

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:

- 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 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



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 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 | 4/0 | 0.512 | 1.389 | 1.449 | 80 | 1.629 | 1731 | 1693 | 19.5 | 5 |

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

[^] 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 [†] | Allowable Ampacity In Air 90/105°C [‡] |
|---------------|----------------------|----------------------|-----------------------------|----------------------------|--------------------------|------------------------------|---------------------------------------|--|---|
| AWG/ Kcmil | Ω/1000ft | Ω/1000ft | MΩ*1000ft | Ω/1000ft | Ω/1000ft | Ω/1000ft | Amp | Amp | Amp |
| 4/0 | 0.051 | 0.064 | 0.054 | 0.048 | 0.386 + j0.236 | 0.065 + j0.048 | 4747 | 295/315 | 395/445 |

* 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)

