

# D1-VSX™

## Self-Regulating Heating Cable for Division 1 Hazardous Areas

### Product Specifications

#### Application . . .

##### Process Temperature Maintenance or Freeze Protection

High performance D1-VSX self-regulating heating cables are designed for process temperature maintenance or freeze protection where high maintain temperatures or high temperature exposure is required.

The heat output of D1-VSX cable varies in response to the surrounding temperature by reducing its thermal output with increasing temperature. With its high self-regulating characteristic, D1-VSX can be installed in hazardous areas requiring a T3 temperature class rating.

D1-VSX cables are specifically approved for use in Division 1 hazardous (classified) areas.

#### Ratings . . .

Available watt densities .....5, 10, 15, 20 w/ft @ 50°F  
(16, 33, 49, 66 w/m @ 10°C)

Supply voltages.....110-120 or 208-277 Vac

Max. maintenance temperature ..... 300°F (149°C)

Max. intermittent exposure temperature

Intermittent power-on.....450°F (232°C)

Intermittent power-off.....482°F (250°C)

Continuous power-off.....400°F (204°C)

Minimum installation temperature ..... -60°F (-51°C)

Minimum bend radius

@ 5°F (-15°C)..... 0.38" (10mm)

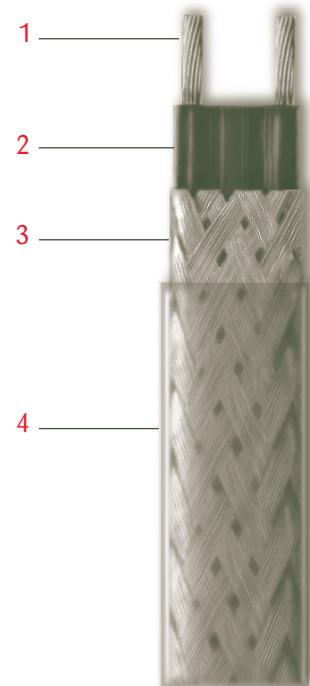
@ -76°F (-60°C)..... 1.25" (32 mm)

T-rating<sup>1,2</sup> ..... T3 392°F (200°C)

#### Basic Accessories . . .

The D1-ECK kit (pictured at right) is required for power connection and heating cable termination in Class I, Division 1 hazardous (classified) areas. D1-ECK-2 kits for in-line splices and D1-ECT kits for T-splices are also available.

If D1-VSX cable terminations and/or splices are located more than 1' (305 mm) outside the Division 1 hazardous area, Division 2 approved termination kits may be used. For additional information on these accessories, refer to Form TEP0010.



#### Construction . . .

- 1 Nickel-Plated Copper Bus Wires (14 AWG)
- 2 Semiconductive Heating Matrix and Fluoropolymer Dielectric Insulation
- 3 Nickel-Plated Copper Braid
- 4 Fluoropolymer overjacket provides additional protection to cable and braid where exposure to chemicals or corrosives is expected



#### Note . . .

1. T-rating per the National Electrical Code.
2. D1-VSX 20 has T-rating T2D 419°F (215°C)



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# D1-VSX™

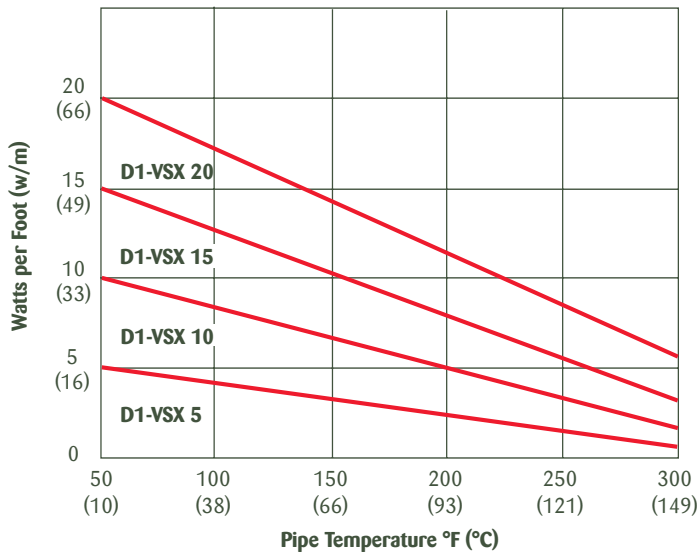
## Self-Regulating Heating Cable for Division 1 Hazardous Areas

## Product Specifications

### Power Output Curves<sup>1</sup> . . .

The power outputs shown apply to cable installed on insulated metallic pipe (using the procedures outlined in IEEE Standard 515-2004) at the service voltages stated below. For use on other service voltages, refer to Form TEP0013, "Complex Piping Design Guide."

