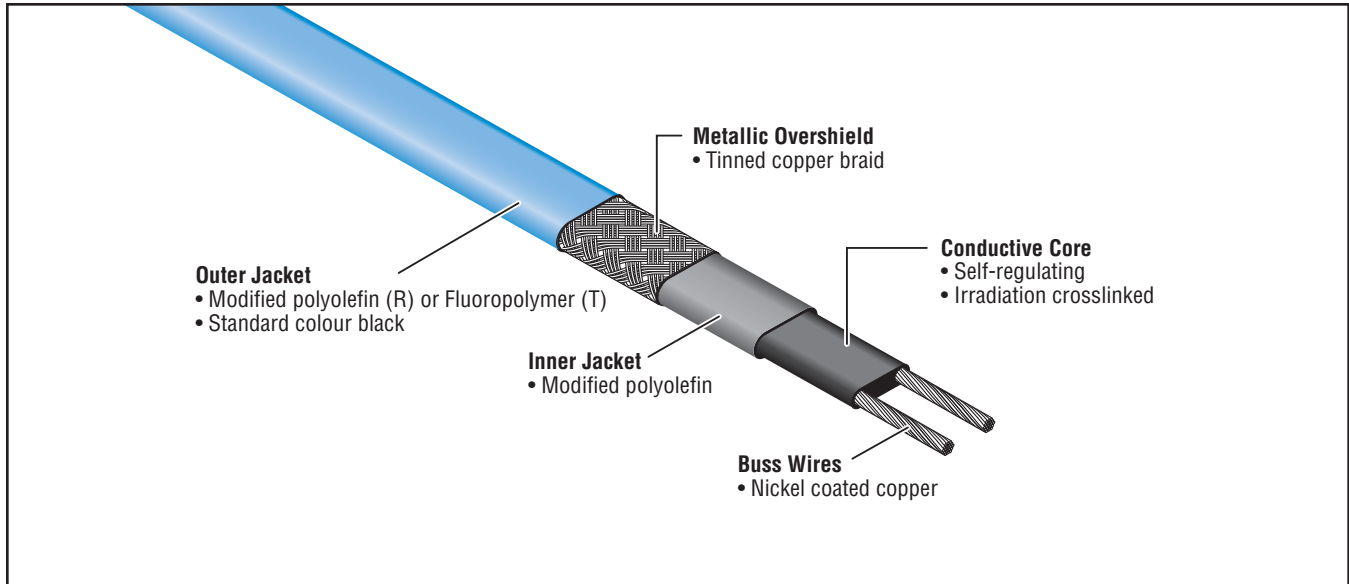




2700 Series Cut-to-Length Self-Regulating Heating Cable

Quick Reference Guide



DESCRIPTION

Heat-Line self-regulating cut-to-length heating cables are designed to supply a specified amount of heat at any point along their length in direct response to local temperature variations. These cables can maintain temperatures up to 150°F (65°C) and survive intermittent exposure up to 185°F (85°C) with power applied. The 2700 series can be cut to length and terminated in the field, and will not overheat or burn out when overlapped.

FEATURES

- Various approvals in Canada and USA including CSA, FM, and UL
- Most models are in stock and ready to ship same day or next
- Available at competitive pricing by the foot or in full reels up to 1,000 ft. (305m)
- Can be fully insulated to increase energy efficiency
- Versatile installation, footage markings, easy to use connection kits
- Can be used with a variety of control devices including timers and thermostats
- Self-regulating/conductive polymer, no overheating, can be overlapped and provides consistent pipe temperatures
- Manufactured in North America
- Reliable, covered by 10-Year original manufacturer warranty

APPLICATIONS

Heat-Line cut-to-length self-regulating heating cables are the perfect solution for heat tracing metallic and non-metallic pipes and roof and gutter de-icing applications. The industrial-grade 2700 cables provide freeze protection and process temperature maintenance for applications such as:

- Fluid transport pipes and valves
- Tanks and similar liquid storage systems
- Roofs and gutters

Available for both ordinary and hazardous locations, including areas where exposure to corrosive or organic materials is possible.

