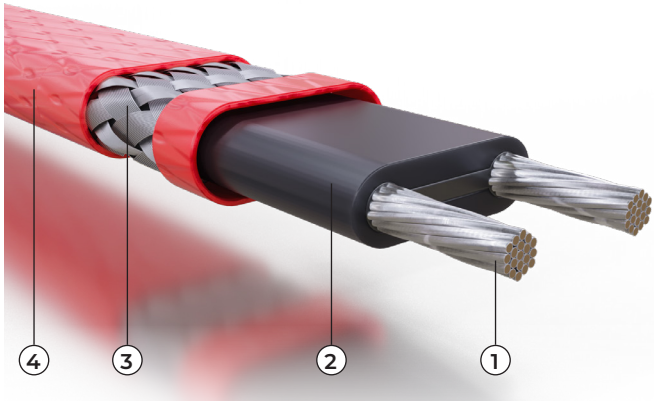
PRODUCT DATASHEET
USX™
SELF-REGULATING HEAT TRACING



APPLICATION

USX self-regulating heat tracing is specifically engineered for critical process maintenance and freeze protection applications where ultra high temperature ratings are required. USX enables the use of ambient sensing controls for applications with continuous exposure temperatures up to 240°C (464°F). Constructed using Thermon's unique and proven monolithic co-extrusion process, USX advances self-regulating heat tracing technology to the ultimate frontiers of performance and reliability.

The heat output of USX heat tracing varies in response to the surrounding temperature. Variations in the ambient temperature or heat lost through the thermal insulation are compensated for automatically along the entire length of a heat-traced pipe.

USX heat tracing is approved for use in ordinary (nonclassified) areas and in potentially explosive atmospheres in accordance with the ATEX Directive and the IECEx Scheme.

RATINGS

Available power densities	
10, 20, 30, 39, 49, 66 W/m @ 10°C	
(3, 6, 9, 12, 15, 20 W/ft @ 50°F)	
Supply voltages [1]	230 Vac
Max. operating temperature	
Continuous (power-on)	240°C (464°F)
Max. exposure temperature	
Intermittent (power-on or off)	250°C (482°F)
Continuous (power-off)	240°C (464°F)
Minimum installation temperature	-60°C (-76°F)
Minimum bend radius	
@ -15°C (5°F)	10 mm (0.38")
@ -60°C (-76°F)	32 mm (1.25")
T-rating [2]	
3-2, 6-2, 9-2, 12-2, 15-2	T3/T200°C (392°F)
20-2	T2/T230°C (572°F)
Based on stabilized design [3]	T3 to T6

Notes

1. Heat tracing may be energized at other voltages; contact Thermon for design assistance.
2. T-rating per internationally recognized testing agency guidelines.
3. Thermon heat tracing is approved for the listed T-ratings using the stabilized 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.

CONSTRUCTION

1 Nickel-plated copper bus wires 1.3 mm^2

2 Monolithic co-extruded semiconductive heating matrix and fluoropolymer dielectric insulation

3 Nickel-plated copper braid

4 Fluoropolymer overjacket provides additional protection where exposure to chemicals or corrosives is expected.

BASIC ACCESSORIES

Thermon offers system accessories designed specifically for rapid, trouble-free installation of Thermon heat tracing.

All heat tracing requires a suitably certified connection kit to comply with approval requirements.

Hot end terminations > 230°C (446°F) must be completed using the Terminator ZS/ZE, or ZE-B kits.

Specific Conditions of Use:

1. Heat tracing systems must be installed using the manufacturer's suitably rated accessory kits in accordance with the applicable instructions.
2. For insulated externally heated surfaces, lower T- class systems may be obtained by utilizing stabilized design of a trace heating system using methods described in IEC 60079-30-2, using CompuTrace® Electric Heat Tracing Design Software or by Thermon Engineering. The system design parameters, including the resulting T-class, shall be retained as a record of system documentation for each stabilized system design for as long as the system is in use. The parameters in the system documentation shall be checked during commissioning of the system.

