

High-Temperature Self-Regulating Heating Cables

Electrical process-temperature maintenance for both ordinary and hazardous (classified) areas

The QTVR family of self-regulating heating cables maintains temperatures of process lines up to 225°F (110°C). QTVR heating cables can also be used for freeze protection in systems having

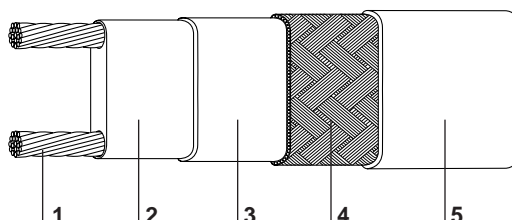
high heat loss. The cables are configured for use in ordinary areas and hazardous (classified) areas, including areas where corrosives may be present.

Use QTVR heating cables in ordinary (nonhazardous) areas and hazardous (classified) areas where exposure to chemicals, solvents or hydrocarbons is expected.

Raychem designed QTVR cables to meet the requirements of the U.S. National Electrical Code and the Canadian Electrical Code. For additional information contact your Raychem representative or call Raychem at (800) 545-6258.

Product construction

- 1 Copper bus wire
- 2 Self-regulating conductive core
- 3 Fluoropolymer jacket
- 4 Tinned-copper braid
- 5 Fluoropolymer outer jacket (-CT)



Product characteristics and design information

	10QTVR1-CT 10QTVR2-CT 15QTVR2-CT	15QTVR1-CT 20QTVR1-CT 20QTVR2-CT	
Weight (lb per 10 ft, nominal)	0.85	1.21	
Bus wire size	16 AWG	14 AWG	
Outer jacket color	Brown	Brown	
Heating cable dimensions	0.55" x 0.25"	0.61" x 0.25"	
Temperature rating			Standards associations have established the T-rating as a means of classifying electrical equipment based on the maximum temperature an exposed surface may attain. The purpose of the T-rating is to ensure that electrical equipment does not exceed the auto-ignition temperatures of flammables handled in hazardous (classified) areas.
Maximum maintain or continuous exposure temperature (power on)	225°F (110°C)	225°F (110°C)	
Maximum intermittent exposure temperature, 1000 hours (power on or off)	225°F (110°C)	225°F (110°C)	
Temperature I.D. no. (T-rating)*	T4: 275°F (135°C)	T4: 275°F (135°C)	
Voltage	120 V (100–130 Vac) 240 V (200–277 Vac)	120 V (100–130 Vac) 240 V (200–277 Vac)	
Design and installation	For proper design and installation, use the TraceCalc software or Design Guide for Insulated Pipes and Tubings (ID# 51149) and the Installation and Maintenance Guide (ID# 54484). Literature is available through Raychem's Fax-on-Demand system. In addition, the appropriate Raychem components must be used.		

*Per Table 500-3(d) of the National Electrical Code (1996).

Maximum circuit lengths based on circuit breaker sizes

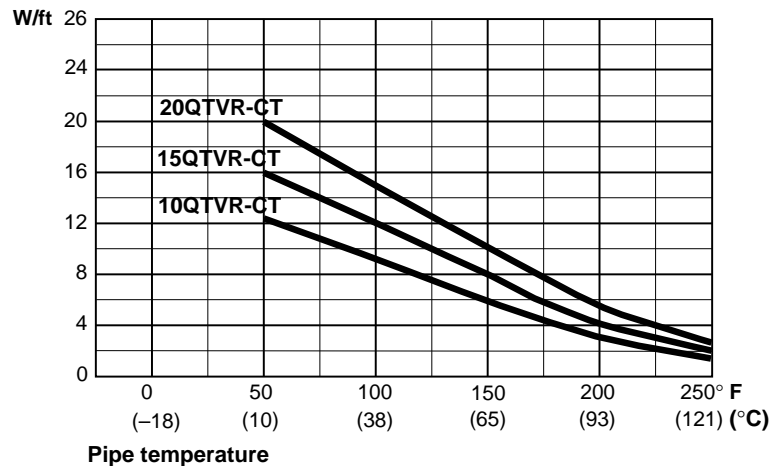
	Ambient temperature at start-up	Maximum circuit length (in feet) per circuit breaker									
		120 V					240 V				
		15 A	20 A	30 A	40 A	50 A	15 A	20 A	30 A	40 A	50 A
10QTVR-CT	50°F	100	130	195	195	N/A	200	265	390	390	N/A
	0°F	80	105	160	195	N/A	160	210	320	390	N/A
	-20°F	70	95	145	195	N/A	145	195	295	390	N/A
	-40°F	65	90	135	180	N/A	135	180	275	365	N/A
15QTVR-CT	50°F	75	100	150	200	220	160	210	320	340	N/A
	0°F	60	80	120	160	200	125	170	255	340	N/A
	-20°F	55	70	110	145	185	115	155	235	315	N/A
	-40°F	50	65	100	135	170	110	145	220	290	N/A
20QTVR-CT	50°F	60	80	120	160	195	120	160	240	320	390
	0°F	45	60	95	125	160	95	125	190	255	320
	-20°F	40	55	85	115	145	85	115	175	235	295
	-40°F	40	55	80	110	135	80	110	165	220	275

⚠ Note: Raychem and the 1996 edition of the U.S. National Electrical Code require both ground-fault protection of equipment and a grounded metallic covering (usually braid) on all heating cables. All Raychem products meet the metallic covering requirement. Following are some of the ground-fault breakers that satisfy this equipment protection requirement: Square D Type QOB-EPD or QO-EPD; Raychem/Square D Type GFPD EHB-EPD (277 Vac); Cutler Hammer (Westinghouse) Type QBGFEP.

Nominal power output rating on metal pipes at 120 V/240 V

	Adjustment factors	
	Power output	Circuit length
208 V		
10QTVR2-CT	0.85	0.94
15QTVR2-CT	0.91	0.91
20QTVR2-CT	0.90	0.91
277 V		
10QTVR2-CT	1.18	1.06
15QTVR2-CT	1.09	1.10
20QTVR2-CT	1.07	1.11

Note: For design and installation, use the TraceCalc software or Design Guide for Insulated Pipes and Tubings (ID# 51149) and the Installation and Maintenance Guide (ID# 54484).



Approvals and certifications



North America

Ordinary areas

Factory Mutual

Canadian Standards Association

Hazardous (classified) areas

Factory Mutual

Class I, Division 2, Groups A, B, C, D

Class II, Division 2, Groups F and G

Class III

Canadian Standards Association

Class I, Divisions 1 and 2, Groups A, B, C, D

Class II, Divisions 1 and 2, Groups E, F, G

Class III

Europe

QTVR heating cables are approved for use in Zone 1 and Zone 2 hazardous areas by BASEEFA, INIEX, and NEMKO.

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