



35kV AL 133% TRXLPE One-Eighth Neutral (Based on Short Circuit) HI-DRI-PLUS® Renewable (Solar or Wind)

Moisture Blocked Aluminum Conductors. TRXLPE Insulation. One Eighth Copper Concentric Neutrals. XLPE Jacket



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Moisture Blocked 1350 H16/H26 Aluminum, Class B Compressed or Compressed Unilay Stranded
2. **Strand Shield:** Semi-conducting Crosslinked Polyethylene
3. **Insulation:** Tree Retardant Crosslinked Polyethylene (TRXLPE)
4. **Insulation Shield:** Strippable Semi-conducting Crosslinked Polyethylene
5. **Concentric Neutral:** Annealed Copper Wires Helically Applied One-Eighth Concentric Neutral
6. **Overall Jacket & Water Block:** HI-DRI-PLUS® Water Swellable Powder Black Crosslinked Polyethylene (XLPE) with Red Extruded Stripes

APPLICATIONS AND FEATURES:

- Predominately used for renewable projects with wind or solar applications.
- Suitable for use in wet or dry locations, direct burial, underground ducts, and exposure to direct sunlight.
- To be used at conductor temperature not to exceed 105°C normal operation.
- UL listed MV-105
- The concentric neutral counts and sizes listed in Table 1 are based on the ICEA P-45-482 short circuit calculation of an MV-90 design. The short circuit value in Table 1 is calculated using a higher thermal limit of a crosslinked XLPE jacket MV-105 design.

SPECIFICATIONS:

- UL 1072 Medium-Voltage Power Cables
- ICEA S-94-649 Standard for Concentric Neutral Cables Rated 5 - 46kV
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV (Qualification Test Requirements)
- Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661

SAMPLE PRINT LEGEND:

{SQFTG} SOUTHWIRE(R) HI-DRI-PLUS(R) (UL) XXXX KCMIL AL 345 MILS TRXLPE TYPE MV-105 35KV 100% INSUL LEVEL -- (NESC) -- SOUTHWIRE {MMM} {YYYY} NON-CONDUCTING JACKET





Table 1 – Weights and Measurements

| Stock Number | Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Neutral DC Resistance 25°C | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|--------------|------------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|----------------------------|------------------|------------|----------------|--------------------|------------------|
| | AWG/Kcmil | inch | inch | mil | inch | No. x AWG | Ω /1000ft | mil | inch | lb / 1000ft | inch | lb |
| 663279 | 500 (37) | 0.766 | 1.519 | 345 | 1.629 | 10x14 | 0.263 | 75 | 1.911 | 1614 | 15.3 | 3000 |
| 662916 | 1000 (61) | 1.117 | 1.857 | 345 | 1.997 | 13x14 | 0.202 | 75 | 2.279 | 2460 | 18.2 | 6000 |
| 629796 | 1000 (61) | 1.117 | 1.857 | 345 | 1.997 | 16x14 | 0.164 | 75 | 2.279 | 2497 | 18.2 | 6000 |
| 629883 | 1250 (91) | 1.250 | 2.000 | 345 | 2.140 | 12x12 | 0.138 | 75 | 2.455 | 2940 | 19.6 | 7500 |
| 662957 | 1250 (91) | 1.250 | 2.000 | 345 | 2.140 | 13x12 | 0.127 | 75 | 2.455 | 2976 | 19.6 | 7500 |
| 604160 | 1500 (91) | 1.370 | 2.120 | 345 | 2.260 | 19x14 | 0.138 | 75 | 2.542 | 3254 | 20.3 | 9000 |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

* Pulling tension based on pulling eye directly connected to conductor

Table 2 – Electrical and Engineering Data

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance | Positive Sequence Impedance | Short Circuit Current @ 30 Cycle | Allowable Ampacity in Duct 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|----------------------|----------------------|-----------------------------|----------------------------|------------------|-----------------|-------------------------|-----------------------------|----------------------------------|---------------------------------|---|
| AWG/Kcmil | Ω/1000ft | Ω/1000ft | MΩ*1000ft | Ω/1000ft | A/1000ft | W/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 500 (37) | 0.035 | 0.046 | 0.042 | 0.043 | 0.474 | 2.9 | 0.100 + j0.714 | 0.046 + j0.043 | 5173 | 380 | 435 |
| 1000 (61) | 0.018 | 0.026 | 0.031 | 0.038 | 0.646 | 3.9 | 0.080 + j0.698 | 0.026 + j0.039 | 6724 | 550 | 625 |
| 1000 (61) | 0.018 | 0.026 | 0.031 | 0.038 | 0.646 | 3.9 | 0.080 + j0.699 | 0.026 + j0.039 | 8276 | 550 | 625 |
| 1250 (91) | 0.014 | 0.023 | 0.028 | 0.037 | 0.701 | 4.2 | 0.077 + j0.692 | 0.023 + j0.038 | 9862 | | |
| 1250 (91) | 0.014 | 0.023 | 0.028 | 0.037 | 0.701 | 4.2 | 0.077 + j0.692 | 0.023 + j0.038 | 10684 | | |
| 1500 (91) | 0.012 | 0.021 | 0.026 | 0.036 | 0.754 | 4.6 | 0.075 + j0.689 | 0.021 + j0.037 | 9828 | | |

*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3

*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.

