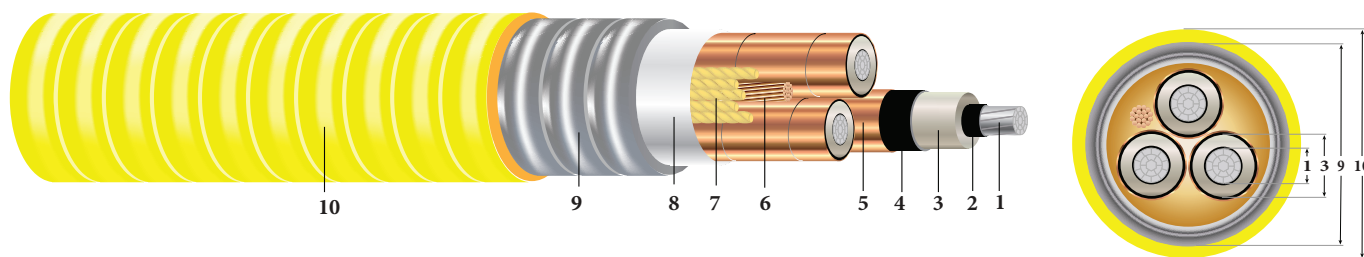


## 3/C AL 5KV 90 NL-EPR 100% TS AIA PVC MV-105

Type MV-105 Three Conductor Aluminum, 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% Insulation Level, Tape Shield, Aluminum Interlocked Armor (AIA), Polyvinyl Chloride (PVC) Jacket



Images not to scale. See Table 1 for Dimensions

### CONSTRUCTION:

1. **Conductor:** Class B compact stranded 8000 Series aluminum per ASTM B800 and ASTM 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:** 90 Mils No Lead Ethylene Propylene Rubber (NL-EPR) 100% Insulation Level,
4. **Insulation Shield:** Stripable 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 per ASTM B3 and ASTM B8
7. **Filler:** Wax paper filler
8. **Binder:** Polypropylene tape
9. **Armor:** Aluminum Interlocked Armor (AIA)
10. **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
- ICEA S-93-639 (NEMA WC 74) 5-46 KV Shielded Power Cable & ICEA S-97-682 5-46 KV Utility
- UL 1685/FT4 Vertical-Tray Fire Propagation and Smoke Release Test
- IEEE 1202 -Flame Test (70,000) BTU/hr Vertical Tray Test
- AEIC CS-8 Specification for extruded dielectric shielded power cables rated for 5 through 46KV

### SAMPLE PRINT LEGEND:

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



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**Southwire®**

Table 1 – Weights &amp; Measurements

| Stock Code | Cond. Size<br>AWG | Diameter over          |                         |                            | Ground<br>No. x AWG | Dia. Over<br>Armor<br>(9)<br>inches | Jacket<br>Thickness<br>mils | Approx.<br>OD<br>(10)<br>inches | Approx.<br>Weight<br>lbs./MFT | Max Pull<br>Tension<br>lbs. | Min<br>Bending<br>Radius<br>inches |
|------------|-------------------|------------------------|-------------------------|----------------------------|---------------------|-------------------------------------|-----------------------------|---------------------------------|-------------------------------|-----------------------------|------------------------------------|
|            |                   | Cond.<br>(1)<br>inches | Insul.<br>(3)<br>inches | Insul.<br>Shield<br>inches |                     |                                     |                             |                                 |                               |                             |                                    |
| TBA        | 2                 | 0.268                  | 0.485                   | 0.545                      | 1 x 6               | 1.442                               | 50                          | 1.542                           | 1085                          | 1194                        | 10.8                               |
| TBA        | 1                 | 0.299                  | 0.516                   | 0.576                      | 1 x 6               | 1.509                               | 60                          | 1.629                           | 1218                          | 1506                        | 11.4                               |
| TBA        | 1/0               | 0.336                  | 0.553                   | 0.613                      | 1 x 6               | 1.589                               | 60                          | 1.709                           | 1347                          | 1901                        | 12.0                               |
| TBA        | 2/0               | 0.376                  | 0.593                   | 0.653                      | 1 x 4               | 1.676                               | 60                          | 1.796                           | 1545                          | 2396                        | 12.6                               |
| TBA        | 3/0               | 0.423                  | 0.640                   | 0.700                      | 1 x 4               | 1.777                               | 60                          | 1.897                           | 1732                          | 3020                        | 13.3                               |
| TBA        | 4/0               | 0.475                  | 0.692                   | 0.752                      | 1 x 4               | 1.990                               | 60                          | 2.110                           | 2045                          | 3809                        | 14.8                               |
| TBA        | 250               | 0.520                  | 0.746                   | 0.806                      | 1 x 4               | 2.106                               | 60                          | 2.226                           | 2272                          | 4500                        | 15.6                               |
| TBA        | 350               | 0.616                  | 0.842                   | 0.902                      | 1 x 3               | 2.314                               | 75                          | 2.464                           | 2855                          | 6300                        | 17.2                               |
| TBA        | 500               | 0.736                  | 0.962                   | 1.022                      | 1 x 2               | 2.573                               | 75                          | 2.723                           | 3588                          | 9000                        | 19.1                               |
| TBA        | 750               | 0.908                  | 1.165                   | 1.225                      | 1 x 1               | 3.011                               | 85                          | 3.181                           | 4916                          | 13500                       | 22.3                               |

