

# CU Compressed 15kV NLEPR Insulation 133% IL Black SIM-PVC Jacket. MV 105 - Tray Rated - Sunlight Resistant - For Direct Burial

Type MV-105 Single Conductor Copper, 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) Lead-Free EAM 133% Insulation Level, Tape Shield, SIMpull Polyvinyl Chloride (PVC) Jacket, Dual Rated UL/CSA

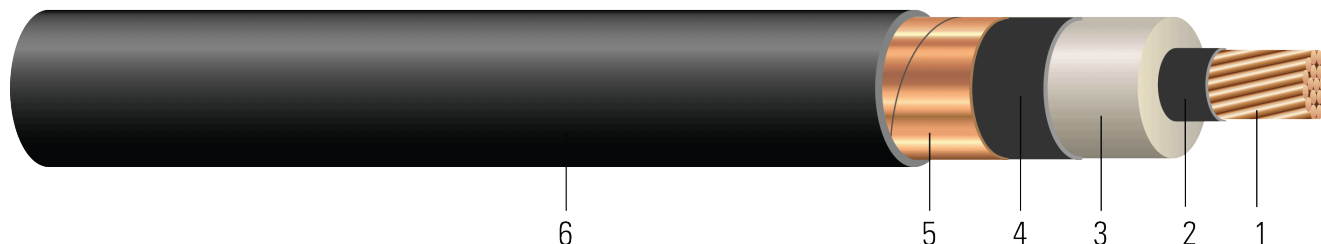


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compressed stranded bare copper per ASTM B3 and ASTM B8. Tinned copper optional per ASTM B33
2. **Conductor Shield:** Semi-conducting cross-linked copolymer
3. **Insulation:** 220 Mils No Lead Ethylene Propylene Rubber (NL-EPR) / No-Lead Ethylene Alkene Copolymer (EAM) 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:** SIMpull® Polyvinyl Chloride (PVC)

## 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), aerially supported by a messenger 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 when UL listed. Rated at -25°C for cold bend and cold impact and marked with "LTDD" when CSA listed or dual UL/CSA listed. 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. These cables feature sunlight and moisture resistance, exceptional corona resistance, resistance to most chemicals, oils and acids and are flame retardant.

## SPECIFICATIONS:

- ASTM B3 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 FT4 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
- ICEA S-97-682 Standard for Shielded Utility Cable Rated for 5 - 46kV



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- 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 (Qualification Test Requirements)
- 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 SIMpull® POWER CABLE {UL} XX KCMIL CU 220 MILS NL-EPR 15KV 133% INS LEVEL 25%TS MV-105 FOR CT USE SUN RES (NESC) -- {CSA} XX KCMIL CU 5.59mm (220 mils) NL-EPR 15KV 133% INS LEVEL 25%TS SR TC-ER 105°C FT4 -25°C LTDD -- PAT www.patentSW.com -- RoHS

**Table 1 – Weights and Measurements**

| Stock Number | Cond. Size | Strand Count   | Diameter Over Conductor | Diameter Over Insulation | Diameter Over Insulation Shield | Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight | Max Pull Tension | Min Bending Radius | Conduit Size* |
|--------------|------------|----------------|-------------------------|--------------------------|---------------------------------|------------------|------------|---------------|----------------|------------------|--------------------|---------------|
|              | AWG/Kcmil  | No. of Strands | inch                    | inch                     | inch                            | mil              | inch       | lb/1000ft     | lb/1000ft      | lb               | inch               | inch          |
| 953638◇      | 2          | 7              | 0.282                   | 0.755                    | 0.815                           | 80               | 0.995      | 271           | 640            | 530              | 11.9               | 3.0           |
| 955104       | 1          | 19             | 0.322                   | 0.800                    | 0.860                           | 80               | 1.040      | 328           | 722            | 669              | 12.4               | 3.0           |
| 955989◇      | 1/0        | 19             | 0.361                   | 0.840                    | 0.900                           | 80               | 1.080      | 398           | 816            | 844              | 12.9               | 3.0           |
| 955997◇      | 2/0        | 19             | 0.405                   | 0.884                    | 0.944                           | 80               | 1.124      | 487           | 929            | 1064             | 13.4               | 3.5           |
| 956003       | 3/0        | 19             | 0.456                   | 0.934                    | 0.994                           | 80               | 1.174      | 597           | 1069           | 1342             | 14.0               | 3.5           |
| 956011◇      | 4/0        | 19             | 0.512                   | 0.990                    | 1.050                           | 80               | 1.230      | 738           | 1242           | 1692             | 14.7               | 3.5           |
| 956029◇      | 250        | 37             | 0.558                   | 1.044                    | 1.104                           | 80               | 1.284      | 860           | 1398           | 2000             | 15.4               | 4.0           |
| 956037◇      | 350        | 37             | 0.661                   | 1.147                    | 1.207                           | 80               | 1.387      | 1177          | 1775           | 2800             | 16.6               | 4.0           |
| 956045◇      | 500        | 37             | 0.789                   | 1.252                    | 1.312                           | 80               | 1.492      | 1648          | 2307           | 4000             | 17.9               | 4.5           |
| 643755◇      | 600        | 61             | 0.865                   | 1.362                    | 1.422                           | 80               | 1.602      | 1964          | 2694           | 4800             | 19.2               | 4.5           |
| 956052◇      | 750        | 61             | 0.968                   | 1.464                    | 1.524                           | 110              | 1.764      | 2435          | 3323           | 6000             | 21.1               | 5.0           |
| 956060◇      | 1000       | 61             | 1.117                   | 1.613                    | 1.673                           | 110              | 1.913      | 3218          | 4202           | 8000             | 22.9               | 5.5           |
| 581886       | 1250       | 91             | 1.250                   | 1.780                    | 1.840                           | 110              | 2.080      | 4002          | 5118           | 10000            | 24.9               | 6.0           |
| 567443       | 1500       | 91             | 1.370                   | 1.930                    | 1.990                           | 110              | 2.230      | 4785          | 6006           | 12000            | 26.7               |               |
| 550811       | 2000       | 127            | 1.583                   | 2.143                    | 2.203                           | 110              | 2.443      | 6345          | 7716           | 16000            | 29.3               |               |

