



PRODUCT DATASHEET

HTSX™

SELF-REGULATING HEAT TRACING

APPLICATION

HTSX self-regulating trace heaters are designed specifically for process temperature maintenance or freeze protection where high temperature exposure capability is required. HTSX withstands the temperature exposures associated with steam purging. Constructed using Thermon's unique and proven monolithic co-extrusion process, HTSX is the market leading self-regulating heat tracing technology.

The heat output of HTSX 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.

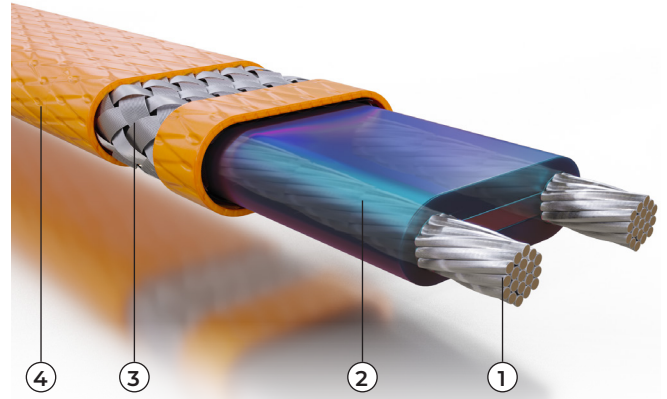
HTSX trace heaters are approved for use in ordinary (nonclassified) areas and in potentially explosive atmospheres in accordance with the ATEX Directive and the IECEx Scheme.

RATINGS

Available power densities.....	
..... 10, 20, 24 ³ , 33, 39, 40 ³ , 49, 57 ³ , 66 W/m @ 10°C	
Supply voltages.....	208-277 or 380-480 Vac
Max. maintenance temperature	
(110-277 Vac)	150°C (302°F)
(380-480 Vac).....	121°C (250°F)
Max. exposure temperature	
Intermittent power-on or off	
(110-277 Vac).....	250°C (482°F)
(380-480 Vac)	204°C (400°F)
Continuous power-off.....	204°C (400°F)
Minimum installation temperature	-60°C (-76°F)
Minimum bend radius	
@ 5°F (-15°C)	10 mm (0.38")
@ -76°F (-60°C).....	32 mm (1.25")
T-rating ¹	
3-2, 6-2, 9-2, 10-4, 12-2, 15-2, 15-4	T3/T200°C
.....	T2/T230°C
20-2, 20-4	T2/T230°C
Based on stabilized design ²	T3 to T6

Notes

1. T-rating per internationally recognized testing agency guidelines.
2. Thermon trace heaters are approved for the listed T-ratings using the stabilized design method. This enables the trace heater 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.
3. 24, 40, and 57 W/m available only with 400 Vac nominal voltage.



CONSTRUCTION

1. Nickel-plated copper bus wires 1.3 mm² (16 AWG)
2. Semiconductive heating matrix and fluoropolymer dielectric insulation
3. Nickel-plated copper braid
4. Fluoropolymer overjacket provides additional protection to core, insulation, and braid 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.

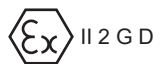
All trace heaters require a suitably certified connection kit to comply with approval requirements.

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

NOTE:

"Z" Kits Zone 1 Areas

CERTIFICATIONS/APPROVALS



CSANe 20ATEX3059X
IECEx CSA 20.0006X

Ex 60079-30-1 IIC T* Gb
Ex 60079-30-1 IIIC T* Db

* T3 for EPL Gb; T200°C for EPL Db for HTSX 3-2, 6-2, 9-2, 10-4, 12-2, 15-2, 15-4

* 230°C (T2) for EPL Gb; T230°C for EPL Db; for HTSX 20-2, 20-4

HTSX has additional hazardous area approvals including:

DNV · Lloyd's · TIIS · CCE/CSIR · TRCU

Contact Thermon for additional approvals and specific information.