Catalog Number 120 Vac Nominal	Catalog Number 240 Vac Nominal	Power Output at 50°F (10°C) W/ft (m)
D1-VSX 5-1	D1-VSX 5-2	5 (16)
D1-VSX 10-1	D1-VSX 10-2	10 (33)
D1-VSX 15-1	D1-VSX 15-2	15 (49)
D1-VSX 20-1	D1-VSX 20-2	20 (66)



### Certifications/Approvals . . .



#### Factory Mutual Research

Ordinary Locations  
Hazardous (Classified) Locations  
Class I, Divisions 1 and 2, Groups B, C and D  
Class II, Divisions 1 and 2, Groups E, F and G



#### Underwriters Laboratories Inc.

Ordinary Locations  
Hazardous (Classified) Locations  
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Class II, Divisions 1 and 2, Groups E, F and G

Approvals require the use of D1-ECK or D1-ECT kits for all connections (power, splice, tee and end terminations) located within 1' (305 mm) of a Class I, Division 1 hazardous area.

Thermon is required to review applications requiring Factory Mutual approval of Division 1 installations.

### Notes . . .

- For more precise power output values as a function of pipe temperature, refer to CompuTrace®.
- Based on the trip current characteristic of Type QOB or Type QO equipment protection devices. For devices with other trip current characteristics, contact Thermon.
- The maximum circuit length is for one continuous length of cable, not the sum of segments of cable. Refer to CompuTrace® design software or contact Thermon for current loading of segments.

### Circuit Breaker Sizing and Type<sup>2</sup> . . .

Maximum circuit lengths for various circuit breaker amperages are shown below. Breaker sizing should be based on the National Electrical Code, or any other applicable code. For information on design and performance on other voltages, refer to Form TEP0013, "Complex Piping Design Guide."

The National Electrical Code requires ground-fault protection of equipment for each branch circuit supplying electric heating equipment. Check local codes for specific ground-fault protection requirements.

Catalog Number	120 Vac Service Voltage Start-Up Temperature °F (°C)	Max. Circuit Length <sup>3</sup> vs. Breaker Size ft (m)			
		20A	30A	40A	50A
D1-VSX 5-1	50 (10)	205 (63)	335 (102)	335 (102)	335 (102)
	0 (-18)	205 (63)	335 (102)	335 (102)	335 (102)
	-20 (-29)	195 (60)	335 (102)	335 (102)	335 (102)
	-40 (-40)	185 (56)	315 (97)	335 (102)	335 (102)
D1-VSX 10-1	50 (10)	135 (41)	220 (66)	265 (80)	265 (80)
	0 (-18)	135 (41)	220 (66)	265 (80)	265 (80)
	-20 (-29)	125 (38)	210 (63)	265 (80)	265 (80)
	-40 (-40)	115 (36)	190 (58)	265 (80)	265 (80)
D1-VSX 15-1	50 (10)	100 (30)	160 (48)	235 (71)	235 (71)
	0 (-18)	100 (30)	160 (48)	235 (71)	235 (71)
	-20 (-29)	95 (29)	155 (47)	230 (70)	235 (71)
	-40 (-40)	90 (27)	145 (44)	215 (65)	225 (69)
D1-VSX 20-1	50 (10)	70 (21)	105 (32)	150 (45)	200 (62)
	0 (-18)	60 (18)	90 (28)	125 (39)	170 (52)
	-20 (-29)	55 (17)	85 (26)	120 (36)	160 (48)
	-40 (-40)	50 (16)	80 (25)	110 (34)	150 (45)

Catalog Number	240 Vac Service Voltage Start-Up Temperature °F (°C)	Max. Circuit Length <sup>3</sup> vs. Breaker Size ft (m)			
		20A	30A	40A	50A
D1-VSX 5-2	50 (10)	415 (126)	685 (209)	685 (209)	685 (209)
	0 (-18)	415 (126)	685 (209)	685 (209)	685 (209)
	-20 (-29)	395 (120)	685 (209)	685 (209)	685 (209)
	-40 (-40)	365 (112)	630 (193)	685 (209)	685 (209)
D1-VSX 10-2	50 (10)	270 (82)	435 (133)	565 (172)	565 (172)
	0 (-18)	255 (78)	420 (128)	565 (172)	565 (172)
	-20 (-29)	235 (72)	385 (117)	565 (172)	565 (172)
	-40 (-40)	220 (66)	350 (107)	535 (163)	565 (172)
D1-VSX 15-2	50 (10)	200 (61)	315 (97)	465 (142)	530 (161)
	0 (-18)	175 (53)	275 (84)	405 (123)	525 (161)
	-20 (-29)	165 (50)	260 (79)	375 (115)	485 (148)
	-40 (-40)	155 (48)	245 (75)	355 (108)	450 (138)
D1-VSX 20-2	50 (10)	145 (45)	230 (70)	325 (99)	405 (124)
	0 (-18)	125 (39)	195 (60)	275 (84)	375 (114)
	-20 (-29)	120 (37)	185 (56)	260 (79)	350 (106)
	-40 (-40)	115 (34)	175 (53)	245 (75)	325 (100)

