

# SPECIFICATION CONTROL DRAWING

81A0111

TITLE

WIRE, ELECTRIC, RADIATION-CROSSLINKED, MODIFIED, FLUOROPOLYMER-INSULATED, LIGHTWEIGHT, FLEXIBLE

Date

25APR11

Revision

J1

This specification sheet forms a part of the latest of Raychem Specification 80.

CONDUCTOR - TIN-COATED COPPER

INSULATION - RADIATION-CROSSLINKED, MODIFIED FLEXIBLE ETFE

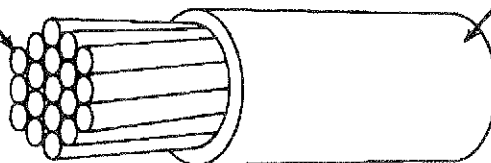


TABLE I. CONSTRUCTION DETAILS

| PART NUMBER  | WIRE SIZE (AWG) | CONDUCTOR STRANDING (number x AWG) | DIAMETER OF STRANDED CONDUCTOR (in.) |         | FINISHED WIRE                              |                |                              |
|--------------|-----------------|------------------------------------|--------------------------------------|---------|--------------------------------------------|----------------|------------------------------|
|              |                 |                                    | MINIMUM                              | MAXIMUM | MAXIMUM RESISTANCE AT 20°C (ohms/1000 ft.) | DIAMETER (in.) | MAXIMUM WEIGHT (lbs/1000ft.) |
| 81A0111-28-* | 28              | 7 x 36                             | .014                                 | .015    | 68.6                                       | .027 ± .002    | .90                          |
| 81A0111-26-* | 26              | 19 x 38                            | .018                                 | .019    | 41.3                                       | .031 ± .002    | 1.4                          |
| 81A0111-24-* | 24              | 19 x 36                            | .023                                 | .024    | 26.2                                       | .036 ± .002    | 2.0                          |
| 81A0111-22-* | 22              | 19 x 34                            | .029                                 | .030    | 16.2                                       | .042 ± .002    | 2.8                          |
| 81A0111-20-* | 20              | 19 x 32                            | .037                                 | .038    | 9.88                                       | .051 ± .002    | 4.4                          |
| 81A0111-18-* | 18              | 19 x 30                            | .046                                 | .047    | 6.23                                       | .061 ± .003    | 6.7                          |
| 81A0111-16-* | 16              | 19 x 29                            | .052                                 | .053    | 4.81                                       | .068 ± .003    | 8.5                          |
| 81A0111-14-* | 14              | 19 x 27                            | .065                                 | .067    | 3.06                                       | .083 ± .004    | 13.1                         |
| 81A0111-12-* | 12              | 37 x 28                            | .084                                 | .086    | 2.02                                       | .105 ± .004    | 20.4                         |
| 81A0111-10-* | 10              | 37 x 26                            | .106                                 | .108    | 1.24                                       | .131 ± .005    | 32.9                         |
| 81A0111- 8-* | 8               | 133 x 29                           | .158                                 | .162    | .715                                       | .190 ± .008    | 59.8                         |
| 81A0111- 6-* | 6               | 133 x 27                           | .198                                 | .204    | .445                                       | .237 ± .010    | 92.7                         |

TABLE II. PERFORMANCE DETAILS

| PART NUMBER  | BEND TESTING                                 |           |                                              |           |
|--------------|----------------------------------------------|-----------|----------------------------------------------|-----------|
|              | MANDREL DIAMETER (inch) (±3%)                |           | WEIGHT (lb) (± 3%)                           |           |
|              | IMMERSION, LIFE CYCLE AND CROSSLINKING PROOF | COLD BEND | IMMERSION, LIFE CYCLE AND CROSSLINKING PROOF | COLD BEND |
| 81A0111-28-* | .250                                         | .375      | .125                                         | .500      |
| 81A0111-26-* | .375                                         | .500      | .125                                         | .500      |
| 81A0111-24-* | .375                                         | .500      | .250                                         | 1.00      |
| 81A0111-22-* | .500                                         | .750      | .375                                         | 1.00      |
| 81A0111-20-* | .500                                         | .750      | .500                                         | 1.00      |
| 81A0111-18-* | .500                                         | 1.00      | .500                                         | 1.00      |
| 81A0111-16-* | .750                                         | 1.00      | .750                                         | 1.00      |
| 81A0111-14-* | 1.00                                         | 1.50      | 1.00                                         | 3.00      |
| 81A0111-12-* | 1.50                                         | 2.00      | 1.50                                         | 3.00      |
| 81A0111-10-* | 2.00                                         | 3.00      | 1.50                                         | 3.00      |
| 81A0111- 8-* | 3.00                                         | 4.00      | 2.00                                         | 4.00      |
| 81A0111- 6-* | 3.00                                         | 4.00      | 2.00                                         | 4.00      |