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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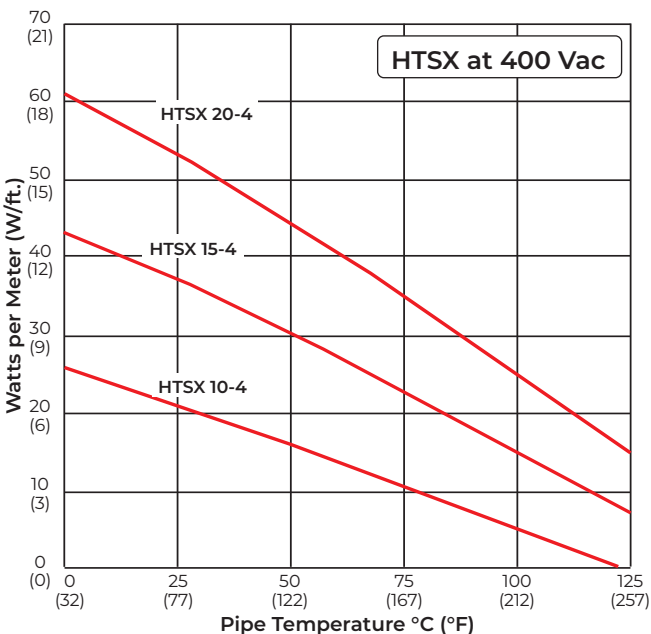
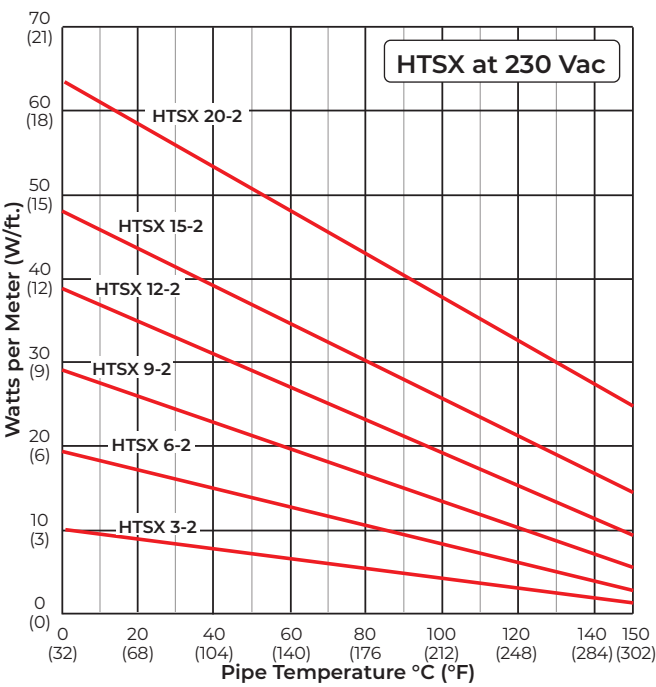


POWER OUTPUT CURVES¹

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

Catalog Number 240 Vac Nominal	Power Output at 10°C (50°F) W/m (W/ft)
HTSX 3-2	10 (3)
HTSX 6-2	20 (6)
HTSX 9-2	30 (9)
HTSX 12-2	39 (12)
HTSX 15-2	49 (15)
HTSX 20-2	66 (20)

Catalog Number 400 Vac Nominal	Power Output at 10°C (50°F) W/m (W/ft)
HTSX 10-4	24 (7)
HTSX 15-4	40 (12)
HTSX 20-4	57 (17)



CIRCUIT BREAKER SIZING²

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.