All dimensions are nominal and subject to normal manufacturing tolerances

Table 2 – Electrical and Engineering Data

| Stock Code | Cond. Size<br>AWG | Resistance            |                       | Reactance                          |                                   | Positive<br>Sequence<br>Impedance* | Zero<br>Sequence<br>Impedance* | Shield Short<br>Circuit<br>Current<br>6 Cycles<br>Amps | Allowable Ampacities<br>90°C/105°C |                  |
|------------|-------------------|-----------------------|-----------------------|------------------------------------|-----------------------------------|------------------------------------|--------------------------------|--------------------------------------------------------|------------------------------------|------------------|
|            |                   | DC<br>@ 25°C<br>Ω/MFT | AC<br>@ 90°C<br>Ω/MFT | X <sub>C</sub><br>@ 60Hz<br>MΩ*MFT | X <sub>L</sub><br>@ 60Hz<br>Ω/MFT |                                    |                                |                                                        | Directly<br>Buried †<br>Amps       | In Air ‡<br>Amps |
| TBA        | 2                 | 0.266                 | 0.334                 | 0.032                              | 0.039                             | 0.335 + j0.039                     | 0.698 + j0.550                 | 1806                                                   | 140 / 150                          | 110 / 120        |
| TBA        | 1                 | 0.211                 | 0.265                 | 0.029                              | 0.038                             | 0.265 + j0.038                     | 0.632 + j0.531                 | 1906                                                   | 155 / 170                          | 125 / 140        |
| TBA        | 1/0               | 0.168                 | 0.211                 | 0.027                              | 0.036                             | 0.211 + j0.036                     | 0.582 + j0.509                 | 2027                                                   | 180 / 190                          | 154 / 160        |
| TBA        | 2/0               | 0.133                 | 0.167                 | 0.025                              | 0.035                             | 0.168 + j0.035                     | 0.541 + j0.486                 | 2157                                                   | 205 / 220                          | 170 / 185        |
| TBA        | 3/0               | 0.105                 | 0.132                 | 0.022                              | 0.034                             | 0.132 + j0.034                     | 0.507 + j0.461                 | 2310                                                   | 230 / 250                          | 195 / 215        |
| TBA        | 4/0               | 0.084                 | 0.105                 | 0.020                              | 0.033                             | 0.106 + j0.033                     | 0.481 + j0.435                 | 2479                                                   | 260 / 280                          | 225 / 250        |
| TBA        | 250               | 0.071                 | 0.089                 | 0.019                              | 0.032                             | 0.089 + j0.032                     | 0.464 + j0.410                 | 2655                                                   | 285 / 310                          | 250 / 280        |
| TBA        | 350               | 0.051                 | 0.064                 | 0.017                              | 0.031                             | 0.064 + j0.031                     | 0.435 + j0.370                 | 2967                                                   | 345 / 375                          | 310 / 345        |
| TBA        | 500               | 0.035                 | 0.045                 | 0.014                              | 0.030                             | 0.045 + j0.030                     | 0.409 + j0.326                 | 3357                                                   | 420 / 450                          | 385 / 430        |
| TBA        | 750               | 0.024                 | 0.031                 | 0.013                              | 0.029                             | 0.031 + j0.029                     | 0.376 + j0.268                 | 4018                                                   | 520 / 560                          | 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)(84) 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)

