



35kV AL 100% TRXLPE One-Third (Based on Short Circuit) HI-DRI-PLUS® Renewable (Solar or Wind)

Moisture Blocked Aluminum Conductors. TRXLP Insulation. One-Third 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 (TRXLP)
4. **Insulation Shield:** Strippable Semi-conducting Crosslinked Polyethylene
5. **Concentric Neutral:** Annealed Copper Wires Helically Applied One-Third 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:

- ASTM B231 Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors
- ASTM B609 Standard Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes
- 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) XXX KCMIL AL 345 MILS TRXLPE TYPE MV-105 35KV 100% INSUL LEVEL -- (NEC) -- 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 |
| 626308 | 4/0 (19) | 0.498 | 1.218 | 345 | 1.328 | 9x14 | 0.292 | 50 | 1.556 | 1026 | 12.4 | 1269 |
| 662685 | 350 (37) | 0.661 | 1.391 | 345 | 1.501 | 14x14 | 0.187 | 75 | 1.783 | 1410 | 14.3 | 2100 |
| 629794 | 500 (37) | 0.789 | 1.519 | 345 | 1.629 | 18x14 | 0.146 | 75 | 1.911 | 1705 | 15.3 | 3000 |
| 626328 | 500 (37) | 0.789 | 1.519 | 345 | 1.629 | 12x12 | 0.138 | 75 | 1.944 | 1764 | 15.6 | 3000 |
| 626338 | 750 (61) | 0.968 | 1.708 | 345 | 1.848 | 18x12 | 0.092 | 75 | 2.163 | 2326 | 17.3 | 4500 |
| 607594 | 1000 (61) | 1.084 | 1.857 | 345 | 1.997 | 23x12 | 0.072 | 75 | 2.312 | 2791 | 18.5 | 6000 |
| 607763 | 1250 (91) | 1.250 | 2.001 | 345 | 2.141 | 18x10 | 0.057 | 75 | 2.498 | 3342 | 20.0 | 7500 |
| 456402 | 1250 (61) | 1.250 | 2.001 | 345 | 2.141 | 19x10 | 0.054 | 75 | 2.498 | 3370 | 20 | 7500 |

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 |
| 4/0 (19) | 0.084 | 0.105 | 0.055 | 0.048 | 0.361 | 2.2 | 0.159 + j0.733 | 0.105 + j0.049 | 4655 | 235 | 280 |
| 350 (37) | 0.050 | 0.065 | 0.046 | 0.045 | 0.438 | 2.7 | 0.119 + j0.722 | 0.065 + j0.045 | 7242 | 315 | 370 |
| 500 (37) | 0.035 | 0.046 | 0.040 | 0.042 | 0.496 | 3.0 | 0.100 + j0.714 | 0.046 + j0.043 | 9311 | 380 | 445 |
| 500 (37) | 0.035 | 0.046 | 0.040 | 0.042 | 0.496 | 3.0 | 0.100 + j0.712 | 0.046 + j0.043 | 9862 | 380 | 445 |
| 750 (61) | 0.024 | 0.033 | 0.034 | 0.040 | 0.580 | 3.5 | 0.087 + j0.705 | 0.033 + j0.041 | 14794 | 470 | 530 |
| 1000 (61) | 0.018 | 0.026 | 0.033 | 0.039 | 0.608 | 3.7 | 0.080 + j0.700 | 0.026 + j0.039 | 18903 | 530 | 585 |
| 1250 (91) | 0.014 | 0.023 | 0.028 | 0.038 | 0.700 | 4.2 | 0.077 + j0.692 | 0.023 + j0.038 | 23516 | | |
| 1250 (61) | 0.014 | 0.023 | 0.030 | 0.037 | 0.66 | 4.03 | 0.077 + j0.693 | 0.023 + j0.038 | 24823 | | |

*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 |
| 626308 | 4/0 (19) | 12.65 | 30.94 | 8.76 | 33.73 | 9x14 | 0.96 | 1.27 | 39.52 | 1527 | 314.96 | 5647 |
| 662685 | 350 (37) | 16.79 | 35.33 | 8.76 | 38.13 | 14x14 | 0.61 | 1.91 | 45.29 | 2098 | 363.22 | 9345 |
| 629794 | 500 (37) | 20.04 | 38.58 | 8.76 | 41.38 | 18x14 | 0.48 | 1.91 | 48.54 | 2537 | 388.62 | 13350 |
| 626328 | 500 (37) | 20.04 | 38.58 | 8.76 | 41.38 | 12x12 | 0.45 | 1.91 | 49.38 | 2625 | 396.24 | 13350 |
| 626338 | 750 (61) | 24.59 | 43.38 | 8.76 | 46.94 | 18x12 | 0.30 | 1.91 | 54.94 | 3461 | 439.42 | 20025 |
| 607594 | 1000 (61) | 27.53 | 47.17 | 8.76 | 50.72 | 23x12 | 0.24 | 1.91 | 58.72 | 4153 | 469.90 | 26700 |
| 607763 | 1250 (91) | 31.75 | 50.83 | 8.76 | 54.38 | 18x10 | 0.19 | 1.91 | 63.45 | 4973 | 508.00 | 33375 |
| 456402 | 1250 (61) | 31.75 | 50.83 | 8.76 | 54.38 | 19x10 | 0.18 | 1.91 | 63.45 | 5015 | 508.00 | 33375 |

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 |
| 4/0 (19) | 0.2756 | 0.34 | 0.0168 | 0.1575 | 1.184 | 7.2178 | 0.159 + j0.733 | 0.105 + j0.049 | 4655 | 235 | 280 |
| 350 (37) | 0.1640 | 0.21 | 0.0140 | 0.1476 | 1.437 | 8.8583 | 0.119 + j0.722 | 0.065 + j0.045 | 7242 | 315 | 370 |
| 500 (37) | 0.1148 | 0.15 | 0.0122 | 0.1378 | 1.627 | 9.8425 | 0.100 + j0.714 | 0.046 + j0.043 | 9311 | 380 | 445 |
| 500 (37) | 0.1148 | 0.15 | 0.0122 | 0.1378 | 1.627 | 9.8425 | 0.100 + j0.712 | 0.046 + j0.043 | 9862 | 380 | 445 |
| 750 (61) | 0.0787 | 0.11 | 0.0104 | 0.1312 | 1.903 | 11.4829 | 0.087 + j0.705 | 0.033 + j0.041 | 14794 | 470 | 530 |
| 1000 (61) | 0.0591 | 0.09 | 0.0101 | 0.1280 | 1.995 | 12.1391 | 0.080 + j0.700 | 0.026 + j0.039 | 18903 | 530 | 585 |
| 1250 (91) | 0.0459 | 0.08 | 0.0085 | 0.1247 | 2.297 | 13.7795 | 0.077 + j0.692 | 0.023 + j0.038 | 23516 | | |
| 1250 (61) | 0.0459 | 0.08 | 0.0091 | 0.1214 | 2.165 | 13.2218 | 0.077 + j0.693 | 0.023 + j0.038 | 24823 | | |

*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