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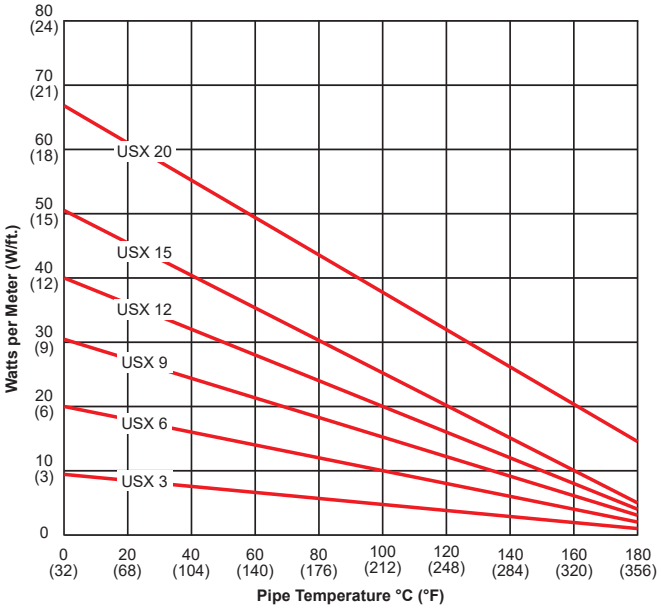
POWER OUTPUT CURVES [1]

The power outputs shown apply to heat tracing installed on insulated metallic pipe (using the procedures outlined in IEC/IEEE 60079-30-1 at the service voltage stated below. For use on other service voltages, contact Thermon.

Product Type 230 Vac Nominal	Power Output at 10°C W/m
USX 3-2	9
USX 6-2	19
USX 9-2	29
USX 12-2	38
USX 15-2	48
USX 20-2	64



CERTIFICATIONS/APPROVALS

IEC IECEx

CSANe 20ATEX3059
IECEx CSA 20.0006

CE 0344

Ex II 2 G D

Ex 60079-30-1 IIC T* Gb

Ex 60079-30-1 IIIC T* Db

* T3 for EPL Gb; T200°C for EPL Db for USX 3-2, 6-2, 9-2, 12-2, 15-2

* 230°C (T2) for EPL Gb; T230°C for EPL Db; for USX 20-2

Note

1. For more precise power output values as a function of pipe temperature, refer to CompuTrace®.
2. 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.
3. 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.
4. 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 [2]

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		Max. Circuit Length [4] vs. Breaker Size Metres		
Product Type	Start-Up Temperature [3] °C	16 A	25 A	32 A
USX 3-2	10	177	215	215
	0	177	215	215
	-20	171	215	215
	-40	134	215	215
USX 6-2	10	114	152	152
	0	114	152	152
	-20	114	152	152
	-40	95	152	152
USX 9-2	10	82	123	123
	0	82	123	123
	-20	82	123	123
	-40	72	120	123
USX 12-2	10	65	106	106
	0	65	106	106
	-20	64	106	106
	-40	57	94	106
USX 15-2	10	47	77	94
	0	45	74	94
	-20	41	67	89
	-40	37	60	79
USX 20-2	10	34	55	73
	0	33	52	69
	-20	30	48	62
	-40	27	43	57

Type C Circuit Breakers

230 Vac Service Voltage		Max. Circuit Length [4] vs. Breaker Size Metres		
Product Type	Start-Up Temperature [3] °C	16 A	25 A	32 A
USX 3-2	10	177	215	215
	0	177	215	215
	-20	171	215	215
	-40	134	215	215
USX 6-2	10	114	152	152
	0	114	152	152
	-20	114	152	152
	-40	95	152	152
USX 9-2	10	82	123	123
	0	82	123	123
	-20	82	123	123
	-40	73	123	123
USX 12-2	10	65	106	106
	0	65	106	106
	-20	65	106	106
	-40	58	96	106
USX 15-2	10	47	77	94
	0	47	77	94
	-20	47	76	94
	-40	42	69	91
USX 20-2	10	39	64	81
	0	39	64	81
	-20	36	59	78
	-40	33	53	70