

# 1/C CU 35kV 420 NLEPR 133% Thermoplastic CPE-TP MV-105

Type MV-105 Single Conductor Copper, 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level, Tape Shield, Thermoplastic Chlorinated Polyethylene (CPE-TP) Jacket, Dual Rated UL/CSA. Silicone Free



Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8 (Tinned Copper per ASTM B33 optional)
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level,
4. **Insulation Shield:** Strippable semi-conducting cross-linked copolymer
5. **Copper Tape Shield:** Helically wrapped 5 mil copper tape with 25% overlap
6. **Overall Jacket:** Thermoplastic Chlorinated Polyethylene (CPE-TP)

## APPLICATIONS AND FEATURES:

Southwire's 35KV 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 -35°C for cold bend. Rated for 1000 lbs./FT maximum sidewall pressure. CT rated 1/0 and larger.

## 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
- UL 1072 Medium-Voltage Power Cables
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test (1/0 and Larger)
- CSA C22.2 No.230 Tray Cables - Rated TC
- CSA C22.2 No. 2556 / UL 2556 Cable Test Methods
- CSA C68.10 Shielded Power Cables for Commercial and Industrial Applications - 5 to 46 KV
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV
- 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{R} POWER CABLE MASTER-DESIGN {UL} XXX KCMIL CU 420 MILS NL-EPR CPE JKT 35KV  
133% INS LEVEL 25%TS TYPE MV-105 FOR CT USE SUN RES OIL RES I/II {NESC}

**Table 1 – Weights and Measurements**

Stock Number	Cond. Size	Diameter Over Conductor	Diameter Over Insulation	Diameter Over Insulation Shield	Jacket Thickness <sup>1</sup>	Approx. OD	Approx. Weight	Max Pull Tension	Min Bending Radius	Conduit Size*
	AWG/ Kcmil	inch	inch	inch	mil	inch	lb/1000ft	lb	inch	inch
TBA	1/0	0.362	1.239	1.299	80	1.479	1256	845	17.7	5
TBA	2/0	0.405	1.282	1.342	80	1.522	1383	1065	18.3	5
TBA	3/0	0.456	1.333	1.393	80	1.573	1541	1342	18.9	5
TBA	4/0	0.512	1.389	1.449	80	1.629	1731	1693	19.5	5
TBA	250	0.558	1.444	1.504	80	1.684	1903	2000	20.2	5
TBA	350	0.661	1.547	1.607	110	1.847	2422	2800	22.2	6
679731 <sup>^</sup>	500	0.766	1.652	1.712	110	1.952	2995	4000	23.4	6
TBA	500	0.789	1.675	1.735	110	1.975	3018	4000	23.7	6
TBA	750	0.968	1.863	1.923	110	2.163	3986	6000	26.0	6
TBA	750	0.968	1.863	1.923	110	2.163	3986	6000	26.0	6
TBA	1000	1.117	2.012	2.072	110	2.312	4912	8000	27.7	

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

<sup>1</sup> Comply with ICEA S-93-639 Appendix C for jacket thickness determination

<sup>^</sup> Unilay copper stranding

**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 <sup>†</sup>	Allowable Ampacity In Air 90/105°C <sup>‡</sup>
AWG/ Kcmil	Ω/1000ft	Ω/1000ft	MΩ*1000ft	Ω/1000ft	Ω/1000ft	Ω/1000ft	Amp	Amp	Amp
1/0	0.102	0.128	0.066	0.054	0.464 + j0.273	0.128 + j0.054	4259	200/215	260/290
2/0	0.081	0.101	0.062	0.052	0.434 + j0.262	0.102 + j0.052	4398	230/245	300/330
3/0	0.064	0.080	0.058	0.050	0.408 + j0.249	0.081 + j0.050	4564	260/275	345/380
4/0	0.051	0.064	0.054	0.048	0.386 + j0.236	0.065 + j0.048	4747	295/315	395/445
250	0.043	0.054	0.051	0.047	0.370 + j0.225	0.055 + j0.047	4926	325/345	440/490
350	0.031	0.039	0.046	0.045	0.345 + j0.206	0.040 + j0.045	5261	390/415	545/605
500	0.022	0.028	0.041	0.043	0.321 + j0.186	0.029 + j0.043	5677	465/500	680/755
500	0.022	0.028	0.041	0.043	0.321 + j0.186	0.029 + j0.043	5677	465/500	680/755
750	0.014	0.019	0.035	0.040	0.295 + j0.161	0.020 + j0.040	6289	565/610	870/970
750	0.014	0.019	0.035	0.040	0.295 + j0.161	0.020 + j0.040	6289	565/610	870/970
1000	0.011	0.015	0.032	0.038	0.279 + j0.145	0.016 + j0.038	6773	640/690	1040/1160

\* 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

<sup>†</sup> 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)

<sup>‡</sup> Ampacities are based on TABLE 310.60(C)(69) of the 2020 National Electrical Code (40°C Ambient Air Temperature)



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