

VSX™ Self-Regulating Heating Cable

Product Specifications

Application . . .

Process Temperature Maintenance or Freeze Protection

High performance VSX self-regulating heating cables are designed specifically for process temperature maintenance or freeze protection where high maintain temperatures or high temperature exposure is required. VSX withstands the temperature exposures associated with steam purging.

The heat output of VSX cable varies in response to the surrounding temperature by reducing its thermal output with increasing temperature and can be overlapped without temperature upset damage to the cable.

VSX cables are approved for use in ordinary (nonclassified) areas and are certified to the ATEX directive for use in Category 2 and 3 (Zone 1 and 2) classified areas.

Ratings . . .

Available Watt densities	15, 32, 48, 64 W/m at 10°C
Nominal supply voltage ¹	230 Vac
Maximum maintenance temperature	150°C
Maximum continuous exposure temperature	
Intermittent power-on	232°C
Intermittent power-off	250°C
Continuous power-off	204°C
Minimum installation temperature	-60°C
Minimum bend radius	32 mm
T-rating ²	
15, 32, 48 and 64 W/m	T3 200°C
Based on stabilised design ³	T4 to T6

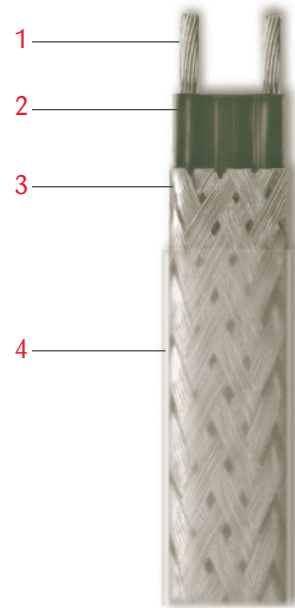
Basic Accessories⁴ . . .

Power Connection: All VSX cables require a TBX-3L power boot for terminating the circuit before connecting to power.

End-of-Circuit Termination: All VSX cables require the use of the ET-6 end cap and ET-60 overcap for terminating at the end of the circuit.

Notes . . .

1. Cable may be energised at other voltages; contact Thermon for design assistance.
2. T-rating per internationally recognised testing agency guidelines.
3. Thermon heating cables are approved for the listed T-ratings using the stabilised design method. This enables the cable to operate in hazardous areas without limiting thermostats. The T-rating may be determined using CompuTrace® Electric Heat Tracing Design Software or contact Thermon for design assistance.
4. Information on additional accessories to complete a heater circuit installation and to comply with approval requirements can be found in the "Self-Regulating Cables Systems Accessories" product specification sheet (Form TEP0010U).



Construction . . .

- 1 Nickel-Plated Copper Bus Wires (2.1 mm²)
- 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.

Product Features . . .

- Withstands continuous flammability testing according to IEC 60332-1: 1993
- Allows cable to be installed at temperatures to -60°C
- Terminations for system tested for ozone stability, UV stability and flammability according to ISO/IEC requirements



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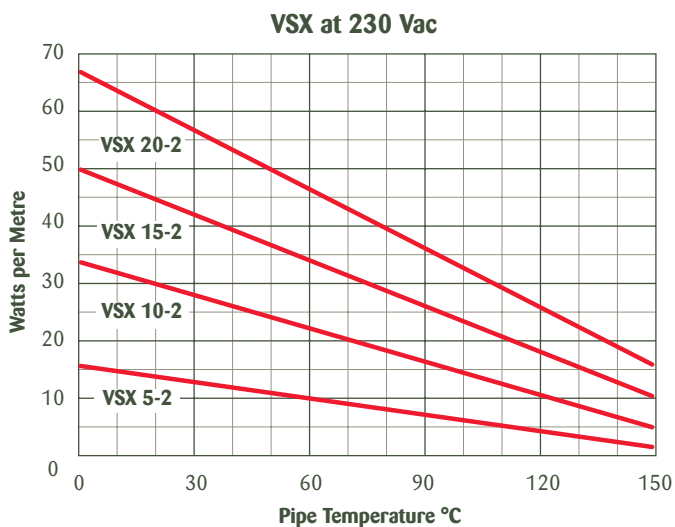
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Power Output Curves . . .

The power outputs shown apply to overjacketed cable installed on insulated metallic pipe at the service voltage stated below.

Product Type 230 Vac Nominal	Power Output at 10°C W/m
VSX 5-2	15
VSX 10-2	32
VSX 15-2	48
VSX 20-2	64



Certifications/Approvals . . .



European Organisation for Electrotechnical
Standardisation

Hazardous (Classified) Locations



II 2 G/D Ex e II T3 DEMKO 02 ATEX 0152667

IEC Ex

International Electrotechnical Commission
IEC Certification Scheme for Explosive Atmospheres
UL 05.0008



Factory Mutual Research
Hazardous (Classified) Locations



Underwriters Laboratories Inc.
Hazardous (Classified) Locations

VSX has additional hazardous area approvals including:

• DNV • Lloyd's • JIS • CCE/CMRS • GGTN

Contact Thermon for additional approvals and specific information.

Circuit Breaker Sizing and Type¹ . . .

Maximum circuit lengths for various circuit breaker amperages are shown below. Circuit breaker sizing and earth-fault protection should be based on applicable local codes. For information on design and performance on other voltages, contact Thermon.

Earth-fault protection of equipment should be provided for each branch circuit supplying electric heating equipment.

Type B Circuit Breakers

230 Vac Service Voltage Product Type	Start-Up Temperature ² °C	Max. Circuit Length ³ vs. Breaker Size Meters			
		16A	25A	32A	40A
VSX 5-2	10	98	167	203	203
	0	98	167	203	203
	-20	98	167	203	203
	-40	85	147	203	203
VSX 10-2	10	63	105	144	163
	0	63	105	144	163
	-20	56	93	128	163
	-40	49	80	108	151
VSX 15-2	10	40	65	86	115
	0	37	60	79	105
	-20	33	53	70	91
	-40	30	47	62	81
VSX 20-2	10	27	43	56	72
	0	25	40	53	68
	-20	23	36	47	60
	-40	21	33	42	55

Type C Circuit Breakers

230 Vac Service Voltage Product Type	Start-Up Temperature ² °C	Max. Circuit Length ³ vs. Breaker Size Meters			
		16A	25A	32A	40A
VSX 5-2	10	98	167	203	203
	0	98	167	203	203
	-20	98	167	203	203
	-40	85	147	203	203
VSX 10-2	10	63	105	144	163
	0	63	105	144	163
	-20	59	98	136	163
	-40	51	84	115	163
VSX 15-2	10	46	76	102	139
	0	46	75	101	139
	-20	40	65	88	119
	-40	36	59	78	105
VSX 20-2	10	34	54	72	95
	0	32	51	68	89
	-20	28	46	60	79
	-40	26	42	55	71

Note . . .

1. Maximum circuit lengths shown are based on an instantaneous trip current characteristic per IEC 60898 at the referenced start-up temperature and a 10°C maintenance temperature. For maximum circuit lengths with other trip current characteristics contact Thermon.
2. While a heat tracing system is generally designed to keep the contents of a pipe at the desired maintain temperature, the cable may be energized at lower temperatures. For design data with lower start-up temperatures than represented above contact Thermon for design assistance.
3. 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.

