

# 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

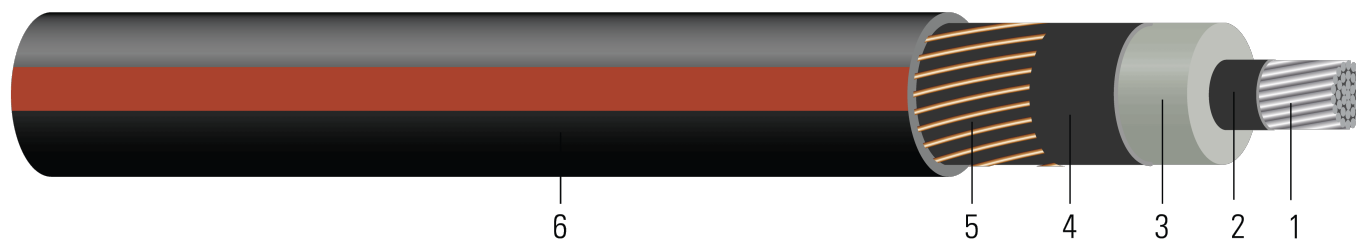


Image not to scale. See Table 1 for dimensions.

## 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:

- 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 -- (NESC) -- SOUTHWIRE {MMM} {YYYY} NON-CONDUCTING JACKET



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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          | $\Omega$ /1000ft           | mil              | inch       | lb / 1000ft    | inch               | lb               |
| TBA          | 4/0 (19)   | 0.512                   | 1.232                    | 345              | 1.342                           | 11x14              | 0.292                      | 50               | 1.57       | 1118           | 12.5               | 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                 | 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  | $\Omega$ /1000ft     | $\Omega$ /1000ft     | M $\Omega$ *1000ft          | $\Omega$ /1000ft           | A/1000ft         | W/1000ft        | $\Omega$ /1000ft        | $\Omega$ /1000ft            | Amp                              | Amp                             | Amp                                     |
| 4/0 (19)   | 0.084                | 0.105                | 0.057                       | 0.048                      | 0.35             | 2.12            | $0.159 + j0.735$        | $0.105 + j0.048$            | 4655                             | 235                             | 285                                     |
| 350 (37)   | 0.050                | 0.065                | 0.048                       | 0.045                      | 0.42             | 2.52            | $0.119 + j0.723$        | $0.065 + j0.045$            | 7242                             | 315                             | 370                                     |
| 500 (37)   | 0.035                | 0.046                | 0.042                       | 0.042                      | 0.47             | 2.86            | $0.100 + j0.715$        | $0.046 + j0.043$            | 9311                             | 380                             | 445                                     |
| 500 (37)   | 0.035                | 0.046                | 0.042                       | 0.043                      | 0.47             | 2.86            | $0.100 + j0.714$        | $0.046 + j0.043$            | 9862                             | 380                             | 445                                     |
| 750 (61)   | 0.024                | 0.033                | 0.036                       | 0.040                      | 0.55             | 3.32            | $0.087 + j0.705$        | $0.033 + j0.040$            | 14794                            | 470                             | 530                                     |
| 1000 (61)  | 0.018                | 0.026                | 0.033                       | 0.039                      | 0.60             | 3.61            | $0.080 + j0.700$        | $0.026 + j0.038$            | 18903                            | 530                             | 585                                     |
| 1250 (91)  | 0.014                | 0.023                | 0.030                       | 0.038                      | 0.66             | 4.03            | $0.077 + j0.693$        | $0.023 + j0.038$            | 23516                            |                                 |                                         |

\*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           |
| TBA          | 4/0 (19)   | 13.00                   | 31.29                    | 8.76             | 34.09                           | 11x14              | 0.96                       | 1.27             | 39.88      | 1664           | 317.50             | 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            |

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                 | 0.0174                      | 0.1575                     | 1.148            | 6.9554          | $0.159 + j0.735$         | $0.105 + j0.048$             | 4655                             | 235                             | 285                                     |
| 350 (37)   | 0.1640               | 0.21                 | 0.0146                      | 0.1476                     | 1.378            | 8.2677          | $0.119 + j0.723$         | $0.065 + j0.045$             | 7242                             | 315                             | 370                                     |
| 500 (37)   | 0.1148               | 0.15                 | 0.0128                      | 0.1378                     | 1.542            | 9.3832          | $0.100 + j0.715$         | $0.046 + j0.043$             | 9311                             | 380                             | 445                                     |
| 500 (37)   | 0.1148               | 0.15                 | 0.0128                      | 0.1411                     | 1.542            | 9.3832          | $0.100 + j0.714$         | $0.046 + j0.043$             | 9862                             | 380                             | 445                                     |
| 750 (61)   | 0.0787               | 0.11                 | 0.0110                      | 0.1312                     | 1.804            | 10.8924         | $0.087 + j0.705$         | $0.033 + j0.040$             | 14794                            | 470                             | 530                                     |
| 1000 (61)  | 0.0591               | 0.09                 | 0.0101                      | 0.1280                     | 1.969            | 11.8438         | $0.080 + j0.700$         | $0.026 + j0.038$             | 18903                            | 530                             | 585                                     |
| 1250 (91)  | 0.0459               | 0.08                 | 0.0091                      | 0.1247                     | 2.165            | 13.2218         | $0.077 + j0.693$         | $0.023 + j0.038$             | 23516                            |                                 |                                         |

\*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

