Introducing

Raychem RT-780 Heat-Shrink Tubing (Orange color)

for Indicating High Power Circuits in Vehicles and Equipment

TE connectivity

RT-780
Orange Tubing

KEY FEATURES

Provided or supplied in an orange color to easily identify high power circuits

Tubing has been hardened to withstand the damaging effect of NBC contamination and decontamination

Tubing meets all of the flammability and fluid resistance demands of current military ground vehicles

Temperature rating -55˚C to +175˚C

DESCRIPTION

A special version of our 780 tubing has been created for indicating high power circuits in electrical propulsion systems. This orange color tubing meets all requirements of RT-780 Type I product and is compatible with RT-780 Type 2 molded parts and RT-1014 adhesive.

Product is provided in similar spool quantities as RT-780 standard tubing material.

APPLICATIONS

Indication for high amperage circuits and high power voltage circuits

High voltage electrical propulsion system in auxillary and commercial service vehicles

TEMPERATURE RATING

System 780	-55˚C to +175˚C

STANDARDS & SPECS

Tested to TE RT-780 specification additionally to SCX-115112 or SCX-15111 for survivability in standard military vehicle fluids at elevated temperatures.

	Wire	Tubing	Molded Parts	Adhesive
System 780	SPEC 55	RT-780 Type 1	RT-780 Type II	RT-1014
System 30	SPEC 55	RT-780 Type 1	-50 Shapes	RT-1014

KEY COMPONENTS

Description	System 780	System 30
Heat-shrinkable tubing	RT-780-x/x-3	RT-780-x/x-3
Molded part - boot (black)	-780	-50
Molded part - transition (black)	-780	-50
Adhesive	S1255-04 or S1264	S1255-04
Wire - primary	SPEC 55	SPEC 55
Marker sleeve	NBC-SCE	HT-SCE
Marker protection sleeve	RT-375	RT-375
Cable	Thermorad 780	Thermorad HT

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PRODUCT DIMENSIONS

	As Supplied Inside Diameter		Recovered Dimensions							
			Inside Diameter		Wall Thickness					
	Minimum		Maximum		Minimum		Maximum		Nominal	
Size	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
3/8	0.375	9.50	0.187	4.74	0.018	0.46	0.024	0.61	0.020	0.51
1/2	0.500	12.70	0.250	6.35	0.020	0.51	0.026	0.66	0.022	0.56
5/8	0.625	15.90	0.312	7.93	0.023	0.58	0.030	0.76	0.026	0.66
3/4	0.750	19.05	0.375	9.50	0.029	0.74	0.036	0.91	0.032	0.81
1	1.000	25.40	0.500	12.70	0.034	0.86	0.041	1.04	0.037	0.99
1-1/4	1.250	31.75	0.625	15.87	0.037	0.94	0.044	1.12	0.040	1.01
1-1/2	1.500	38.10	0.750	19.05	0.041	1.04	0.048	1.22	0.045	1.14
2	2.000	50.80	1.000	25.40	0.044	1.12	0.052	1.32	0.048	1.22

PHYSICAL

Property	Unit	RT-780 Type I Tubing	Test Method
Dimensions	Inches (mm)	In accordance with Table 1	RT-780
Tensile Strength	Psi (MPa)	3000 (20.7) minimum	ASTM D 412
Ultimate Elongation	Percent	300 minimum	ASTM D 412
Secant Modulus (expanded), 2%	Psi (MPa)	50,000 (345) maximum	ASTM 882
Specific Gravity	–	2.0 maximum	ASTM D 792
Low Temperature Flexibility 4 hours at -55±3°C (-65±5°F)	–	No cracking	RT-780
Heat Shock 4 hours at 275±5°C (527±9°F)	–	No dripping, flowing or cracking	RT-780
Heat Resistance			RT-780
336 hours at 200±3°C (392±5°F)			
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	—
Ultimate Elongation	Percent	250 minimum	—

ELECTRICAL

Property	Unit	RT-780 Type I Tubing	Test Method
Dielectric Strength (kV/mm)	Volts/mil	200 (7.9) minimum	ASTM D 149
Volume Resistivity	Ohm-cm	1 x 10^{11} minimum	ASTM D 257

NUCLEAR

Property	Unit	RT-780 Type I Tubing	Test Method
Radiation Resistance -10 Mrads gamma			RT-780
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	
Ultimate Elongation	Percent	150 minimum	

RT-780 Orange Tubing

CHEMICAL

Property	Unit	RT-780 Type I Tubing	Test Method
Copper Mirror Corrosion 16 hours at 175±3°C (347±5°F)	– –	 Non Corrosive	ASTM D 2671 Procedure A
Fungus Resistance	Growth	Rating of 1 or less	ASTM G 21
Water Absorption 24 hours at 23±3°C (73±5°F)	 Percent	 0.5 maximum	 ASTM D 570
Flammability	–	1) 25% max. flag burn 2) No burning of cotton 3) No flaming or glowing longer than 30 seconds	ASTM D 2671 Procedure C
Average Burn Time Average extent of burning	Seconds Inches	–	ASTM D 635-98
Fluid Resistance			RT-780
24 hours at 23±3°C (73±5°F) a) JP-8 Jet Fuel (MIL-DTL-83133)			
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	
Ultimate Elongation	Percent	250 minimum	
Weight Increase	Percent	3 maximum	
24 hours at 50±3°C (122±5°F) a) Bore Cleaner (MIL-PRF-372 b) Diesel Fuel DF-2 (A-A-52557A) c) Anti-Icing Fluid (SAE-AMS-1424) d) Salt-5% solution (ASTM D 632) e) Lubricating Oil (MIL-PRF-2104) f) Lubricating Oil (MIL-PRF-23699) g) Arctic Lube (MIL-PRF-46167) h) Cleaning Compound (A-A-59133) i) Electrolyte (P/N 10873919)			
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	
Ultimate Elongation	Percent	250 minimum	
Weight Increase	Percent	3 maximum	
24 hours at 71±3°C (160±5°F) Hydraulic, synthetic (MIL-PRF-46170)			
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	
Ultimate Elongation	Percent	250 minimum	
Weight Increase	Percent	3 maximum	
4 hours at 23±3°C (73±5°F) a) Decontaminating Agent, DS-2 (MIL-D-50030) b) Decontaminating Agent, STB (MIL-DTL-12468) 5% Solution			RT-780
Followed by tests for:			
Tensile Strength	Psi (MPa)	2000 (13.8) minimum	
Ultimate Elongation	Percent	250 minimum	
Weight Increase	Percent	3 maximum	

ORDERING INFORMATION

TE Connectivity offers a complete system of Raychem brand and other TE brand components that may be used for rugged military grade or NBC contamination survivable applications/requirements.

Examples of these components include Tinel-Lock backshells, CRES-Lock band adapters, molded parts, adhesives, heat-shrinkable tubing, over-braids, interconnection soldering devices, wires, cables, connectors, contacts, etc.

Part numbers, product sizes, additional characteristics of products can be found in Specification Control Drawings and Raychem RT or RW specifications. Contact a TE representative or visit www.te.com\ADM for more detailed information.

PART NUMBERING*

TUBING

RT – 780 – NN – X – SP

- SP — Package Designation (SP = Spool)
- X — Color (0 = black; 3 = orange)
- NN — Tubing Diameter
- 780 — Product Family Name (780)

FOR MORE INFORMATION

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