

1/C CU 15kV 220 NLEPR 133% Thermoplastic LSZH-TP MV-105

Type MV-105 Single Conductor Copper, 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level, Tape Shield, Thermoplastic SOLONON® Low Smoke Zero Halogen (LSZH-TP) Jacket, Rated UL. Silicone Free



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

- Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8 (Tinned Copper per ASTM B33 optional)
- Conductor Shield:** Semi-conducting cross-linked copolymer
- Insulation:** 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level,
- Insulation Shield:** Strippable semi-conducting cross-linked copolymer
- Copper Tape Shield:** Helically wrapped 5 mil copper tape with 25% overlap
- Overall Jacket:** Thermoplastic SOLONON® Low Smoke Zero Halogen (LSZH-TP)

APPLICATIONS AND FEATURES:

Southwire's 15KV cables are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial when installed with a grounding conductor in close proximity that conforms to NEC section 311.36 and 250.4(A)(5), and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 105°C for normal operation, 140°C for emergency overload, and 250°C for short circuit conditions. Rated at -25°C for cold bend. ST1 (low smoke) Rated for sizes 1/0 and larger. Rated for 1000 lbs./FT maximum sidewall pressure.

SPECIFICATIONS:

- ASTM B3 Standard Specification for Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- ASTM B496 Compact Round Concentric-lay-standard copper
- UL 1072 Medium-Voltage Power Cables
- UL 1685 FT4-ST1 Vertical-Tray Fire Propagation and Smoke Release Test (1/0 and Larger)
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA S-97-682 Standard for Shielded Utility Cable Rated for 5 - 46kV
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test (1/0 and Larger)
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV
- NFPA 130 Standard for Fixed Guideway Transit and Passenger Rail Systems (500kcmil & Larger)
- 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_DUAL} SOUTHWIRE POWER CABLE SOLONON{R} MASTER-DESIGN {UL} X AWG CU 220 MILS NL-EPR SOLONON {R} 15KV 133% 25%TS MV-105 SUN. RES. {NESC}

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Diameter Over Conductor	Diameter Over Insulation	Diameter Over Insulation Shield	Jacket Thickness ¹	Approx. OD	Approx. Weight	Max Pull Tension	Min Bending Radius	Conduit Size*
	AWG/Kcmil	inch	inch	inch	mil	inch	lb/1000ft	lb	inch	inch
585535	1	0.322	0.8	0.86	80	1.04	739	669	12.4	3
550784	1/0	0.361	0.84	0.9	80	1.08	831	844	12.9	3
671270	3/0	0.456	0.934	0.994	80	1.174	1086	1342	14	3.5
550786	4/0	0.512	0.99	1.05	80	1.23	1260	1692	14.7	3.5
550788	350	0.661	1.147	1.207	80	1.387	1795	2800	16.6	4
550789	500	0.789	1.252	1.312	80	1.492	2329	4000	17.9	4.5
550790	750	0.968	1.464	1.524	110	1.764	3358	6000	21.1	5
550643	1500	1.37	1.9	1.96	110	2.2	6031	12000	26.4	

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

* Conduit size based on 3 phase 40% fill-factor without ground

¹ Comply with ICEA S-93-639 Appendix C for jacket thickness determination

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*	Shield Short Circuit Current 6 Cycles	Allowable Ampacity In Duct 90/105°C [†]	Allowable Ampacity In Air 90/105°C [‡]
AWG/Kcmil	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp	Amp
1	0.128	0.162	0.0483	0.0486	0.53 + j0.431	0.162 + j0.049	2466	175/185	225/250
1/0	0.102	0.128	0.0447	0.0467	0.496 + j0.414	0.128 + j0.047	2578	200/215	260/290
3/0	0.064	0.081	0.0384	0.0434	0.446 + j0.377	0.081 + j0.044	2851	260/275	345/385
4/0	0.051	0.065	0.0354	0.0418	0.427 + j0.357	0.066 + j0.042	3011	295/315	400/445
350	0.031	0.041	0.0299	0.0387	0.393 + j0.308	0.042 + j0.039	3462	390/415	550/610
500	0.022	0.03	0.0263	0.0366	0.372 + j0.274	0.031 + j0.037	3829	465/500	685/765
750	0.014	0.023	0.0229	0.0354	0.348 + j0.234	0.024 + j0.035	4371	565/610	885/990
1500	0.007	0.017	0.0177	0.0322	0.306 + j0.17	0.018 + j0.031	5536	815/880	1345/1500

* Calculations are based on three cables triplexed / 5 mil 25 % over lapping copper tape shield / Conductor temperature of 90°C / Shield temperature of 45°C / Earth resistivity of 100 ohms-meter

[†] Ampacities are based on TABLE 310.60(C)(77) Detail 1. of the 2020 National Electrical Code (20°C Ambient Earth Temperature, Thermal Resistance ROH of 90)

[‡] Ampacities are based on TABLE 310.60(C)(69) of the 2020 National Electrical Code (40°C Ambient Air Temperature)

