

# AL Compact 35kV NLEPR Insulation 133% IL ARMOR-X<sup>®</sup> Orange PVC Jacket. MV 105 - Tray Rated - Sunlight Resistant - For Direct Burial

Type MV-105 Three Conductor Aluminum, 420 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 133% Insulation Level, Tape Shield, Continuous Corrugated Welded Armor - ARMOR-X<sup>®</sup>, Polyvinyl Chloride (PVC) Jacket. Silicone Free

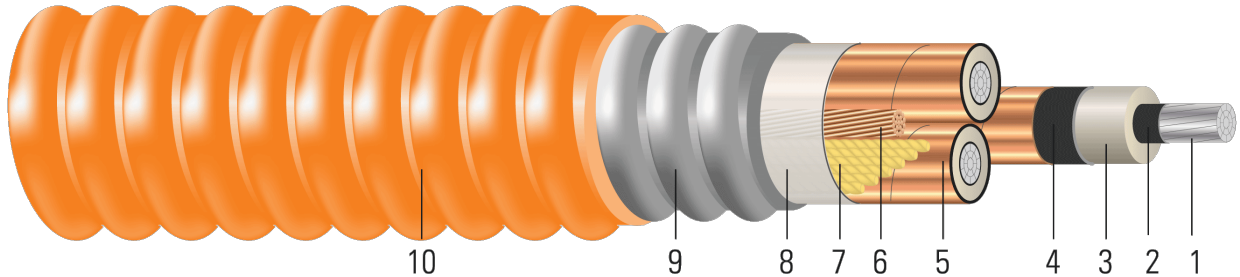


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B compact stranded bare aluminum per ASTM B800 and B836
2. **Conductor Shield:** Semi-conducting cross-linked copolymer; A conductor separator is used for cable size larger than or equal to 500 Kcmil
3. **Insulation:** 420 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. **Grounding Conductor:** Class B compressed stranded bare copper ground per ASTM B3 and B8
7. **Filler:** Wax paper filler
8. **Binder:** Polypropylene tape
9. **Armor:** ARMOR-X<sup>®</sup> Continuous Corrugated Welded Armor
10. **Overall Jacket:** Polyvinyl Chloride (PVC)

## APPLICATIONS AND FEATURES:

Southwire's 35KV ARMOR-X<sup>®</sup> are armored cables 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, 250°C for short circuit conditions, and -50°C for cold bend. For uses in Class I, II, and III, Division 1 and 2 hazardous locations per NEC Article 501, 502, and 503.

## SPECIFICATIONS:

- ASTM B801 Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy
- ASTM B836 Compact Rounded Stranded Aluminum Conductors
- UL 1072 Medium-Voltage Power Cables
- UL 1685 FT4 Vertical-Tray Fire Propagation and Smoke Release Test
- 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
- AEIC 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
- Buy American: Compliant with Buy American Requirements, found in 49 U.S.C. § 5323(j); specify "Made in the USA Only!" when ordering to ensure your project receives American made products.

**SAMPLE PRINT LEGEND:**

{SQFTG\_DUAL} SOUTHWIRE® ARMOR-X® {UL} MV-105 OR MC-HL 3/C SHIELDED XXX KCMIL COMPACT AL.---  
{ALUMAFLEX}® AA8176 420 MILS NL-EPR 25%TS GW 1 X 1 AWG CU 90°C JKT DIR. BUR. FOR CT USE FT4 -40°C SUN.  
RES. 35KV 133% -- USA {NESC}

**Table 1 – Weights and Measurements**

| Stock Number | Cond. Size | Strand Count   | Diameter Over Conductor | Diameter Over Insulation | Diameter Over Insulation Shield | Ground    | Diameter Over armor | Jacket Thickness | Approx. OD | Copper Weight | Aluminum Weight | Approx. Weight | Max Pull Tension | Min Bending Radius |
|--------------|------------|----------------|-------------------------|--------------------------|---------------------------------|-----------|---------------------|------------------|------------|---------------|-----------------|----------------|------------------|--------------------|
|              | AWG/Kcmil  | No. of Strands | inch                    | inch                     | inch                            | No. x AWG | inch                | mil              | inch       | lb/1000ft     | lb/1000ft       | lb/1000ft      | lb               | inch               |
| TBA          | 1/0        | 19             | 0.336                   | 1.214                    | 1.274                           | 1x6       | 3.290               | 90               | 3.470      | 157           | 847             | 4276           | 1900             | 24.2               |
| TBA          | 2/0        | 19             | 0.376                   | 1.254                    | 1.314                           | 1x4       | 3.540               | 90               | 3.720      | 207           | 951             | 4623           | 2395             | 26.0               |
| TBA          | 3/0        | 19             | 0.422                   | 1.300                    | 1.360                           | 1x4       | 3.540               | 90               | 3.720      | 210           | 1051            | 4861           | 3020             | 26.0               |
| 591154       | 4/0        | 19             | 0.474                   | 1.353                    | 1.413                           | 1x4       | 3.540               | 85               | 3.710      | 130           | 1177            | 5063           | 3808             | 25.9               |
| TBA          | 250        | 35             | 0.520                   | 1.406                    | 1.466                           | 1x3       | 3.850               | 90               | 4.030      | 217           | 1335            | 5574           | 4500             | 28.2               |
| TBA          | 350        | 35             | 0.615                   | 1.501                    | 1.561                           | 1x3       | 3.850               | 90               | 4.030      | 256           | 1619            | 6188           | 6300             | 28.2               |

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

\* Strand count meets minimum number per ASTM

**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                                |
| 1/0        | 0.168                | 0.211                | 0.067                       | 0.053                      | 0.463 + j0.351          | 0.102 + j0.047              | 3978                                  | 150/165                             | 170/185                            |
| 2/0        | 0.133                | 0.167                | 0.062                       | 0.051                      | 0.463 + j0.351          | 0.102 + j0.047              | 4102                                  | 170/185                             | 190/215                            |
| 3/0        | 0.105                | 0.133                | 0.058                       | 0.049                      | 0.463 + j0.489          | 0.102 + j0.042              | 4244                                  | 195/210                             | 220/245                            |
| 4/0        | 0.084                | 0.105                | 0.054                       | 0.047                      | 0.464 + j0.490          | 0.102 + j0.041              | 4405                                  | 220/240                             | 255/285                            |
| 250        | 0.071                | 0.090                | 0.051                       | 0.046                      | 0.464 + j0.490          | 0.102 + j0.041              | 4573                                  | 245/265                             | 280/315                            |
| 350        | 0.050                | 0.065                | 0.046                       | 0.043                      | 0.464 + j0.490          | 0.102 + j0.041              | 4867                                  | 295/315                             | 345/385                            |

\* NEC ampacities are based on:

\* For Duct: Table 310.60(C)(14) Detail 1.

\* For Free Air: Table 310.60(C)(6).

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

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

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