APPROVALS / CERTIFICATIONS



Ordinary locations
Hazardous locations

Class I, Div 1* / 2, Groups A, B, C, D
Class II, Div 1* / 2, Groups E, F, G
Class III, Div 1* and 2



Ordinary locations
Hazardous locations

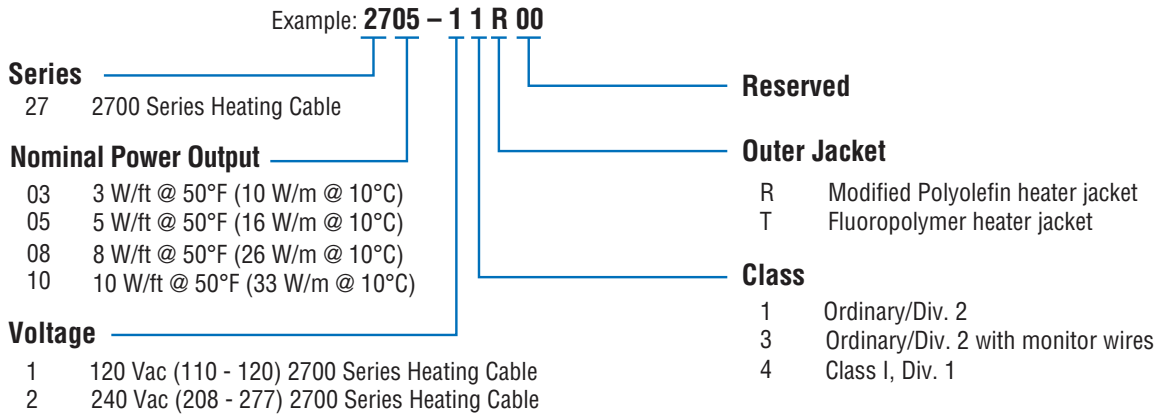
Class I, Div 1* / 2, Groups B, C, D
Class II, Div 2, Groups F, G
Class III, Div 1* and 2



Roof and Gutter
Hot Water Maintenance

*Contact Heat-Line representative for information on Division 1 hazardous location systems.

PRODUCT CODE GUIDE



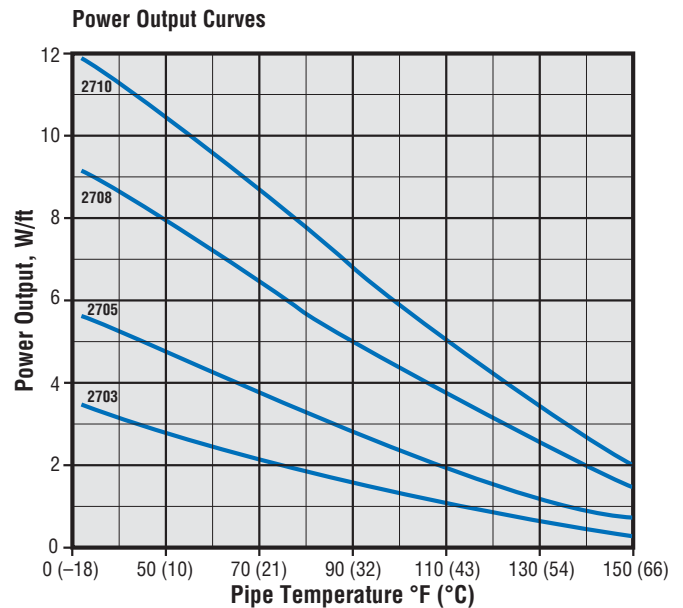
PERFORMANCE RATINGS

Output wattage	3, 5, 8, 10 w/ft @ 50°F (10°C)
Supply voltages	110 – 120 Vac or 208 – 277 Vac
Continuous maintenance temp.	150°F (65°C) max
Intermittent exposure temp.	185°F (85°C) max
T Rating*	T-5 (10 w/ft), T-6 (3, 5, 8 w/ft)

*T-Rating per the 1999 NEC, Tables 500-5(d) and verified by FM and CSA.

