# MV-105 35kV AL 100% TRXLPE One-Half (Based on Short Circuit) HI-DRI-PLUS®. Renewable (Solar or Wind)

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


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## SAMPLE PRINT LEGEND:

SOUTHWIRE(R) HI-DRI(R) (UL) XXX AWG 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 |
| 662906 | 1/0 (19) | 0.362 | 1.072 | 345 | 1.182 | 6x14 | 0.54 | 50 | 1.41 | 783 | 7 | 633 |
| TBA | 2/0 (19) | 0.395 | 1.123 | 345 | 1.243 | 8x14 | 0.405 | 50 | 1.471 | 970 | 7.4 | 798 |
| 626306 | 4/0 (19) | 0.498 | 1.218 | 345 | 1.328 | 12x14 | 0.27 | 50 | 1.556 | 1062 | 7.8 | 1269 |
| 457255 | 250 (37) | 0.558 | 1.288 | 345 | 1.398 | 14x14 | 0.231 | 75 | 1.626 | 1179 | 8.1 | 1500 |
| TBA | 350 (37) | 0.661 | 1.397 | 345 | 1.517 | 20x14 | 0.162 | 75 | 1.795 | 1645 | 9 | 2100 |
| 457752 | 500 (37) | 0.789 | 1.519 | 345 | 1.629 | 27x14 | 0.12 | 75 | 1.911 | 1817 | 9.6 | 3000 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
† Hi-Dri only (not HI-DRI-PLUS®). No water swellable powder.
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

### Table 2 – Electrical and Engineering Data

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | 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 | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 1/0 (19) | 0.167 | 0.229 | 0.067 | 0.053 | 0.562+j0.278 | 0.230+j0.059 | 3107 | 160 | 195 |
| 2/0 (19) | 0.133 | 0.182 | 0.065 | 0.052 | 0.478+j0.198 | 0.183+j0.057 | 4142 | 185 | 220 |
| 4/0 (19) | 0.084 | 0.115 | 0.056 | 0.048 | 0.344+j0.116 | 0.117+j0.053 | 6214 | 235 | 280 |
| 250 (37) | 0.07 | 0.096 | 0.052 | 0.046 | 0.300+j0.095 | 0.098+j0.051 | 7249 | | |
| 350 (37) | 0.051 | 0.07 | 0.046 | 0.045 | 0.221+j0.061 | 0.073+j0.050 | 10356 | 315 | 370 |
| 500 (37) | 0.036 | 0.05 | 0.041 | 0.042 | 0.165+j0.043 | 0.055+j0.047 | 13981 | 380 | 435 |

*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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## 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 |
| 662906 | 1/0 (19) | 9.19 | 27.23 | 8.76 | 30.02 | 6x14 | 1.77 | 1.27 | 35.81 | 1165 | 177.80 | 2817 |
| TBA | 2/0 (19) | 10.03 | 28.52 | 8.76 | 31.57 | 8x14 | 1.33 | 1.27 | 37.36 | 1444 | 187.96 | 3551 |
| 626306 | 4/0 (19) | 12.65 | 30.94 | 8.76 | 33.73 | 12x14 | 0.89 | 1.27 | 39.52 | 1580 | 198.12 | 5647 |
| 457255 | 250 (37) | 14.17 | 32.72 | 8.76 | 35.51 | 14x14 | 0.76 | 1.91 | 41.30 | 1755 | 205.74 | 6675 |
| TBA | 350 (37) | 16.79 | 35.48 | 8.76 | 38.53 | 20x14 | 0.53 | 1.91 | 45.59 | 2448 | 228.60 | 9345 |
| 457752 | 500 (37) | 20.04 | 38.58 | 8.76 | 41.38 | 27x14 | 0.39 | 1.91 | 48.54 | 2704 | 243.84 | 13350 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
† Hi-Dri only (not HI-DRI-PLUS®). No water swellable powder.
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

## Table 4 – Electrical and Engineering Data (Metric)

| Cond. Size | DC Resistance @ 25°C | AC Resistance @ 90°C | Capacitive Reactance @ 60Hz | Inductive Reactance @ 60Hz | 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 | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 1/0 (19) | 0.5479 | 0.75 | 0.0204 | 0.1739 | 0.562+j0.278 | 0.230+j0.059 | 3107 | 160 | 195 |
| 2/0 (19) | 0.4364 | 0.60 | 0.0198 | 0.1706 | 0.478+j0.198 | 0.183+j0.057 | 4142 | 185 | 220 |
| 4/0 (19) | 0.2756 | 0.38 | 0.0171 | 0.1575 | 0.344+j0.116 | 0.117+j0.053 | 6214 | 235 | 280 |
| 250 (37) | 0.2297 | 0.31 | 0.0158 | 0.1509 | 0.300+j0.095 | 0.098+j0.051 | 7249 | | |
| 350 (37) | 0.1673 | 0.23 | 0.0140 | 0.1476 | 0.221+j0.061 | 0.073+j0.050 | 10356 | 315 | 370 |
| 500 (37) | 0.1181 | 0.16 | 0.0125 | 0.1378 | 0.165+j0.043 | 0.055+j0.047 | 13981 | 380 | 435 |

*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.

Concentric Neutral Calculator


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