

# SPECIFICATION CONTROL DRAWING

SCD **ATF+0311**

Title **AUTOMATIC TRANSMISSION CABLE,  
RADIATION-CROSSLINKED, MODIFIED FLUOROPOLYMER-INSULATED, 600 VOLT**

Date **1-29-15**

Revision **H**

This specification sheet forms a part of the latest issue of Raychem Specification 63.

CONDUCTOR - TIN-COATED COPPER

INSULATION - RADIATION-CROSSLINKED,  
MODIFIED FLUOROPOLYMER

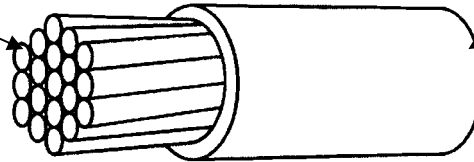


TABLE I. CONSTRUCTION DETAILS

| PART NUMBER<br><i>1/</i> | WIRE SIZE<br>(AWG) | CONDUCTOR STRANDING<br>(number x AWG) | CONDUCTOR DIAMETER<br>(inch) (mm) |                  | MAXIMUM RESISTANCE<br>AT 20°C<br>(ohms/1000 ft.)<br>(ohms/km) | FINISHED CABLE          |              |                  | NOMINAL WEIGHT<br>(lbs/1000 ft.)<br>(kg/km) |
|--------------------------|--------------------|---------------------------------------|-----------------------------------|------------------|---|-------------------------|--------------|------------------|---|
|                          |                    |                                       | LOWER SPEC LIMIT                  | UPPER SPEC LIMIT |   | DIAMETER<br>(inch) (mm) |              |                  |   |
|                          |                    |                                       |                                   |                  |   | LOWER SPEC LIMIT        | TARGET VALUE | UPPER SPEC LIMIT |   |
| ATFC0311-22-*            | 22                 | 19 x 34                               | .029 (.737)                       | .031 (.787)      | 16.2 (53.1)   | .044 (1.12)             | .046 (1.17)  | .048 (1.22)      | 3.0 (4.46)                                  |
| ATFC0311-20-*            | 20                 | 19 x 32                               | .037 (.940)                       | .039 (.991)      | 9.88 (32.4)   | .052 (1.32)             | .054 (1.37)  | .056 (1.42)      | 4.4 (6.55)                                  |
| ATFC0311-18-*            | 18                 | 19 x 30                               | .046 (1.17)                       | .049 (1.24)      | 6.23 (20.4)   | .061 (1.55)             | .063 (1.60)  | .065 (1.65)      | 6.6 (9.82)                                  |
| ATFC0311-16-*            | 16                 | 19 x 29                               | .052 (1.32)                       | .055 (1.40)      | 4.81 (15.8)   | .066 (1.68)             | .069 (1.75)  | .072 (1.83)      | 8.3 (12.4)                                  |
| ATFC0311-14-*            | 14                 | 19 x 27                               | .065 (1.65)                       | .069 (1.75)      | 3.06 (10.0)   | .083 (2.11)             | .086 (2.18)  | .089 (2.26)      | 12.9 (19.2)                                 |
| ATFD0311-16-*            | 16                 | 37 x 32                               | .051 (1.30)                       | .056 (1.42)      | 4.98 (16.3)   | .067 (1.70)             | .070 (1.78)  | .073 (1.85)      | 8.5 (12.6)                                  |
| ATFD0311-14-*            | 14                 | 37 x 30                               | .067 (1.70)                       | .072 (1.83)      | 3.11 (10.2)   | .089 (2.26)             | .093 (2.36)  | .097 (2.46)      | 15.5 (23.1)                                 |

Users should evaluate the suitability of this product for their application. Specifications are subject to change without notice.  
Tyco Electronics Corporation also reserves the right to make changes in materials or processing, which do not affect compliance with any specification, without notification to Buyer.

