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

Moisture Blocked Aluminum Conductors. TRXLP 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 (TRXLP)
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 105ºC 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: -40ºC and MV 90ºC optional marking available upon request

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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
662806	350 (37)	0.661	1.391	345	1.501	7x14	0.463	75	1.783	1327	8.9	2100
663279	500 (37)	0.766	1.519	345	1.629	10x14	0.324	75	1.911	1613	9.6	3000
626324	500 (37)	0.789	1.519	345	1.629	15x16	0.343	75	1.885	1571	9.4	3000
621584	500 (37)	0.789	1.519	345	1.629	10x14	0.324	75	1.911	1608	9.6	3000
623075	750 (61)	0.968	1.708	345	1.848	22x16	0.234	75	2.104	2069	12.6	4500
626336	750 (61)	0.968	1.708	345	1.848	14x14	0.231	75	2.13	2105	12.8	4500
622377^	750 (61)	0.968	1.708	345	1.848	14x14	0.231	75	2.13	2104	12.8	4500
662104	1000 (61)	1.117	1.857	345	1.997	29x16	0.178	75	2.253	2486	13.5	6000
623076	1000 (61)	1.117	1.857	345	1.997	18x14	0.18	75	2.279	2519	13.7	6000
459249	1000 (61)	1.117	1.863	345	2.013	19x14	0.171	75	2.291	2732	13.7	6000
626346	1000 (61)	1.117	1.857	345	1.997	12x12	0.171	75	2.313	2586	13.9	6000
662112	1250 (61)	1.25	2	345	2.14	23x14	0.141	75	2.422	2957	14.5	7500
626351	1250 (61)	1.25	2	345	2.14	15x12	0.136	75	2.456	3012	14.7	7500
622362^	1250 (61)	1.25	2	345	2.14	15x12	0.136	75	2.456	3011	14.7	7500
457742!	1500 (61)	1.37	2.119	345	2.259	18x12	0.114	75	2.575	3416	15.4	9000

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)
! SuperSmooth conductor shield
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
350 (37)	0.051	0.07	0.046	0.045	0.381+j0.226	0.071+j0.050	3625	315	375
500 (37)	0.036	0.05	0.043	0.043	0.307+j0.143	0.052+j0.047	5178	380	435
500 (37)	0.036	0.05	0.041	0.042	0.318+j0.153	0.052+j0.047	4871	385	450
500 (37)	0.036	0.05	0.041	0.042	0.307+j0.143	0.052+j0.047	5178	385	450
750 (61)	0.023	0.033	0.035	0.04	0.238+j0.090	0.035+j0.045	7144	480	550
750 (61)	0.023	0.033	0.035	0.04	0.235+j0.090	0.035+j0.045	7249	480	550
750 (61)	0.023	0.033	0.035	0.04	0.235+j0.090	0.035+j0.045	7249	480	550
1000 (61)	0.017	0.025	0.031	0.038	0.188+j0.062	0.028+j0.043	9417	550	615
1000 (61)	0.017	0.025	0.031	0.038	0.190+j0.064	0.028+j0.043	9321	550	615
1000 (61)	0.017	0.025	0.031	0.038	0.182+j0.060	0.028+j0.043	9838	550	615
1000 (61)	0.017	0.025	0.031	0.038	0.182+j0.061	0.028+j0.043	9863	550	615
1250 (61)	0.014	0.022	0.029	0.037	0.155+j0.047	0.026+j0.042	11910		
1250 (61)	0.014	0.022	0.029	0.037	0.151+j0.046	0.026+j0.042	12328		
1250 (61)	0.014	0.022	0.029	0.037	0.151+j0.046	0.026+j0.042	12328		
1500 (61)	0.012	0.02	0.027	0.036	0.129+j0.037	0.025+j0.041	14794		

*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
662806	350 (37)	16.79	35.33	8.76	38.13	7x14	1.52	1.91	45.29	1975	226.06	9345
663279	500 (37)	19.46	38.58	8.76	41.38	10x14	1.06	1.91	48.54	2400	243.84	13350
626324	500 (37)	20.04	38.58	8.76	41.38	15x16	1.13	1.91	47.88	2338	238.76	13350
621584	500 (37)	20.04	38.58	8.76	41.38	10x14	1.06	1.91	48.54	2393	243.84	13350
623075	750 (61)	24.59	43.38	8.76	46.94	22x16	0.77	1.91	53.44	3079	320.04	20025
626336	750 (61)	24.59	43.38	8.76	46.94	14x14	0.76	1.91	54.10	3133	325.12	20025
622377^	750 (61)	24.59	43.38	8.76	46.94	14x14	0.76	1.91	54.10	3131	325.12	20025
662104	1000 (61)	28.37	47.17	8.76	50.72	29x16	0.58	1.91	57.23	3700	342.90	26700
623076	1000 (61)	28.37	47.17	8.76	50.72	18x14	0.59	1.91	57.89	3749	347.98	26700
459249	1000 (61)	28.37	47.32	8.76	51.13	19x14	0.56	1.91	58.19	4066	347.98	26700
626346	1000 (61)	28.37	47.17	8.76	50.72	12x12	0.56	1.91	58.75	3848	353.06	26700
662112	1250 (61)	31.75	50.80	8.76	54.36	23x14	0.46	1.91	61.52	4401	368.30	33375
626351	1250 (61)	31.75	50.80	8.76	54.36	15x12	0.45	1.91	62.38	4482	373.38	33375
622362^	1250 (61)	31.75	50.80	8.76	54.36	15x12	0.45	1.91	62.38	4481	373.38	33375
457742!	1500 (61)	34.80	53.82	8.76	57.38	18x12	0.37	1.91	65.41	5084	391.16	40050

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)
! SuperSmooth conductor shield
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
350 (37)	0.1673	0.23	0.0140	0.1476	0.381+j0.226	0.071+j0.050	3625	315	375
500 (37)	0.1181	0.16	0.0131	0.1411	0.307+j0.143	0.052+j0.047	5178	380	435
500 (37)	0.1181	0.16	0.0125	0.1378	0.318+j0.153	0.052+j0.047	4871	385	450
500 (37)	0.1181	0.16	0.0125	0.1378	0.307+j0.143	0.052+j0.047	5178	385	450
750 (61)	0.0755	0.11	0.0107	0.1312	0.238+j0.090	0.035+j0.045	7144	480	550
750 (61)	0.0755	0.11	0.0107	0.1312	0.235+j0.090	0.035+j0.045	7249	480	550
750 (61)	0.0755	0.11	0.0107	0.1312	0.235+j0.090	0.035+j0.045	7249	480	550
1000 (61)	0.0558	0.08	0.0094	0.1247	0.188+j0.062	0.028+j0.043	9417	550	615
1000 (61)	0.0558	0.08	0.0094	0.1247	0.190+j0.064	0.028+j0.043	9321	550	615
1000 (61)	0.0558	0.08	0.0094	0.1247	0.182+j0.060	0.028+j0.043	9838	550	615
1000 (61)	0.0558	0.08	0.0094	0.1247	0.182+j0.061	0.028+j0.043	9863	550	615
1250 (61)	0.0459	0.07	0.0088	0.1214	0.155+j0.047	0.026+j0.042	11910		
1250 (61)	0.0459	0.07	0.0088	0.1214	0.151+j0.046	0.026+j0.042	12328		
1250 (61)	0.0459	0.07	0.0088	0.1214	0.151+j0.046	0.026+j0.042	12328		
1500 (61)	0.0394	0.07	0.0082	0.1181	0.129+j0.037	0.025+j0.041	14794		

*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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