8212260/2023/EEMRT-ENE51

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2.For EPC contractors only.

Drawing approval subject to valid vendor registration

**FINECAB WIRES & CABLES PVT LTD**

Guaranteed Technical Particulars

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Customer : Transmission corporation of Andhra Pradesh Limited (APTransco)** | | | | | | | | | |
| **PROJECTNAME:-** | **AS APPLICABLE** | | | | | | | | |
| **PO :-** | | | | | | | | | |
| **Contractor: AS APPLICABLE** | | | | | | | | | |
| **TITLE: Control Cable** | | | | | | | | | |
| | **PARTICULARS** | | 3 C X 2.5 | 5 C X 2.5 | 7 C X 2.5 | 10 C X 2.5 | 14 C X 2.5 | 19 C X 2.5 | 27 C X 2.5 |
| **SR. NO.** | **Description** | Unit | Confirmation/Commitement by the Supplier/Bidder | | | | | | |
| **1** | **Name of Manufacturer.** | | FINECAB WIRES & CABLES PVT LTD (BRAND NAME-FINECAB) | | | | | | |
| **2** | **Applicable Standard.** | | IS : 1554 (PART-1) 1988 | | | | | | |
| **3** | **Voltage Grade.** | Volts | 1100 | | | | | | |
| **4** | **Permission variation in a)Voltage** | % | ±10 | | | | | | |
| | **b)Frequency** | % | ±5 | | | | | | |
| | **c) Combined** | % | ±10 | | | | | | |
| **5** | **Wheather Suitable for Earthed or Unearthed** | | Both | | | | | | |
| **6** | **SIZE** | SQ.MM | 3 C X 2.5 | 5 C X | 7 C X | 10 C X 2.5 | 14 C X 2.5 | 19 C X 2.5 | 27 C X 2.5 |
| **7** | **Type.** | | YWY ( FRLS & C2 TYPE ) | | | YFY ( FRLS & C2 TYPE ) | | | |
| **8** | **Conductor :** | | | | | | | | |
| a. | Material | | EC GRADE ANNEALED PLAIN COPPER CLASS-2 AS PER IS 8130 : 2013 | | | | | | |
| b. | Nominal Size | SQ.MM | 2.5 | | | | | | |
| c. | Number of wires in each conductor | Nos. | 7 | | | | | | |
| d. | Diameter of Each Wire (Before Stranding) | mm | 0.67 | | | | | | |
| e. | Direction of lay of Conductor | | RIGHT HAND LAY | | | | | | |
| e. | Shape of conductor | | STRANDED CIRCULAR | | | | | | |
| f. | DC Resistance at 20°C (MAX.) | Ohms/Km | 7.41 | | | | | | |
| g. | AC Resistance at 90°C (MAX.) | Ohms/Km | 9.48 | | | | | | |
| **9** | **Insulation** | | | | | | | | |
| a. | Material. | | EXTRUDED PVC TYPE A | | | | | | |
| b. | IS Reference | | IS : 1554 (PART-1) 1988 | | | | | | |
| c. | Nominal Thickness. | mm | 0.90 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| d. | Cores identification | | 3 CORE> RED,YELLOW,BLUE,5 CORE> RED,YELLOW,BLUE,RED & GREY, ABOVE 5 CORE>ALL GREY WITH NUMBER PRINTING AS PER IS:1554(P-1)1988 | | | | | | |
| **10** | **Inner Sheath** | | | | | | | | |
| a. | Material. | | EXTRUDED PVC TYPE ST-1 | | | | | | |
| b. | IS Reference | | IS : 5831 - 1984 | | | | | | |
| c. | Minimum Thickness | mm | 0.30 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| d. | Mimimum Fictitious Diameter over Inner Sheath | mm | 8.40 | 10.30 | 11.40 | 15.00 | 16.50 | 18.60 | 22.70 |

