# MV-105 35kV AL 133% TRXLPE Full Neutral (Based on Short Circuit) HI-DRI-PLUS® Renewable (Solar or Wind)

Moisture Blocked Aluminum Conductors. TRXLP Insulation. Full 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 Full 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) (UL) HI-DRI-PLUS(R) AWG XX AL 35000 VOLTS TR XLPE INSULATION XX MILS (NESC) MV105 -- SOUTHWIRE (MM/YYYY) NON-CONDUCTING JACKET (PLANT) SEQUENTIAL FOOTAGE MARKS

### Table 1 – Weights and Measurements

| 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 |
| 4/0 (19) | 0.498 | 1.376 | 420 | 1.496 | 23x14 | 0.141 | 75 | 1.774 | 1609 | 8.9 | 1269 |
| 250 (37) | 0.558 | 1.444 | 420 | 1.564 | 28x14 | 0.116 | 75 | 1.842 | 1786 | 9.2 | 1500 |
| 350 (37) | 0.661 | 1.547 | 420 | 1.697 | 24x12 | 0.085 | 75 | 2.009 | 2155 | 12.1 | 2100 |

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
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 |
| 4/0 (19) | 0.084 | 0.115 | 0.064 | 0.051 | 0.248+j0.059 | 0.119+j0.055 | 11910 | 240 | 280 |
| 250 (37) | 0.07 | 0.096 | 0.059 | 0.049 | 0.207+j0.049 | 0.101+j0.054 | 14499 | 261 | 302 |
| 350 (37) | 0.051 | 0.07 | 0.053 | 0.047 | 0.153+j0.039 | 0.076+j0.051 | 19726 | 315 | 365 |

*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)

| 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 |
| 4/0 (19) | 12.65 | 34.95 | 10.67 | 38.00 | 23x14 | 0.46 | 1.91 | 45.06 | 2394 | 226.06 | 5647 |
| 250 (37) | 14.17 | 36.68 | 10.67 | 39.73 | 28x14 | 0.38 | 1.91 | 46.79 | 2658 | 233.68 | 6675 |
| 350 (37) | 16.79 | 39.29 | 10.67 | 43.10 | 24x12 | 0.28 | 1.91 | 51.03 | 3207 | 307.34 | 9345 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item


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* Pulling tension based on pulling eye directly connected to conductor
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 |
| 4/0 (19) | 0.2756 | 0.38 | 0.0195 | 0.1673 | 0.248+j0.059 | 0.119+j0.055 | 11910 | 240 | 280 |
| 250 (37) | 0.2297 | 0.31 | 0.0180 | 0.1608 | 0.207+j0.049 | 0.101+j0.054 | 14499 | 261 | 302 |
| 350 (37) | 0.1673 | 0.23 | 0.0162 | 0.1542 | 0.153+j0.039 | 0.076+j0.051 | 19726 | 315 | 365 |

*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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