV Silicone (Grey) with FRP Core</b>  <b>End Fittings must be Galvanized Steel Conforming to Standard ISO 1461</b></p> <p><b>Insulator Pin M16 x 180mm</b></p>	Nominal Voltage	Creepage Distance	Dry Arching Distance	Spec Cantilever Load	Imp Withstand Voltage	Power Freq. Voltage	<b>For 22kV</b>						25kV	600mm	255mm	12.5kN	150kV	75kV	IEC 61952 ISO 1461	2000
Nominal Voltage	Creepage Distance	Dry Arching Distance	Spec Cantilever Load	Imp Withstand Voltage	Power Freq. Voltage																
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25kV	600mm	255mm	12.5kN	150kV	75kV																
<b>Guy Grip Dead End 19/2.75</b>	Galvanized Steel – 7/2.75mm Minimum average zinc coating mass 600g/m <sup>3</sup>	BS 183 ASTM A475	2000 meters  50 meters/drum																		
<b>Preformed Dead End Wasp</b>	Aluminum Alloy with Natural Finish. Mechanical Rating should be 90% RTS MIN. Grip Length should be Gritted. Should suit AAC Wasp Type. Chamfer End Finish. Should be Purple Color Coded	AS 1154.3	800																		
<b>Preformed Dead End Fly</b>	Aluminum Alloy with Natural Finish. Mechanical Rating should be 90% RTS MIN. Grip Length should be Gritted. Should suit AAC Fly Type. Chamfer End Finish. Should be Green Color Coded	AS 1154.3	800																		

**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°C -45°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 2 and 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.