*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.



Table 3 – Weights and Measurements (Metric)

| Stock Number | Cond. Size | Diameter Over Conductor | Diameter Over Insulation | Insul. Thickness | Diameter Over Insulation Shield | Concentric Neutral | Neutral DC Resistance 25°C | Jacket Thickness | Approx. OD | Approx. Weight | Min Bending Radius | Max Pull Tension |
|--------------|------------|-------------------------|--------------------------|------------------|---------------------------------|--------------------|----------------------------|------------------|------------|----------------|--------------------|------------------|
| | AWG/Kcmil | mm | mm | mm | mm | No. x AWG | Ω/km | mm | mm | kg/km | mm | newton |
| 663279 | 500 (37) | 19.46 | 38.58 | 8.76 | 41.38 | 10x14 | 0.86 | 1.91 | 48.54 | 2402 | 388.62 | 13350 |
| 662916 | 1000 (61) | 28.37 | 47.17 | 8.76 | 50.72 | 13x14 | 0.66 | 1.91 | 57.89 | 3661 | 462.28 | 26700 |
| 629796 | 1000 (61) | 28.37 | 47.17 | 8.76 | 50.72 | 16x14 | 0.54 | 1.91 | 57.89 | 3716 | 462.28 | 26700 |
| 629883 | 1250 (91) | 31.75 | 50.80 | 8.76 | 54.36 | 12x12 | 0.45 | 1.91 | 62.36 | 4375 | 497.84 | 33375 |
| 662957 | 1250 (91) | 31.75 | 50.80 | 8.76 | 54.36 | 13x12 | 0.42 | 1.91 | 62.36 | 4429 | 497.84 | 33375 |
| 604160 | 1500 (91) | 34.80 | 53.85 | 8.76 | 57.40 | 19x14 | 0.45 | 1.91 | 64.57 | 4842 | 515.62 | 40050 |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

* Pulling tension based on pulling eye directly connected to conductor

Table 4 – Electrical and Engineering Data (Metric)

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | Charging Current | Dielectric Loss | Zero Sequence Impedance* | Positive Sequence Impedance* | Short Circuit Current @ 30 Cycle | Allowable Ampacity in Duct 90°C | Allowable Ampacity Directly Buried 90°C |
|------------|----------------------|----------------------|-----------------------------|----------------------------|------------------|-----------------|--------------------------|------------------------------|----------------------------------|---------------------------------|---|
| AWG/Kcmil | Ω/km | Ω/km | MΩ*km | Ω/km | A/km | W/km | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 500 (37) | 0.1148 | 0.15 | 0.0128 | 0.1411 | 1.555 | 9.5144 | 0.100 + j0.714 | 0.046 + j0.043 | 5173 | 380 | 435 |
| 1000 (61) | 0.0591 | 0.09 | 0.0094 | 0.1247 | 2.119 | 12.7953 | 0.080 + j0.698 | 0.026 + j0.039 | 6724 | 550 | 625 |
| 1000 (61) | 0.0591 | 0.09 | 0.0094 | 0.1247 | 2.119 | 12.7953 | 0.080 + j0.699 | 0.026 + j0.039 | 8276 | 550 | 625 |
| 1250 (91) | 0.0459 | 0.08 | 0.0085 | 0.1214 | 2.300 | 13.7795 | 0.077 + j0.692 | 0.023 + j0.038 | 9862 | | |
| 1250 (91) | 0.0459 | 0.08 | 0.0085 | 0.1214 | 2.300 | 13.7795 | 0.077 + j0.692 | 0.023 + j0.038 | 10684 | | |
| 1500 (91) | 0.0394 | 0.07 | 0.0079 | 0.1181 | 2.474 | 15.0919 | 0.075 + j0.689 | 0.021 + j0.037 | 9828 | | |

*Ampacities for Direct Buried are based on ICEA P-117-734-2016 Single-Conductor Solid Dielectric 15-35kV. Single Circuit Flat Direct Buried Figure 3

*Ampacities for Duct are based on ICEA P-117-734-2016 for Single-Conductor Solid Dielectric 15-35kV. Single Circuit Trefoil Conduit Figure 7.

*Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.

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Calculator

