

# 1/C Compact CU 15kV 220 NLEPR 133% CPE MV-105

Type MV-105 Single Conductor Compact Copper, 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% 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 compact stranded per ASTM B496
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 220 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)

## APPLICATIONS AND FEATURES:

Southwire's 15KV 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. ST1 (low smoke) Rated for sizes 1/0 and larger. Rated for 1000 lbs./FT maximum sidewall pressure.

## SPECIFICATIONS:

- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- ASTM B496 Compact Round Concentric-lay-standard copper
- 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
- 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

## SAMPLE PRINT LEGEND:

SOUTHWIRE [SYMBOL - LIGHTING BOLT] #P# (UL/CSA) 1/C [#AWG or #kcmil] CU 220 MILS NL-EPR 15KV 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]



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**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	2	0.283	0.760	0.820	80	0.985	639	531	12.0	3
TBA	1	0.322	0.799	0.859	80	1.016	715	670	12.5	3
TBA	1/0	0.362	0.839	0.899	80	1.053	809	845	12.9	3
TBA	2/0	0.405	0.882	0.942	80	1.093	922	1065	13.5	3.5
TBA	3/0	0.456	0.933	0.993	80	1.140	1063	1342	14.1	3.5
TBA	4/0	0.512	0.989	1.049	80	1.192	1235	1693	14.7	3.5
TBA	250	0.558	1.044	1.104	80	1.246	1390	2000	15.4	4
TBA	350	0.661	1.147	1.207	80	1.342	1767	2800	16.6	4
TBA	500	0.789	1.275	1.335	80	1.462	2314	4000	18.2	4
TBA	600	0.866	1.361	1.421	80	1.570	2680	4800	19.2	5
TBA	750	0.968	1.463	1.523	80	1.665	3210	6000	20.4	5
TBA	1000	1.117	1.612	1.672	110	1.877	4183	8000	22.9	6

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

TBA part numbers are rough approximations, and final product may vary.

\* 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
2	0.162	0.203	0.053	0.051	0.573 + j0.418	0.203 + j0.051	2700	155/165	195/215
1	0.129	0.161	0.049	0.049	0.531 + j0.400	0.162 + j0.049	2827	175/185	225/250
1/0	0.102	0.128	0.045	0.047	0.496 + j0.383	0.128 + j0.047	2957	200/215	260/290
2/0	0.081	0.101	0.042	0.045	0.467 + j0.366	0.102 + j0.045	3097	230/245	300/335
3/0	0.064	0.080	0.039	0.043	0.443 + j0.346	0.081 + j0.043	3263	260/275	345/385
4/0	0.051	0.064	0.036	0.042	0.423 + j0.327	0.065 + j0.042	3445	295/315	400/445
250	0.043	0.054	0.034	0.041	0.409 + j0.309	0.055 + j0.041	3624	325/345	445/495
350	0.031	0.039	0.030	0.039	0.384 + j0.279	0.040 + j0.039	3959	390/415	550/610
500	0.022	0.028	0.026	0.037	0.361 + j0.248	0.029 + j0.037	4376	465/500	685/765
600	0.018	0.024	0.024	0.036	0.348 + j0.229	0.024 + j0.036	4655	505/544	765/855
750	0.014	0.019	0.022	0.035	0.334 + j0.210	0.020 + j0.035	4987	565/610	885/990
1000	0.011	0.015	0.020	0.034	0.315 + j0.185	0.016 + j0.034	5472	640/690	1060/1185

\* 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)

