Technical Data Sheet
Self-Limiting Heating Tape
ThimmTherm Self-Limiting
TSL-X

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Thimm Thermotechnik Germany

TÜV CERT SQC** 0410620031875 DIN EN ISO 9001 : 2000 0410020031875

Technical Data Sheet

ThimmTherm-Self-Limiting TSL-X

Product name:	Thimm Self-Limiting –X- 10/15//25/30/45/60 W/m - 230V AC
Product type:	Self-limiting heating tape with PTC characteristic (intrinsic limitation)
Area of application:	Frost protection, maintenance or increase of surface temperature (e.g. pipe runs, containers , surfaces)

Product design:

Two flexible copper conductors are embedded at a constant distance apart from each other in a semi-conducting heating element consisting of a polyolefin / carbon mixture.

The semiconductor element has a PTC characteristic and increases internal resistance with rising temperature. The heating power is thus reduced in a non-linear manner. The power values tend asymptotically towards zero with increasing temperature. Overheating is therefore impossible. The heating tapes can cross or touch each other without compromising safety.

TSL-X heating tape has a primary isolation of fluoropolymer, a tinned copper braid (earthing / protection) and a outer sheath.

Construction data:	2 parallel conductors, cross-section 1.2 mm², nickel-plated copper conductors embedded in a semiconductor element made from defined proportions of fluoropolymer and carbon (doping).
Overall dimensions:	overall dimension over braid: approx. 10,2 * 4,8 mm Primary isolation: fluoropolymer Wall thickness: 0.8 mm
Protective braid resistance (max.):	< 18,2 Ohm/km
Operating voltage:	230V, 50Hz, AC
Heating tape temperatures:	Heating tape switched on: +120 °C Heating tape switched off: +190 °C
Minimum handling temperature:	- 60 °C
Minimum start-up temperature:	- 60 °C
Min. bend radius:	13 mm @ 20°C
Atex approval:	KEMA 07ATEX0177 U

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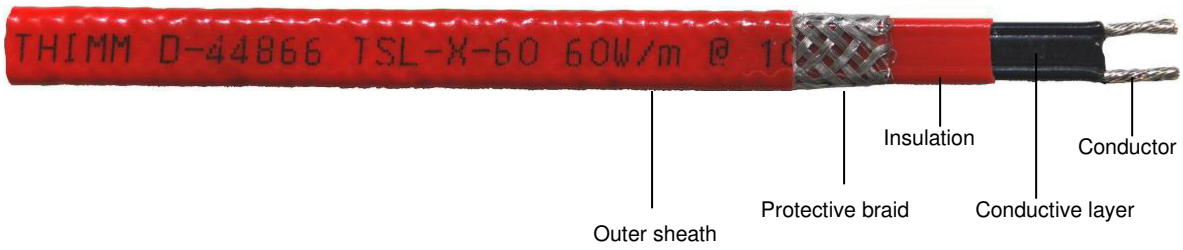
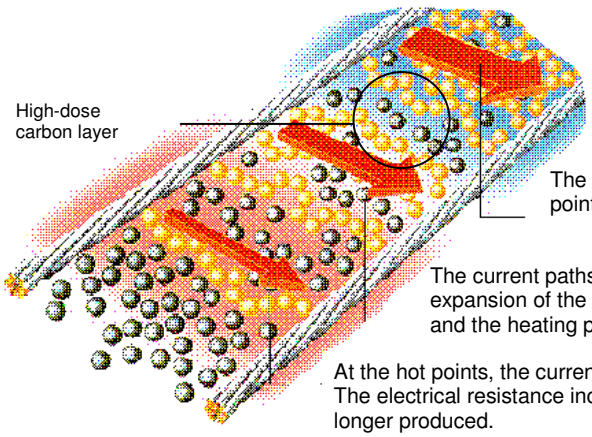
Permissible heating circuit lengths:

	Start-up Temp. (°C)	Operating Voltage 120 Vac			Operating Voltage 254 Vac		
		16 A	20 A	30 A	16 A	20 A	30 A
TSL-X 10	+10	100	120	120	200	235	235
	-25	89	120	120	175	235	235
	-60	82	120	120	165	225	235
TSL-X 15	+10	80	95	95	165	189	189
	-25	56	75	95	117	152	189
	-60	52	75	95	110	144	189
TSL-X 25	+10	60	69	69	110	140	140
	-25	44	59	69	88	120	140
	-60	40	55	69	80	114	136
TSL-X 30	+10	44	58	58	85	114	114
	-25	35	45	58	69	92	114
	-60	32	41	58	65	86	110
TSL-X 45	+10	35	41	41	70	82	82
	-25	24	33	41	49	66	82
	-60	22	26	41	45	62	78
TSL-X 60	+10	25	32	32	50	64	64
	-25	20	25	32	38	52	64
	-60	17	21	32	35	48	60





The carbon-dosed layers form a multiplicity of current paths at the cold points. The current is converted to heat in the semiconductor layers.

The current paths are proportionally reduced at the hot points by expansion of the semiconductor. The electrical resistance increases and the heating power reduces accordingly.

At the hot points, the current paths are almost completely absent. The electrical resistance increases continuously until heat is no longer produced.

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