BTV

Visit www.tycothermal.com for more information on our ten-year extended warranty.

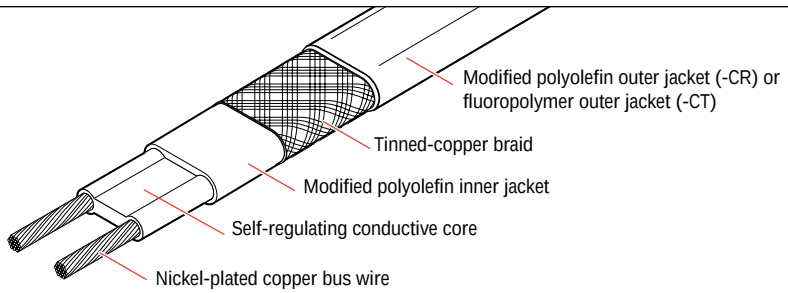
Self-regulating heating cables

Electrical freeze protection for both nonhazardous and hazardous locations.

The BTV family of self-regulating heating cables provides the solution to freeze-protection and process-temperature maintenance applications. BTV heating cables maintain process temperatures up to 150°F (65°C) and can withstand intermittent exposure to temperatures up to 185°F (85°C). The heating cables are configured for use in nonhazardous and hazardous locations, including areas where corrosives may be present.

Raychem® BTV cables meet the requirements of the U.S. National Electrical Code and the Canadian Electrical Code. For additional information, contact your Tyco Thermal Controls representative or call Tyco Thermal Controls at (800) 545-6258.

Heating cable construction



Application	
Area classification	Nonhazardous and hazardous locations
Traced surface type	Metal and plastic
Chemical resistance	Exposure to aqueous inorganic chemicals: Use -CR (modified polyolefin outer jacket) Exposure to organic chemicals or corrosives: Use -CT (fluoropolymer outer jacket) For aggressive organics and corrosives: Consult your Tyco Thermal Controls representative.
Supply Voltage	
BTV1	100–130 Vac
BTV2	200–277 Vac
Temperature Rating	
Maximum maintain or continuous exposure temperature (power on)	150°F (65°C)
Maximum intermittent exposure temperature, 1000 hours (power on)	185°F (85°C)
Temperature ID Number (T-Rating)	T6: 185°F (85°C) Temperature ID numbers are consistent with North America national electrical codes.

Approvals

Hazardous Locations

FM APPROVED, UL LISTED: Class I, Div. 2, Groups A, B, C, D; Class II, Div. 2, Groups F, G; Class III(1)

CSA: Class I, Div. 1 & 2(2), Groups A, B, C, D; Class II, Div. 1 & 2(2), Groups E, F, G; Class III

Zone Approvals

FM APPROVED: CLI, ZN1, AEx e II T6(3)

CSA: Ex e II T6(3)

BTV heating cables also have many other approvals, including Baseefa (2001) Ltd., PTB, DNV, and ABS.

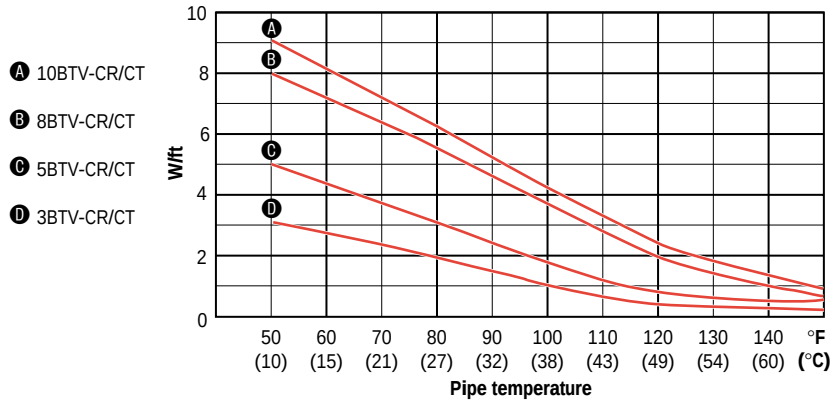
(1) FM Approved only
(2) BTV-CR is CSA Certified for Division 2 only
(3) BTV-CT only

