



# 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
- 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
- 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 -- (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
662806	350 (37)	0.661	1.391	345	1.501	7x14	0.375	75	1.783	1328	14.3	2100
663279	500 (37)	0.766	1.519	345	1.629	10x14	0.263	75	1.911	1614	15.3	3000
626324	500 (37)	0.789	1.519	345	1.629	15x16	0.278	75	1.884	1571	15.1	3000
621584	500 (37)	0.789	1.519	345	1.629	10x14	0.263	75	1.911	1609	15.3	3000
622377^	750 (61)	0.968	1.708	345	1.848	14x14	0.187	75	2.130	2105	17.0	4500
626336	750 (61)	0.968	1.708	345	1.848	14x14	0.187	75	2.130	2106	17.0	4500
620742	1000 (61)	1.117	1.857	345	1.997	19x14	0.138	75	2.279	2533	18.2	6000
623076	1000 (61)	1.117	1.857	345	1.997	18x14	0.146	75	2.279	2521	18.2	6000
TBA	1000 (61)	1.117	1.857	345	1.997	25x14	0.105	75	2.279	2610	18.2	6000
626346	1000 (61)	1.117	1.857	345	1.997	12x12	0.138	75	2.312	2588	18.5	6000
662112	1250 (91)	1.250	2.000	345	2.140	23x14	0.114	75	2.422	2942	19.4	7500
622362^	1250 (91)	1.250	2.000	345	2.140	15x12	0.110	75	2.455	2996	19.6	7500
626351	1250 (91)	1.250	2.000	345	2.140	15x12	0.110	75	2.455	2997	19.6	7500

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
350 (37)	0.050	0.065	0.048	0.045	0.420	2.5	0.119 + j0.719	0.065 + j0.046	3621	315	375
500 (37)	0.035	0.046	0.042	0.043	0.474	2.9	0.100 + j0.714	0.046 + j0.043	5173	380	435
500 (37)	0.035	0.046	0.045	0.042	0.474	2.9	0.100 + j0.714	0.046 + j0.042	4918	385	450
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
750 (61)	0.024	0.033	0.034	0.040	0.580	3.5	0.087 + j0.705	0.033 + j0.040	7242	480	550
750 (61)	0.024	0.033	0.036	0.041	0.549	3.3	0.087 + j0.706	0.033 + j0.041	7242	480	550
1000 (61)	0.018	0.026	0.031	0.038	0.646	3.9	0.080 + j0.699	0.026 + j0.039	9828	550	615
1000 (61)	0.018	0.026	0.031	0.038	0.646	3.9	0.080 + j0.699	0.026 + j0.039	9311	550	615
1000 (61)	0.018	0.026	0.031	0.038	0.646	3.9	0.080 + j0.699	0.026 + j0.039	12932	550	615
1000 (61)	0.018	0.026	0.033	0.039	0.608	3.7	0.080 + j0.699	0.026 + j0.039	9862	550	615
1250 (91)	0.014	0.023	0.030	0.038	0.656	4.0	0.077 + j0.695	0.023 + j0.038	11898		
1250 (91)	0.014	0.023	0.028	0.037	0.701	4.2	0.077 + j0.692	0.023 + j0.038	12328		
1250 (91)	0.014	0.023	0.030	0.038	0.656	4.0	0.077 + j0.694	0.023 + j0.038	12328		

\*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
662806	350 (37)	16.79	35.33	8.76	38.13	7x14	1.23	1.91	45.29	1976	363.22	9345
663279	500 (37)	19.46	38.58	8.76	41.38	10x14	0.86	1.91	48.54	2402	388.62	13350
626324	500 (37)	20.04	38.58	8.76	41.38	15x16	0.91	1.91	47.85	2338	383.54	13350
621584	500 (37)	20.04	38.58	8.76	41.38	10x14	0.86	1.91	48.54	2394	388.62	13350
622377^	750 (61)	24.59	43.38	8.76	46.94	14x14	0.61	1.91	54.10	3133	431.80	20025
626336	750 (61)	24.59	43.38	8.76	46.94	14x14	0.61	1.91	54.10	3134	431.80	20025
620742	1000 (61)	28.37	47.17	8.76	50.72	19x14	0.45	1.91	57.89	3770	462.28	26700
623076	1000 (61)	28.37	47.17	8.76	50.72	18x14	0.48	1.91	57.89	3752	462.28	26700
TBA	1000 (61)	28.37	47.17	8.76	50.72	25x14	0.34	1.91	57.89	3884	462.28	26700
626346	1000 (61)	28.37	47.17	8.76	50.72	12x12	0.45	1.91	58.72	3851	469.90	26700
662112	1250 (91)	31.75	50.80	8.76	54.36	23x14	0.37	1.91	61.52	4378	492.76	33375
622362^	1250 (91)	31.75	50.80	8.76	54.36	15x12	0.36	1.91	62.36	4459	497.84	33375
626351	1250 (91)	31.75	50.80	8.76	54.36	15x12	0.36	1.91	62.36	4460	497.84	33375

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 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
350 (37)	0.1640	0.21	0.0146	0.1476	1.378	8.2021	0.119 + j0.719	0.065 + j0.046	3621	315	375
500 (37)	0.1148	0.15	0.0128	0.1411	1.555	9.5144	0.100 + j0.714	0.046 + j0.043	5173	380	435
500 (37)	0.1148	0.15	0.0137	0.1378	1.555	9.5144	0.100 + j0.714	0.046 + j0.042	4918	385	450
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
750 (61)	0.0787	0.11	0.0104	0.1312	1.903	11.4829	0.087 + j0.705	0.033 + j0.040	7242	480	550
750 (61)	0.0787	0.11	0.0110	0.1345	1.801	10.8268	0.087 + j0.706	0.033 + j0.041	7242	480	550
1000 (61)	0.0591	0.09	0.0094	0.1247	2.119	12.7953	0.080 + j0.699	0.026 + j0.039	9828	550	615
1000 (61)	0.0591	0.09	0.0094	0.1247	2.119	12.7953	0.080 + j0.699	0.026 + j0.039	9311	550	615
1000 (61)	0.0591	0.09	0.0094	0.1247	2.119	12.7953	0.080 + j0.699	0.026 + j0.039	12932	550	615
1000 (61)	0.0591	0.09	0.0101	0.1280	1.995	12.1391	0.080 + j0.699	0.026 + j0.039	9862	550	615
1250 (91)	0.0459	0.08	0.0091	0.1247	2.152	13.1234	0.077 + j0.695	0.023 + j0.038	11898		
1250 (91)	0.0459	0.08	0.0085	0.1214	2.300	13.7795	0.077 + j0.692	0.023 + j0.038	12328		
1250 (91)	0.0459	0.08	0.0091	0.1247	2.152	13.1234	0.077 + j0.694	0.023 + j0.038	12328		

\*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