230 Vac Service Voltage		Max. Circuit Length ⁴ vs. Breaker Size - m (ft)					
Catalog Number	Start-Up Temp ³ °C (°F)	Type B			Type C		
		16 A	25 A	32 A	16 A	25 A	32 A
HTSX 3-2	10 (50)	177 (581)	215 (705)	215 (705)	177 (581)	215 (705)	215 (705)
	0 (32)	177 (581)	215 (705)	215 (705)	177 (581)	215 (705)	215 (705)
	-20 (-4)	171 (561)	215 (705)	215 (705)	171 (561)	215 (705)	215 (705)
	-40 (-40)	134 (440)	215 (705)	215 (705)	134 (440)	215 (705)	215 (705)
HTSX 6-2	10 (50)	114 (374)	152 (499)	152 (499)	114 (374)	152 (499)	152 (499)
	0 (32)	114 (374)	152 (499)	152 (499)	114 (374)	152 (499)	152 (499)
	-20 (-4)	114 (374)	152 (499)	152 (499)	114 (374)	152 (499)	152 (499)
	-40 (-40)	95 (312)	152 (499)	152 (499)	95 (312)	152 (499)	152 (499)
HTSX 9-2	10 (50)	82 (269)	123 (404)	123 (404)	82 (269)	123 (404)	123 (404)
	0 (32)	82 (269)	123 (404)	123 (404)	82 (269)	123 (404)	123 (404)
	-20 (-4)	82 (269)	123 (404)	123 (404)	82 (269)	123 (404)	123 (404)
	-40 (-40)	72 (236)	120 (394)	123 (404)	73 (240)	123 (404)	123 (404)
HTSX 12-2	10 (50)	65 (213)	106 (348)	106 (348)	65 (213)	106 (348)	106 (348)
	0 (32)	65 (213)	106 (348)	106 (348)	65 (213)	106 (348)	106 (348)
	-20 (-4)	64 (210)	106 (348)	106 (348)	65 (213)	106 (348)	106 (348)
	-40 (-40)	57 (187)	94 (308)	106 (348)	58 (190)	96 (315)	106 (348)
HTSX 15-2	10 (50)	47 (154)	77 (253)	94 (308)	47 (154)	77 (253)	94 (308)
	0 (32)	45 (148)	74 (243)	94 (308)	47 (154)	77 (253)	94 (308)
	-20 (-4)	41 (135)	67 (220)	89 (292)	47 (154)	76 (249)	94 (308)
	-40 (-40)	37 (121)	60 (197)	79 (259)	42 (138)	69 (226)	91 (299)
HTSX 20-2	10 (50)	34 (112)	55 (180)	73 (240)	39 (128)	64 (210)	81 (266)
	0 (32)	33 (108)	52 (171)	69 (226)	39 (128)	64 (210)	81 (266)
	-20 (-4)	30 (98)	48 (157)	62 (203)	36 (118)	59 (194)	78 (256)
	-40 (-40)	27 (89)	43 (141)	57 (187)	33 (108)	53 (174)	70 (230)

400 Vac Service Voltage		Max. Circuit Length ⁴ vs. Breaker Size - m (ft)					
Catalog Number	Start-Up Temp ³ °C (°F)	Type B			Type C		
		16 A	25 A	32 A	16 A	25 A	32 A
HTSX 10-4	10 (50)	134 (440)	204 (669)	204 (669)	134 (440)	204 (669)	204 (669)
	0 (32)	126 (413)	204 (669)	204 (669)	134 (440)	204 (669)	204 (669)
	-20 (-4)	114 (374)	194 (637)	204 (669)	130 (427)	204 (669)	204 (669)
	-40 (-40)	107 (351)	180 (591)	204 (669)	122 (400)	204 (669)	204 (669)
HTSX 15-4	10 (50)	80 (262)	132 (433)	150 (492)	80 (262)	132 (433)	150 (492)
	0 (32)	76 (249)	125 (410)	150 (492)	76 (249)	125 (410)	150 (492)
	-20 (-4)	70 (230)	115 (377)	150 (492)	70 (230)	115 (377)	150 (492)
	-40 (-40)	66 (217)	108 (354)	145 (476)	66 (217)	108 (354)	145 (476)
HTSX 20-4	10 (50)	66 (217)	108 (354)	123 (404)	66 (217)	108 (354)	123 (404)
	0 (32)	63 (207)	103 (338)	123 (404)	63 (207)	103 (338)	123 (404)
	-20 (-4)	58 (190)	95 (312)	123 (404)	58 (190)	94 (308)	123 (404)
	-40 (-40)	55 (180)	89 (292)	119 (390)	55 (180)	89 (292)	119 (390)

Notes:

- For more precise power output values as a function of pipe temperature, refer to CompuTrace®.
- 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.
- While a heat tracing system is generally designed to keep the contents of a pipe at the desired maintain temperature, the trace heater may be energized at lower temperatures. For design data with lower start-up temperatures than represented above contact Thermon for design assistance.
- The maximum circuit length is for one continuous length of trace heater, not the sum of segments of trace heater. Refer to CompuTrace® design software or contact Thermon for current loading of segments.