

1/C CU 35KV 420 NL-EPR 133% TS 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



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:** 420 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 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, 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

SAMPLE PRINT LEGEND:

SOUTHWIRE [SYMBOL - LIGHTING BOLT] #P# (UL/CSA) 1/C [#AWG or #kcmil] CU 420 MILS NL-EPR 35KV 133% 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]



Southwire

**CABLETECH
SUPPORT™**

Services

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
TBA	1/0	0.361	1.24	1.3	80	1.48	1249	844	17.7	4.5
TBA	2/0	0.405	1.284	1.344	80	1.524	1377	1064	18.2	4.5
TBA	3/0	0.456	1.334	1.394	80	1.574	1573	1342	18.8	4.5
TBA	4/0	0.512	1.376	1.436	80	1.616	1708	1692	19.3	4.5
TBA	250	0.558	1.428	1.488	110	1.728	1975	2000	20.7	5
TBA	250	0.558	1.428	1.488	110	1.728	1983	2000	20.7	5
TBA	350	0.661	1.527	1.587	110	1.827	2385	2800	21.9	5.5
679731	500	0.789	1.652	1.712	110	1.952	2995	4000	23.4	5.5
TBA	750	0.968	1.864	1.924	110	2.164	3972	6000	25.9	6
TBA	1000	1.117	2.013	2.073	110	2.313	4898	8000	27.7	
TBA	1250	1.25	2.15	2.21	110	2.45	5816	10000	29.4	

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	0.102	0.128	0.0648	0.054	0.473 + j0.3	0.129 + j0.054	3726	200/215	260/290
2/0	0.081	0.102	0.0608	0.0521	0.443 + j0.288	0.103 + j0.052	3852	230/245	300/330
3/0	0.064	0.081	0.0567	0.0501	0.418 + j0.275	0.082 + j0.05	3998	260/275	345/380
4/0	0.051	0.065	0.0528	0.0482	0.397 + j0.262	0.066 + j0.049	4159	295/315	395/445
250	0.043	0.056	0.0504	0.0478	0.382 + j0.25	0.057 + j0.048	4314	325/345	440/490
250	0.043	0.056	0.0504	0.0478	0.382 + j0.25	0.057 + j0.048	4314	325/345	440/490
350	0.031	0.041	0.0452	0.0453	0.358 + j0.229	0.042 + j0.045	4609	390/415	545/605
500	0.022	0.03	0.0402	0.0427	0.336 + j0.207	0.031 + j0.043	4976	465/500	680/755
750	0.014	0.023	0.0352	0.0401	0.312 + j0.18	0.024 + j0.04	5519	565/610	870/970
1000	0.011	0.019	0.0318	0.0384	0.296 + j0.162	0.02 + j0.038	5946	640/690	1040/1160
1250	0.009	0.018	0.0294	0.0371	0.284 - j0.108	0.019 - j0.219	6339	715/770	1185/1320

* 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)

