

# 1/C CU 35kV 345 NLEPR 100% CPE MV-105

Type MV-105 Single Conductor Copper, 345 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% Insulation Level, Tape Shield, Chlorinated Polyethylene (CPE) 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:** 345 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% 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)

## APPLICATIONS AND FEATURES:

Southwire's 35KV cables are suited for use in wet and dry areas, conduits, ducts, troughs, 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. 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
- UL 1072 Medium-Voltage Power Cables
- UL 1685 FT4-ST1 Vertical-Tray Fire Propagation and Smoke Release Test (1/0 and Larger)
- CSA C22.2 No.230 Tray Cables - Rated TC-ER (1/0 AWG and Larger)
- 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
- 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
- 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:**

SOUTHWIRE [SYMBOL - LIGHTING BOLT] #P# (UL/CSA) 1/C [#AWG or #kcmil] CU 345 MILS NL-EPR 35KV 100% INS LEVEL 25% TS MV-105 FOR CT USE SUN. RES. TC-ER(CSA 1/0 LARGER) FOR DIRECT BURIAL FT4 -ST1 YEAR (NESC) [SEQUENTIAL FEET MARKS]

**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	1.089	1.149	80	1.329	1078	845	15.9	4
TBA	2/0	0.405	1.132	1.192	80	1.372	1200	1065	16.5	4
TBA	3/0	0.456	1.183	1.243	80	1.423	1352	1342	17.1	4
TBA	4/0	0.512	1.239	1.299	80	1.479	1536	1693	17.7	5
TBA	250	0.558	1.294	1.354	80	1.534	1701	2000	18.4	5
TBA	350	0.661	1.397	1.457	80	1.637	2100	2800	19.6	5
TBA	500	0.789	1.525	1.585	110	1.825	2780	4000	21.9	5
TBA	750	0.968	1.713	1.773	110	2.013	3726	6000	24.2	6
TBA	1000	1.117	1.862	1.922	110	2.162	4635	8000	25.9	6

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

**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	0.059	0.052	0.478 + j0.307	0.128 + j0.052	3771	200/215	260/290
2/0	0.081	0.101	0.055	0.050	0.448 + j0.294	0.102 + j0.050	3910	230/245	300/330
3/0	0.064	0.080	0.051	0.048	0.422 + j0.280	0.081 + j0.048	4076	260/275	345/380
4/0	0.051	0.064	0.048	0.046	0.400 + j0.265	0.065 + j0.046	4259	295/315	395/445
250	0.043	0.054	0.045	0.045	0.385 + j0.252	0.055 + j0.045	4438	325/345	440/490
350	0.031	0.039	0.040	0.043	0.360 + j0.229	0.040 + j0.042	4773	390/415	545/605
500	0.022	0.028	0.036	0.041	0.335 + j0.205	0.029 + j0.041	5189	465/500	680/755
750	0.014	0.019	0.031	0.039	0.309 + j0.176	0.020 + j0.038	5801	565/610	870/970
1000	0.011	0.015	0.028	0.037	0.291 + j0.158	0.016 + j0.037	6285	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)

