



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

Moisture Blocked Aluminum Conductors. TRXLPE 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 (TRXLPE)
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

