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

Moisture Blocked Aluminum Conductors. TRXLP 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 (TRXLP)
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

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SAMPLE PRINT LEGEND:

{SQFTG} SOUTHWIRE(R) HI-DRI-PLUS(R) (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
629775	1/0 (19)	0.352	1.072	345	1.182	7x16	0.736	50	1.384	742	6.9	633
662111	4/0 (19)	0.498	1.218	345	1.328	13x16	0.396	50	1.53	991	7.6	1269
626308	4/0 (19)	0.498	1.218	345	1.328	9x14	0.36	50	1.556	1026	7.8	1269
662685	350 (37)	0.661	1.391	345	1.501	14x14	0.231	75	1.783	1409	8.9	2100
662101	500 (37)	0.789	1.519	345	1.629	29x16	0.178	75	1.885	1677	9.4	3000
629794	500 (37)	0.789	1.519	345	1.629	18x14	0.18	75	1.911	1704	9.6	3000
607595	500 (37)	0.789	1.519	345	1.629	18x14	0.18	75	1.911	1704	9.6	3000
626328	500 (37)	0.789	1.519	345	1.629	12x12	0.171	75	1.945	1763	9.7	3000
459248	500 (37)	0.789	1.525	345	1.675	19x14	0.171	75	1.953	1930	9.8	3000
626338	750 (61)	0.968	1.708	345	1.848	18x12	0.114	75	2.164	2325	13	4500
607594	1000 (61)	1.084	1.857	345	1.997	23x12	0.089	75	2.313	2789	13.9	6000
456692	1000 (61)	1.084	1.857	345	1.997	15x10	0.085	75	2.355	2867	14.1	6000
456402	1250 (61)	1.25	2	345	2.14	19x10	0.067	75	2.498	3367	15	7500
607763	1250 (91)	1.25	2.001	345	2.141	18x10	0.071	75	2.499	3343	15	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
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.

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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	0.208	0.069	0.053	0.560+j0.375	0.209+j0.058	2273	160	195
4/0 (19)	0.084	0.115	0.056	0.048	0.408+j0.189	0.116+j0.052	4222	235	285
4/0 (19)	0.084	0.115	0.056	0.048	0.392+j0.168	0.117+j0.053	4660	235	285
350 (37)	0.051	0.07	0.046	0.045	0.273+j0.093	0.072+j0.050	7249	315	370
500 (37)	0.036	0.05	0.041	0.042	0.214+j0.065	0.053+j0.047	9417	380	445
500 (37)	0.036	0.05	0.041	0.042	0.215+j0.067	0.053+j0.047	9321	380	445
500 (37)	0.036	0.05	0.041	0.042	0.215+j0.067	0.053+j0.047	9321	380	445
500 (37)	0.036	0.05	0.041	0.042	0.207+j0.063	0.053+j0.047	9863	380	445
500 (37)	0.036	0.05	0.041	0.043	0.208+j0.063	0.053+j0.048	9838	380	445
750 (61)	0.023	0.033	0.035	0.04	0.142+j0.040	0.038+j0.044	14794	470	530
1000 (61)	0.017	0.025	0.033	0.039	0.112+j0.032	0.031+j0.042	18904	530	585
1000 (61)	0.017	0.025	0.033	0.04	0.108+j0.032	0.031+j0.042	19597	530	585
1250 (61)	0.014	0.022	0.029	0.038	0.088+j0.026	0.029+j0.040	24823		
1250 (91)	0.014	0.022	0.029	0.038	0.092+j0.027	0.029+j0.040	23517		

*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
629775	1/0 (19)	8.94	27.23	8.76	30.02	7x16	2.41	1.27	35.15	1104	175.26	2817
662111	4/0 (19)	12.65	30.94	8.76	33.73	13x16	1.30	1.27	38.86	1475	193.04	5647
626308	4/0 (19)	12.65	30.94	8.76	33.73	9x14	1.18	1.27	39.52	1527	198.12	5647
662685	350 (37)	16.79	35.33	8.76	38.13	14x14	0.76	1.91	45.29	2097	226.06	9345
662101	500 (37)	20.04	38.58	8.76	41.38	29x16	0.58	1.91	47.88	2496	238.76	13350
629794	500 (37)	20.04	38.58	8.76	41.38	18x14	0.59	1.91	48.54	2536	243.84	13350
607595	500 (37)	20.04	38.58	8.76	41.38	18x14	0.59	1.91	48.54	2536	243.84	13350
626328	500 (37)	20.04	38.58	8.76	41.38	12x12	0.56	1.91	49.40	2624	246.38	13350
459248	500 (37)	20.04	38.73	8.76	42.55	19x14	0.56	1.91	49.61	2872	248.92	13350
626338	750 (61)	24.59	43.38	8.76	46.94	18x12	0.37	1.91	54.97	3460	330.20	20025
607594	1000 (61)	27.53	47.17	8.76	50.72	23x12	0.29	1.91	58.75	4150	353.06	26700
456692	1000 (61)	27.53	47.17	8.76	50.72	15x10	0.28	1.91	59.82	4267	358.14	26700
456402	1250 (61)	31.75	50.80	8.76	54.36	19x10	0.22	1.91	63.45	5011	381.00	33375
607763	1250 (91)	31.75	50.83	8.76	54.38	18x10	0.23	1.91	63.47	4975	381.00	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
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.

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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	0.68	0.0210	0.1739	0.560+j0.375	0.209+j0.058	2273	160	195
4/0 (19)	0.2756	0.38	0.0171	0.1575	0.408+j0.189	0.116+j0.052	4222	235	285
4/0 (19)	0.2756	0.38	0.0171	0.1575	0.392+j0.168	0.117+j0.053	4660	235	285
350 (37)	0.1673	0.23	0.0140	0.1476	0.273+j0.093	0.072+j0.050	7249	315	370
500 (37)	0.1181	0.16	0.0125	0.1378	0.214+j0.065	0.053+j0.047	9417	380	445
500 (37)	0.1181	0.16	0.0125	0.1378	0.215+j0.067	0.053+j0.047	9321	380	445
500 (37)	0.1181	0.16	0.0125	0.1378	0.215+j0.067	0.053+j0.047	9321	380	445
500 (37)	0.1181	0.16	0.0125	0.1378	0.207+j0.063	0.053+j0.047	9863	380	445
500 (37)	0.1181	0.16	0.0125	0.1411	0.208+j0.063	0.053+j0.048	9838	380	445
750 (61)	0.0755	0.11	0.0107	0.1312	0.142+j0.040	0.038+j0.044	14794	470	530
1000 (61)	0.0558	0.08	0.0101	0.1280	0.112+j0.032	0.031+j0.042	18904	530	585
1000 (61)	0.0558	0.08	0.0101	0.1312	0.108+j0.032	0.031+j0.042	19597	530	585
1250 (61)	0.0459	0.07	0.0088	0.1247	0.088+j0.026	0.029+j0.040	24823		
1250 (91)	0.0459	0.07	0.0088	0.1247	0.092+j0.027	0.029+j0.040	23517		

*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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