

# 1/C AL 35kV 420 NLEPR 133% SIMpull® PVC MV-105

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

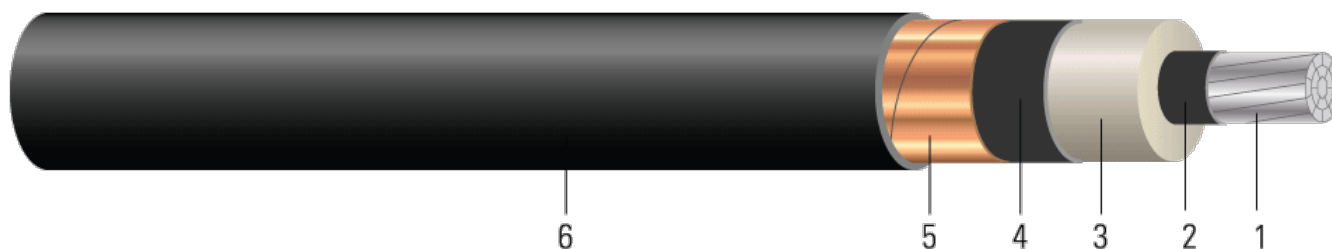


Image not to scale. See Table 1 for dimensions.

## 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:** 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:** 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 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. PVC jacket is made with SIM technology and has a coefficient of friction COF of 0.2. Cable can be installed in conduit without the aid of lubrication. 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 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
- 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 (1/0 and Larger)
- 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](http://www.southwire.com)



Southwire

**CABLETECH  
SUPPORT™**

Services

## SAMPLE PRINT LEGEND:

{SQFTG\_DUAL} SOUTHWIRE SIMpull{R} POWER CABLE MASTER-DESIGN {UL} XXX KCMIL COMPACT AL.--- {ALUMAFLEX}  
 {R} AA8176 420 MILS NL-EPR 35KV 133% INS LEVEL 25%TS MV-105 FOR CT USE ST1 SUN RES (NESC) -- {CSA} 1000  
 KCMIL COMPACT AL.--- {ALUMAFLEX}{R} AA8176 10.67mm (420 mils) NL-EPR 35KV 133% INS LEVEL 25%TS SR TC-ER 105  
 {D}C FT4 -25{D}C LTDD -- PAT www.patentSW.com -- RoHS

### 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
566994	1/0	0.336	1.213	1.273	80	1.453	985	634	17.4	4
590621	2/0	0.376	1.253	1.313	80	1.493	1049	799	17.9	5
566995	3/0	0.423	1.300	1.360	80	1.540	1127	1007	18.5	5
591197◇	4/0	0.475	1.352	1.412	80	1.592	1217	1270	19.1	5
591198◇	250	0.520	1.406	1.466	80	1.646	1308	1500	19.8	5
591199	350	0.616	1.502	1.562	80	1.742	1495	2100	20.9	5
578178◇	500	0.736	1.622	1.682	110	1.922	1856	3000	23.1	6
TBA	600	0.813	1.730	1.790	110	2.030	2072	3600	24.4	6
566996◇	750	0.908	1.825	1.885	110	2.125	2311	4500	25.5	6
597787	1000	1.060	1.977	2.037	110	2.277	2702	6000	27.3	
677472	1250	1.250	2.171	2.231	110	2.471	3141	7500	30	

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

<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
1/0	0.168	0.211	0.069	0.055	0.550 + j0.280	0.212 + j0.055	4174	155/165	200/225
2/0	0.133	0.167	0.065	0.053	0.502 + j0.269	0.168 + j0.053	4304	175/190	230/260
3/0	0.105	0.132	0.061	0.051	0.462 + j0.257	0.133 + j0.051	4457	200/215	270/300
4/0	0.084	0.105	0.056	0.050	0.430 + j0.245	0.106 + j0.049	4626	230/245	310/345
250	0.071	0.089	0.054	0.048	0.409 + j0.233	0.090 + j0.048	4802	250/270	345/380
350	0.051	0.064	0.048	0.046	0.374 + j0.214	0.064 + j0.046	5114	305/330	430/475
500	0.035	0.045	0.043	0.044	0.343 + j0.194	0.046 + j0.044	5505	370/400	530/590
600	0.030	0.038	0.041	0.043	0.326 + j0.179	0.038 + j0.043	5856	/	/
750	0.024	0.030	0.038	0.041	0.310 + j0.166	0.031 + j0.041	6165	455/490	685/765
1000	0.018	0.023	0.034	0.039	0.290 + j0.149	0.024 + j0.039	6660	525/565	825/920
1250	0.0138	0.0204	0.029	0.037	0.264 + j0.131	0.014 + j0.037	7222	595/640	950/1055



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



Southwire



Services

\* Calculations are based on three cables triplexed / 5 mil 25 % over lapping copper tape shield Earth resistivity of 100 ohms-meter

† Ampacities are based on TABLE 310.60(C)(78) 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)(70) of the 2020 National Electrical Code (40°C Ambient Air Temperature)

