

## 3/C CU 5kV 90 NLEPR 100% PVC MV-105

Type MV-105 Three Conductor Copper, 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% 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:** 90 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. **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 5KV 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
- ICEA S-97-682 Standard for Shielded Utility Cable Rated for 5 - 46kV
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV



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## SAMPLE PRINT LEGEND:

SOUTHWIRE [SYMBOL - LIGHTING BOLT] #P# (UL/CSA) 3/C [#AWG or #kcmil] CU 90 MILS NL-EPR 5KV 100% INS LEVEL 25% TS MV-105 FOR CT USE SUN. RES. TC-ER(CSA) FOR DIRECT BURIAL FT4 YEAR (NESC) [SEQUENTIAL FEET MARKS]

### Table 1 – Weights and Measurements

Stock Number	Cond. Size	Diameter Over Conductor	Diameter Over Insulation	Diameter Over Insulation Shield	Ground	Jacket Thickness <sup>1</sup>	Approx. OD	Approx. Weight	Max Pull Tension	Min Bending Radius
	AWG/ Kcmil	inch	inch	inch	No. x AWG	mil	inch	lb/1000ft	lb	inch
TBA	2	0.283	0.500	0.560	1 x 6	80	1.441	1448	1593	10.1
TBA	1	0.322	0.539	0.599	1 x 4	80	1.525	1712	2009	10.7
TBA	1/0	0.362	0.579	0.639	1 x 4	80	1.611	1984	2534	11.3
TBA	2/0	0.405	0.622	0.682	1 x 4	80	1.704	2314	3194	11.9
TBA	3/0	0.456	0.673	0.733	1 x 3	110	1.874	2864	4027	13.1
TBA	4/0	0.512	0.729	0.789	1 x 3	110	1.995	3380	5078	14.0
TBA	250	0.558	0.784	0.844	1 x 3	110	2.114	3842	6000	14.8
TBA	350	0.661	0.887	0.947	1 x 2	110	2.337	5025	8400	16.4
TBA	500	0.789	1.015	1.075	1 x 1	110	2.613	6741	12000	18.3
TBA	750	0.968	1.203	1.263	1 x 0	135	3.069	9689	18000	21.5

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

<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	0.031	0.038	0.568 + j0.540	0.203 + j0.038	1854	135/145	140/154
1	0.129	0.161	0.028	0.037	0.531 + j0.517	0.162 + j0.037	1981	155/165	160/180
1/0	0.102	0.128	0.025	0.035	0.500 + j0.494	0.128 + j0.035	2111	175/190	185/205
2/0	0.081	0.102	0.023	0.034	0.476 + j0.470	0.102 + j0.034	2251	200/220	215/240
3/0	0.064	0.081	0.021	0.033	0.456 + j0.444	0.081 + j0.033	2417	230/250	250/280
4/0	0.051	0.064	0.019	0.032	0.440 + j0.418	0.065 + j0.032	2599	265/285	285/320
250	0.043	0.054	0.018	0.032	0.429 + j0.394	0.055 + j0.032	2778	290/315	320/355
350	0.031	0.039	0.016	0.030	0.408 + j0.353	0.040 + j0.030	3113	355/380	395/440
500	0.022	0.028	0.014	0.029	0.388 + j0.309	0.029 + j0.029	3530	430/460	485/545
750	0.014	0.020	0.012	0.028	0.362 + j0.258	0.020 + j0.028	4141	530/570	615/685

\* 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

<sup>†</sup> 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)

<sup>‡</sup> Ampacities are based on TABLE 310.60(C)(71) of the 2014 National Electrical Code (40°C Ambient Air Temperature)