Design and Installation

For proper design and installation, use TraceCalc® Pro design software or the Design section of the *Industrial Product Selection and Design Guide* (H56550). Also, refer to the *Industrial Heat-Tracing Installation and Maintenance Manual* (H57274). Literature is available via the Tyco Thermal Controls Web site, www.tycothermal.com.

Nominal Power Output Rating on Metal Pipes at 120 V/240 V

	Adjustment factors	
	Power output	Circuit length
208 V		
3BTV2-CR/CT	0.82	0.96
5BTV2-CR/CT	0.85	0.94
8BTV2-CR/CT	0.89	0.92
10BTV2-CR/CT	0.89	0.92
277 V		
3BTV2-CR/CT	1.13	1.08
5BTV2-CR/CT	1.12	1.09
8BTV2-CR/CT	1.08	1.11
10BTV2-CR/CT	1.08	1.11



Note: To choose the correct heating cable for your application, use the Design section of the *Industrial Product Selection and Design Guide* (H56550). For more detailed information, use TraceCalc Pro design software.

Maximum Circuit Lengths Based on Circuit Breaker Sizes

	Ambient temperature at start-up		Maximum continuous circuit length (in feet) per circuit breaker							
			120 V				240 V			
			15 A	20 A	30 A	40 A	15 A	20 A	30 A	40 A
3BTV-CR/CT	50°F	(10°C)	330	330	330	330	660	660	660	660
	0°F	(–18°C)	200	265	330	330	395	530	660	660
	–20°F	(–29°C)	175	235	330	330	350	465	660	660
	–40°F	(–40°C)	155	205	310	330	310	410	620	660
5BTV-CR/CT	50°F	(10°C)	230	270	270	270	460	540	540	540
	0°F	(–18°C)	140	190	270	270	285	380	540	540
	–20°F	(–29°C)	125	165	250	270	250	330	500	540
	–40°F	(–40°C)	110	145	220	270	220	295	440	540
8BTV-CR/CT	50°F	(10°C)	150	200	210	210	300	400	420	420
	0°F	(–18°C)	100	130	200	210	200	265	400	420
	–20°F	(–29°C)	85	115	175	210	175	235	350	420
	–40°F	(–40°C)	80	105	155	210	155	210	315	420
10BTV-CR/CT	50°F	(10°C)	120	160	180	180	240	315	360	360
	0°F	(–18°C)	80	110	160	180	160	215	325	360
	–20°F	(–29°C)	70	95	140	180	145	190	285	360
	–40°F	(–40°C)	65	85	125	170	125	170	255	340

Ground-Fault Protection	Tyco Thermal Controls and national electrical codes require both ground-fault protection of equipment and a grounded metallic covering on all heating cables. Following are some of the ground-fault breakers that satisfy this equipment protection requirement: Square D Type QOB-EPD or QO-EPD; TraceGuard 277®; Cutler Hammer (Westinghouse) Type QBGFEP.

Product Characteristics	**3BTV, 5BTV**	**8BTV, 10BTV**
Minimum bend radius	@68°F (20°C):0.5 in (12.7 mm)	@68°F (20°C): 0.5 in (12.7 mm)
Weight (lb per 10 ft, nominal)	0.7	1.0
Bus wire size	16 AWG	16 AWG
Outer jacket color	Black	Black
Heating cable dimensions	0.46 in x 0.25 in (11.7 mm x 6.35 mm)	0.65 in x 0.26 in (16.5 mm x 6.6 mm)

Components	Tyco Thermal Controls offers a full range of components for power connections, splices, and end seals. These components must be used to ensure proper functioning of the product and compliance with warranty, code, and approvals requirements.