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**CHIEF ENGINEER/PROJECTS**

**APTRANSCO/VS/VIJAYAWADA**

**8212260/2023/EEMRT-ENE51**

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **11** | **Armouring** | | | | | | | | | |
| a. | Material & Type | | GALVANIZED STEEL ROUND WIRE | | | | | | | |
| b. | Extruded OR Wrapped | | Wrapped | | | | | | | |
| c. | IS Reference | | IS: 3975/1999 | | | | | | | |
| d. | Nominal Diameter | mm | 1.4 (± 0.04) | | | 4 X 0.8 (± 10%) | | | | |
| e. | Mimimum Fictitious Diameter over Armour | mm | 11.20 | 13.10 | 14.20 | 16.60 | 18.10 | 20.20 | 24.30 | |
| f. | Direction of lay of armour | | LEFT HAND LAY | | | | | | | |
| h. | DC Resistance of armour (Max) | | As per IS:1554(P-1)1988 Table no-6 | | | | | | | |
| **12** | **Outer Sheath** | | | | | | | | | |
| a. | Material. | | EXTRUDED PVC | | | | | | | |
| b. | Type. | | ST-2 WITH FRLS PROPERTIES | | | | | | | |
| c. | IS Reference | | IS : 5831 - 1984 | | | | | | | |
| d. | Minimum Thickness | mm | 1.24 | 1.24 | 1.24 | 1.4 | 1.4 | 1.4 | 1.4 | |
| e. | Colour | | BLACK | | | | | | | |
| f. | Mimimum Fictitious Diameter of Cable over Outer sheath | mm | 13.7 | 15.6 | 16.68 | 19.4 | 20.9 | 23 | 27.14 | |
| **13** | **FRLS PROPERTIES** | | | | | | | | | |
| a. | Oxygen Index Minimum | % | 29 | | | | | | | |
| b. | Temperature index Min | Deg C | 250 | | | | | | | |
| c. | Smoke Density Max | % | 60 | | | | | | | |
| d. | Acid Gas Generation (HCL%) Max | % | 20 | | | | | | | |
| e. | Flamibility Test a.Unefected Portion (min.) | mm | 50 | | | | | | | |
| | b. Flame Duration (Max.) | sec. | 60 | | | | | | | |
| **14** | **Insulation Test** | | | | | | | | | |
| | d) Minimum volume resistivity at (ohm-cm) | | | | | | | | | |
| | (i) 27 deg. C. | | $1 \times 10^{13}$ | | | | | | | |
| | (ii) 70 deg. C. | | $1 \times 10^{10}$ | | | | | | | |
| **15** | (i) Minimum tensile - strength of insulation | $N/mm^2$ | 12.5(min)as per IS 5831:1984 | | | | | | | |
| | (ii) Minimum elongation at break | % | 150(min)as per IS 5831:1984 | | | | | | | |
| **16** | (i) Minimum tensile - strength of sheath | $N/mm^2$ | 12.5(min)as per IS 5831:1984 | | | | | | | |
| | (ii) Minimum elongation at break | % | 150(min)as per IS 5831:1984 | | | | | | | |
| **17** | (i) Minimum tensile - strength of armour | Mpa | 300-500 as per IS 3975:1999 | | | | | | | |
| | (ii) Minimum elongation at break | % | 10(min) as per IS 3975:1999 | | | | | | | |

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|---|---|---|---|---|---|---|---|---|---|
| **18** | **PVC Cable** | | | | | | | | |
| | a) High voltage test | | 3KV(rms) for 5mint as per IS 1554(part-1):1988 | | | | | | |
| | b) Short circuit current rating for armour | KA | KA/Vt (K- 0.05 Factor in Amp) (where A = Area of Armour in mm2& t = time in seconds) | | | | | | |
| | a)Current carrying capacity in air and corresponding assumptions/conditions | | As per IS : 1255 | | | | | | |
| **20** | **ELECTRICAL CHARACTERISTICS** | | | | | | | | |
| a. | laying up of cable is accordance with | | Confirming to : IS 3961-2 | | | | | | |
| b. | Continuous Current Rating for Standard IS | | As per IS 3961-2 | | | | | | |
| | i. In Ground.at 30°c | Amps | | | | | | | |
| | ii. In Air at 40°c | Amps | | | | | | | |
| | iii. In Air at 50°c | Amps | | | | | | | |
| c. | Short Circuit Rating for 1 Sec. Duration | KA | 0.285 | | | | | | |
| d. | Conductor Temperature allowed for Continuous Operation condition (Max.) | °C | 70 | | | | | | |
| e. | Conductor Temperature allowed for the short circuit condition (Max.) | °C | 160 | | | | | | |
| **21** | **GENERAL** | | | | | | | | |
| a. | Standard drum length | Mts | 500/1000 ( ±5 %) | | | | | | |
| b. | Cable - Drum | | Shall confirm to IS 10418 only | | | | | | |
| c. | Recommended min. Bending radius of cable | mm | 12 X OVERALL DIA OF A CABLE | | | | | | |
| d. | Recommended Max. Safe pulling force | | | | | | | | |
| | i) When Cable Pulled by pulling eye | N | 375 | 625 | 875 | 1250 | 1750 | 2375 | 3375 |
| e. | Packing Material | | NON RETURNABLE WOODEN DRUM | | | | | | |
| f. | Embossing on Cable | | PROVIDE AS PER IS-1554 (PART-1)1988, Name of Customer, Year of manufacturing, FRLS,APTRANSCO | | | | | | |
| g. | Cable should be ISI Marked | | Yes , All cable furnish with ISI - Marked only | | | | | | |
| h. | Sequential marking of length (Printing) | | PROVIDE EVERY METER | | | | | | |
| i | End cap | | Provided both end of cable | | | | | | |

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