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



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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                                |
| 2          | 0.162                | 0.204                | 0.051                       | 0.051                      | 0.575 + j0.42           | 0.204 + j0.052              | 2571                                  | 155/165                             | 195/215                            |
| 1          | 0.128                | 0.162                | 0.047                       | 0.049                      | 0.532 + j0.401          | 0.162 + j0.049              | 2695                                  | 175/185                             | 225/250                            |
| 1/0        | 0.102                | 0.128                | 0.043                       | 0.047                      | 0.496 + j0.384          | 0.128 + j0.047              | 2816                                  | 200/215                             | 260/290                            |
| 2/0        | 0.081                | 0.102                | 0.040                       | 0.045                      | 0.468 + j0.367          | 0.103 + j0.045              | 2952                                  | 230/245                             | 300/335                            |
| 3/0        | 0.064                | 0.081                | 0.037                       | 0.043                      | 0.444 + j0.347          | 0.082 + j0.044              | 3110                                  | 260/275                             | 345/385                            |
| 4/0        | 0.051                | 0.065                | 0.034                       | 0.042                      | 0.424 + j0.328          | 0.066 + j0.042              | 3284                                  | 295/315                             | 400/445                            |
| 250        | 0.043                | 0.056                | 0.032                       | 0.041                      | 0.41 + j0.31            | 0.057 + j0.041              | 3451                                  | 325/345                             | 445/495                            |
| 350        | 0.031                | 0.041                | 0.028                       | 0.039                      | 0.386 + j0.281          | 0.042 + j0.039              | 3770                                  | 390/415                             | 550/610                            |
| 500        | 0.022                | 0.030                | 0.025                       | 0.037                      | 0.363 + j0.249          | 0.031 + j0.037              | 4167                                  | 465/500                             | 685/765                            |
| 600        | 0.018                | 0.026                | 0.023                       | 0.036                      | 0.351 + j0.23           | 0.027 + j0.035              | 4433                                  | 505/544                             | 765/855                            |
| 750        | 0.014                | 0.023                | 0.021                       | 0.035                      | 0.337 + j0.211          | 0.024 + j0.035              | 4752                                  | 565/610                             | 885/990                            |
| 1000       | 0.011                | 0.019                | 0.019                       | 0.034                      | 0.319 + j0.186          | 0.02 + j0.034               | 5214                                  | 640/690                             | 1060/1185                          |
| 1250       | 0.009                | 0.018                | 0.017                       | 0.033                      | 0.305 + j0.089          | 0.019 + j0.023              | 5638                                  | 715/770                             | 1210/1350                          |
| 1500       | 0.007                | 0.017                | 0.016                       | 0.032                      | 0.293 + j0.152          | 0.018 + j0.031              | 6010                                  | 815/880                             | 1345/1500                          |
| 2000       | 0.005                | 0.017                | 0.014                       | 0.031                      | 0.275 + j0.13           | 0.018 + j0.029              | 6670                                  | 940/1010                            | 1575/1755                          |

\* Ampacities are based on:

\* For Duct: Table 310.60(C)(77) Detail 1.

\* For Free Air: Table 310.60(C)(69).

\* Inductive impedance is based on non-ferrous conduit with one diameter spacing.

\* Sequence Impedance values are based on Rho Earth Resistivity: 100 Ohm-Meter/1000ft.

\* Capacitive Reactance is between Phase-to-Shield.

