

3/C CU 35kV 420 NLEPR 133% PVC MV-105

Type MV-105 Three Conductor Copper, 420 Mills No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level, Tape Shield, Polyvinyl Chloride (PVC) Jacket, Dual Rated UL/CSA



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 420 Mills 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. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
7. **Filler:** Wax paper filler
8. **Binder:** Poly glass tape
9. **Overall Jacket:** Polyvinyl Chloride (PVC)

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. For uses in Class I and II, Division 2 hazardous locations per NEC Article 501 and 502. 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
- UL 1072 Medium-Voltage Power Cables
- UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
- CSA C22.2 No.230 Tray Cables - Rated TC-ER
- 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
- AIEC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV



Southwire Company, LLC | One Southwire Drive, Carrollton, GA 30119 | www.southwire.com



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SAMPLE PRINT LEGEND:

{SQFTG_DUAL} SOUTHWIRE{R} POWER CABLE MASTER-DESIGN {UL} 3/C XXX AWG CU 420 MILS NL-EPR 35KV 133% INS LEVEL 25%TS GW 1 X 1/0 AWG CU MV-105 FOR CT USE SUN. RES. FOR DIRECT BURIAL -- CSA XXX AWG CU XX.XXmm (420 mils) NL-EPR 35KV 133% INS LEVEL 25%TS SR TC-ER 90{D}C FT4 -40{D}C LTGG {NESC}

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Diameter Over Conductor	Diameter Over Insulation	Diameter Over Insulation Shield	Ground	Jacket Thickness ¹	Approx. OD	Approx. Weight	Max Pull Tension	Min Bending Radius
	AWG/ Kcmil	inch	inch	inch	No. x AWG	mil	inch	lb/1000ft	lb	inch
582147	1/0	0.362	1.239	1.299	1 x 4	135	3.147	4582	2534	22.0
578337	2/0	0.405	1.282	1.342	1 x 4	135	3.240	5005	3194	22.7
TBA	3/0	0.456	1.333	1.393	1 x 3	135	3.350	5564	4027	23.5
597853	4/0	0.512	1.389	1.449	3 x 3	135	3.471	6194	5078	24.3
TBA	250	0.558	1.444	1.504	1 x 3	135	3.590	6770	6000	25.1
TBA	350	0.661	1.547	1.607	1 x 2	135	3.812	8163	8400	26.7
TBA	500	0.789	1.675	1.735	1 x 1	135	4.089	10142	12000	28.6
TBA	750	0.968	1.863	1.923	1 x 1/0	135	4.495	13335	18000	31.5

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

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	0.066	0.051	0.466 + j0.272	0.128 + j0.051	4259	195/210	215/240
2/0	0.081	0.101	0.062	0.050	0.435 + j0.261	0.102 + j0.050	4398	220/235	245/275
3/0	0.064	0.080	0.058	0.048	0.409 + j0.249	0.081 + j0.048	4564	250/270	285/315
4/0	0.051	0.064	0.054	0.046	0.387 + j0.236	0.065 + j0.046	4747	285/305	325/360
250	0.043	0.054	0.051	0.045	0.372 + j0.225	0.055 + j0.045	4926	310/335	360/400
350	0.031	0.039	0.046	0.042	0.346 + j0.206	0.040 + j0.042	5261	375/400	435/490
500	0.022	0.028	0.041	0.040	0.322 + j0.185	0.028 + j0.040	5677	450/485	535/600
750	0.014	0.019	0.035	0.038	0.296 + j0.160	0.020 + j0.038	6289	545/585	670/745

* Calculations are based on 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)(79) Detail 1. of the 2014 National Electrical Code (20°C Ambient Earth Temperature, Thermal Resistance ROH of 90)

[‡] Ampacities are based on TABLE 310.60(C)(71) of the 2014 National Electrical Code (40°C Ambient Air Temperature)

