

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

Moisture Blocked Aluminum Conductors. TRXLPE Insulation. One-Sixth 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:** 35kV 100% insulation level 345 mil Tree Retardant Crosslinked Polyethylene (TRXLPE)
4. **Insulation Shield:** Strippable semi-conducting crosslinked polyethylene
5. **Concentric Neutral:** Annealed copper wires helically applied one-sixth concentric neutral
6. **Overall Jacket & Water Block:** HI-DRI-PLUS® water swellable powder under 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
- AIEC 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
- Optional CSA 68.5: -40°C and MV 90°C optional marking available upon request





**SAMPLE PRINT LEGEND:**

{SQFTG} SOUTHWIRE® HI-DRI-PLUS® (UL) XXX 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
621584	500 (37)	0.789	1.519	345	1.629	10x14	0.263	75	1.911	1609	15.3	3000

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

^ HI-DRI only (no HI-DRI-PLUS® water swellable powder under the jacket)

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	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	385	450

\*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
621584	500 (37)	20.04	38.58	8.76	41.38	10x14	0.86	1.91	48.54	2394	388.62	13350

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

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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	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	385	450

\*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.

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Concentric Neutral  
Calculator