*1/* COLORS SHALL BE IN ACCORDANCE WITH SAE J1128. COLOR CODE DESIGNATORS SHALL BE IN ACCORDANCE WITH SPEC 63.  
OTHER CODES AND SUFFIXES MAY BE ADDED TO THE PART NUMBER, AS NECESSARY, TO CAPTURE ANY ADDITIONAL REQUIREMENTS IMPOSED BY THE PURCHASE ORDER.

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

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



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**TABLE II. PERFORMANCE DETAILS**

| PART NUMBER<br><u>1/</u> | HEAT RESISTANCE - BEND TESTING         |                            | DYNAMIC CUT-THROUGH<br>(lb) (kg) (minimum) |                    |
|--------------------------|--|----------------------------|--|--------------------|
|                          | MANDREL DIAMETER<br>(inch) (mm) (± 3%) | WEIGHT<br>(lb) (kg) (± 3%) | INITIAL                                    | AFTER<br>IMMERSION |
|                          |  |                            |  |                    |
| ATFC0311-22-*            | .750 (19.1)                            | .375 (.170)                | TBD  | TBD                |
| ATFC0311-20-*            | .750 (19.1)                            | .375 (.170)                | 20 (9.07)                                  | 20 (9.07)          |
| ATFC0311-18-*            | .750 (19.1)                            | .375 (.170)                | TBD  | TBD                |
| ATFC0311-16-*            | .750 (19.1)                            | .375 (.170)                | TBD  | TBD                |
| ATFC0311-14-*            | .750 (19.1)                            | .375 (.170)                | TBD  | TBD                |
| ATFD0311-16-*            | 1.00 (25.4)                            | .500 (.227)                | TBD  | TBD                |
| ATFD0311-14-*            | 1.00 (25.4)                            | .500 (.227)                | TBD  | TBD                |

**CABLE RATINGS AND ADDITIONAL REQUIREMENTS**

VOLTAGE RATING: 600 volts (dc) at sea level

CONCENTRICITY: 70% (minimum)

CROSSLINK PROOF TEST: Per QC/3/117

FLAMMABILITY: 70 seconds (maximum) afterburn

HEAT RESISTANCE: 150 ± 2°C for 1 hour

no cracking, no dielectric breakdown

INSULATION ELONGATION AND TENSILE STRENGTH:

(Pulled at 2 inches (51 mm) per minute)

Elongation, 150% (minimum)

Tensile Strength, 3000 lbf/in<sup>2</sup> (20.7 N/mm<sup>2</sup>) (minimum)

INSULATION FLAWS:

Impulse Dielectric,

ATFC0311, 14 AWG and smaller, 5.0 kV (peak)

ATFD0311-16, 5.0 kV (peak)

ATFD0311-14, 6.0 kV (peak)

INSULATION RESISTANCE:

1000 kohms for 1000 ft. (305 kohms for 1 km) (minimum)

LOW TEMPERATURE-COLD BEND: -55 ± 3°C for 4 hours

SHRINKAGE: 0.050 inch (1.27 mm) (maximum)

STRIP FORCE: 4.5 lbs (2.04 kg) (minimum)

THERMAL STABILITY: Short Term, 200 ± 3°C for 168 hours

Elongation Retention, 80% (minimum)

Tensile Strength Retention, 80% (minimum)

TRANSMISSION FLUID RESISTANCE: Dexron VI, 150 ± 2°C for 720 hours

Diameter Swell, 5% (maximum)

Mandrel Wrap, 1x diameter mandrel, no dielectric breakdown

Dynamic Cut-Through, see Table II

VOLTAGE WITHSTAND (Post Environmental):

1000 volts (rms), 60 Hz, 1 minute

1/ PART NUMBER:

The "+" in the part number in the upper right hand corner of pages 1 and 2 shall be replaced with a letter designator to define conductor stranding (see part numbers in table).

C = 19 Strands D = 37 Strands

The "\*" in the part numbers in Tables I and II shall be replaced by a color code designator.

Example: AWG 20, 19 strands, dark blue: ATFC0311-20-6D

1/ See footer section on page 1