

## 3/C AL 5kV 115 NLEPR 133% PVC MV-105

Type MV-105 Three Conductor Aluminum, 115 Mils 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:

- Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM B836
- Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
- Insulation:** 115 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
- Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and ASTM B8
- Filler:** Wax paper filler
- Binder:** Poly glass tape
- 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 B800 8000 Series Aluminum Alloy Wire
- ASTM B836 Compact Rounded Stranded Aluminum Conductors
- UL 1072 Medium-Voltage Power Cables
- UL 1685 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-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable
- ICEA S-97-682 Standard for Shielded Utility Cable Rated for 5 - 46kV
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV



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## SAMPLE PRINT LEGEND:

{SQFTG\_DUAL} SOUTHWIRE{R} POWER CABLE MASTER-DESIGN {UL} 3/C XX AWG COMPACT AL.--- {ALUMAFLEX}{R}  
AA8176 115 MILS NL-EPR 5KV 133%/8KV 100% INS LEVEL 25%TS GW 1 X XX AWG CU MV-105 FOR CT USE SUN. RES.  
FOR DIRECT BURIAL {NESC}

### 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
599065	2	0.268	0.535	0.595	1 x 6	80	1.516	1090	1194	10.6
TBA	1	0.299	0.566	0.626	1 x 6	80	1.583	1194	1506	11.1
TBA	1/0	0.336	0.603	0.663	1 x 6	80	1.663	1321	1901	11.6
TBA	2/0	0.376	0.643	0.703	1 x 4	80	1.750	1518	2396	12.2
599070	3/0	0.423	0.690	0.750	1 x 4	110	1.911	1807	3020	13.4
581876	4/0	0.475	0.742	0.802	1 x 4	110	2.024	2033	3809	14.2
TBA	250	0.520	0.796	0.856	1 x 4	110	2.140	2260	4500	15.0
580932	350	0.616	0.892	0.952	1 x 3	110	2.348	2776	6300	16.4
TBA	500	0.736	1.012	1.072	1 x 2	110	2.607	3503	9000	18.2
TBA	750	0.908	1.215	1.275	1 x 1	135	3.095	4902	13500	21.7

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 <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	0.266	0.334	0.037	0.041	0.703 + j0.523	0.335 + j0.041	1968	105/110	110/120
1	0.211	0.265	0.034	0.039	0.637 + j0.505	0.265 + j0.039	2069	120/130	125/140
1/0	0.168	0.211	0.032	0.038	0.585 + j0.484	0.211 + j0.038	2189	140/150	154/160
2/0	0.133	0.167	0.029	0.037	0.543 + j0.462	0.168 + j0.037	2320	160/170	170/185
3/0	0.105	0.132	0.026	0.035	0.508 + j0.439	0.132 + j0.035	2473	180/195	195/215
4/0	0.084	0.105	0.024	0.034	0.481 + j0.414	0.106 + j0.034	2642	205/220	225/250
250	0.071	0.089	0.023	0.034	0.463 + j0.391	0.089 + j0.034	2817	230/245	250/280
350	0.051	0.064	0.020	0.032	0.432 + j0.353	0.064 + j0.032	3130	280/310	310/345
500	0.035	0.045	0.017	0.031	0.405 + j0.312	0.045 + j0.031	3520	340/365	385/430
750	0.024	0.031	0.016	0.030	0.371 + j0.256	0.031 + j0.030	4180	425/460	495/550

\* 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)(80) 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)(72) of the 2014 National Electrical Code (40°C Ambient Air Temperature)

