

# SPECIFICATION CONTROL DRAWING

SCD

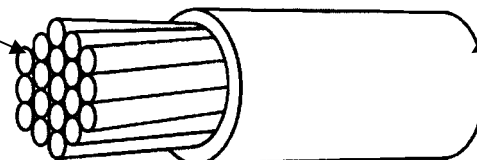
**ATF+0411**

Title AUTOMATIC TRANSMISSION CABLE,  
RADIATION-CROSSLINKED, MODIFIED FLUOROPOLYMER-INSULATED, 600 VOLT  
This specification sheet forms a part of the latest issue of Raychem Specification 63.

Date  
1-29-15

Revision  
D

CONDUCTOR - TIN-COATED COPPER



INSULATION - RADIATION-CROSSLINKED,  
MODIFIED FLUOROPOLYMER

TABLE I. CONSTRUCTION DETAILS

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PART NUMBER 1/	WIRE SIZE (AWG)	CONDUCTOR STRANDING (number x AWG)	CONDUCTOR DIAMETER (inch) (mm)		FINISHED CABLE				NOMINAL WEIGHT (lbs/1000 ft.) (kg/km)
					MAXIMUM RESISTANCE AT 20°C (ohms/1000 ft.) (ohms/km)	DIAMETER (inch) (mm)			
			LOWER SPEC LIMIT	UPPER SPEC LIMIT		LOWER SPEC LIMIT	TARGET VALUE	UPPER SPEC LIMIT	
ATFB0411-20-*	20	7 x 28	.037 (.940)	.039 (.991)	10.2 (33.5)	.0635 (1.61)	.0655 (1.66)	.0675 (1.71)	5.1 (7.59)
ATFC0411-22-*	22	19 x 34	.029 (.737)	.031 (.787)	16.2 (53.1)	.0555 (1.41)	.0575 (1.46)	.0595 (1.51)	3.7 (5.51)
ATFC0411-18-*	18	19 x 30	.046 (1.17)	.049 (1.24)	6.23 (20.4)	.0725 (1.84)	.0745 (1.89)	.0765 (1.94)	7.6 (11.3)
ATFC0411-14-*	14	19 x 27	.065 (1.65)	.069 (1.75)	3.06 (10.0)	.0920 (2.34)	.0940 (2.39)	.0960 (2.44)	13.8 (20.5)

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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Page

2 of 2

Revision

D

SCD

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TABLE II. PERFORMANCE DETAILS

PART NUMBER <sup>1/</sup>	HEAT RESISTANCE - BEND TESTING		DYNAMIC CUT-THROUGH (lb) (kg) (minimum)	
	MANDREL DIAMETER (inch) (mm) (± 3%)	WEIGHT (lb) (kg) (± 3%)	INITIAL	AFTER IMMERSION
ATFB0411-20-*	.750 (19.1)	.500 (.227)	TBD	TBD
ATFC0411-22-*	.750 (19.1)	.500 (.227)	TBD	TBD
ATFC0411-18-*	.750 (19.1)	.500 (.227)	TBD	TBD
ATFC0411-14-*	.750 (19.1)	.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 Test, 6.0 kV (peak)

INSULATION RESISTANCE:

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

INSULATION THICKNESS:

0.011 inch (.279 mm) (minimum)

0.0126 inch (.320 mm) (minimum average)

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

### <sup>1/</sup> 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).

B = 7 Strands C = 19 Strands

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

Example: AWG 20, 7 strands, dark blue: ATFB0411-20-6D

<sup>1/</sup> See footer section on page 1