COLORS AND COLOR CODE DESIGNATORS SHALL BE IN ACCORDANCE WITH MIL-STD-681.

DIMENSIONS ARE IN INCHES, AND UNLESS OTHERWISE DESIGNATED ARE NOMINAL.

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THIS SPECIFICATION SHEET TAKES PRECEDENCE OVER DOCUMENTS REFERENCED HEREIN. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATION FOR BID.

**TE** TE Connectivity  
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## WIRE RATINGS AND ADDITIONAL REQUIREMENTS

TEMPERATURE RATING: 150°C

Maximum continuous conductor temperature

VOLTAGE RATING: 600 volts (rms)

BLOCKING: 150 ± 3°C for 24 hours

COLOR: White preferred

CONCENTRICITY: 70% (minimum)

CROSSLINKING PROOF TEST: 300 ± 3°C for 7 hours

FLAMMABILITY: Procedure 1, 3 seconds (maximum); 3 in. (maximum)

IDENTIFICATION AND COLOR STRIPING DURABILITY:

125 cycles (250 strokes) (minimum), 500 g weight

INSULATION ELONGATION AND TENSILE STRENGTH:

AWG 28 - 10, Elongation, 75% (minimum)

Tensile Strength, 3500 lbf/in<sup>2</sup> (minimum)

AWG 8 - 6, Elongation, 125% (minimum)

Tensile Strength, 3000 lbf/in<sup>2</sup> (minimum)

INSULATION FLAWS: Impulse Dielectric Test, 6.0 kV (peak)

INSULATION RESISTANCE: 500 megohms for 1000 ft. (minimum) for AWG 28 - 10;

100 megohms for 1000 ft. (minimum) for AWG 8 - 6

INSULATION THICKNESS:

0.004 in. (minimum) for AWG's 28 - 16,

0.006 in. (minimum) for AWG's 14 - 10,

0.012 in. (minimum) for AWG's 8 - 6

LIFE CYCLE: 200 ± 3°C for 500 hours

LOW TEMPERATURE-COLD BEND: -65 ± 3°C for 4 hours

PRODUCT IDENTIFICATION: AWG 28 - 10, Black ink only;

AWG 8 and larger, black ink preferred

SECANT MODULUS: 5.0 x 10<sup>4</sup> lbf/in<sup>2</sup> (maximum), for AWG's 28 - 10,4.0 x 10<sup>4</sup> lbf/in<sup>2</sup> (maximum), for AWG's 8 - 6,

2% strain, 2 inch jaw separation, 0.2 inch/minute, procedural reference ASTM D 882

SHRINKAGE: 150 ± 3°C for 6 hours,

0.13 inch (maximum) in 12 inches for AWG's 28 - 10,

0.25 inch (maximum) in 12 inches for AWG's 8 - 6

SMOKE TEST: 200 ± 2°C. No visible smoke.

THERMAL SHOCK: 150 ± 3°C,

0.060 in. (maximum) for AWG's 28 - 12;

0.100 in. (maximum) for AWG 10;

0.250 in. (maximum) for AWG 8 and larger

VOLTAGE WITHSTAND TEST (POST ENVIRONMENTAL): 2500 volts (rms)

## PART NUMBER:

The "\*" in the part numbers on page 1 shall be replaced by color code designators.

Example: AWG 12, white: 81A0111-12-9

AWG 12, white with black stripe: 81A0111-12-90