Power Adjustment Factor

Part No.	208 Volts	277 Volts
2703-2	0.75	1.28
2705-2	0.86	1.16
2708-2	0.91	1.10
2710-2	0.93	1.08



CIRCUIT LENGTHS

120 Volt Breaker Sizing vs. Max Circuit Length (ft)

Part No. / Temp	Max Circuit Length (ft)			
	15A	20A	30A	40A
2703-1 If started at:	50°F (10°C)	300	–	–
	0°F (-17°C)	200	270	330
	-20°F (-29°C)	180	230	330
2705-1 If started at:	50°F (10°C)	230	270	–
	0°F (-17°C)	150	200	270
	-20°F (-29°C)	130	175	260
2708-1 If started at:	50°F (10°C)	150	200	210
	0°F (-17°C)	95	125	190
	-20°F (-29°C)	85	100	170
2710-1 If started at:	50°F (10°C)	115	150	180
	0°F (-17°C)	70	95	145
	-20°F (-29°C)	60	85	120

240 Volt Breaker Sizing vs. Max Circuit Length (ft)

Part No. / Temp	Max Circuit Length (ft)			
	15A	20A	30A	40A
2703-2 If started at:	50°F (10°C)	660	–	–
	0°F (-17°C)	410	560	660
	-20°F (-29°C)	360	480	660
2705-2 If started at:	50°F (10°C)	460	540	–
	0°F (-17°C)	300	400	540
	-20°F (-29°C)	260	345	520
2708-2 If started at:	50°F (10°C)	295	390	420
	0°F (-17°C)	195	250	375
	-20°F (-29°C)	170	225	340
2710-2 If started at:	50°F (10°C)	230	305	360
	0°F (-17°C)	150	200	300
	-20°F (-29°C)	130	175	260

Note: Recommended circuit breakers to minimize the effect of transit start-up currents. Westinghouse: Types BA, EB, EHB, FB, HFB. General Electric: E100 Type TEB, E150, Types TED, THED. Square D: Types EH, FAIF. **The Canadian Electrical Code and National Electric Code requires ground fault protection of equipment for each branch circuit supplying electrical heating cables or devices.** Max circuit lengths allowed may be less than those posted depending on the selection of specific connection kits. Always review the specifications of each connection kit to ensure you adhere to requirements.

PIPE TRACE CABLE SELECTION CHARTS

Find your pipe size in the table, then drop down to the line for the lowest air temperature and correct insulation thickness. The shaded box indicates the heating cable to use, and any number represents the feet of cable needed per foot of pipe.

If no number appears in the cell, install a single run of heat trace. If a number does appear in the cell, spiral trace the pipe. If your spiraling ratio is 2.0, you may use two straight runs at the 4 o'clock and 8 o'clock positions.

 = 2703 3W/ft
 = 2705 5W/ft
 = 2708 8W/ft
 = 2710 10W/ft (metal only)
 = More Insulation Required

Table 1: For METAL pipes with fiberglass insulation or equivalent (based on 50°F (10°C) maintain temperature)

Minimum Ambient Air Temp.		Insulation Thickness	Nominal Pipe Size										
			1/2 in	3/4 in	1 in	1 1/4 in	1 1/2 in	2 in	2 1/2 in	3 in	4 in	6 in	
0°F	-18°C	1/2 in											1.50
		1 in											
		1 1/2 in											
-20°F	-29°C	1/2 in									1.25	1.50	2.00
		1 in											
		1 1/2 in											
		2 in											
-40°F	-40°C	1/2 in								1.25	1.50	1.75	
		1 in											1.50
		1 1/2 in											
		2 in											

Table 2: For PLASTIC pipes with fiberglass insulation or equivalent (based on 50°F (10°C) maintain temperature)

Minimum Ambient Air Temp.		Insulation Thickness	Nominal Pipe Size										
			1/2 in	3/4 in	1 in	1 1/4 in	1 1/2 in	2 in	2 1/2 in	3 in	4 in	6 in	
0°F	-18°C	1/2 in								1.25	1.50	2.00	
		1 in											1.25
		1 1/2 in											
-20°F	-29°C	1/2 in				1.25	1.50	1.75	2.00				
		1 in									1.25	1.50	2.00
		1 1/2 in											1.50
		2 in											1.25
-40°F	-40°C	1/2 in			1.25	1.50	1.50	2.00					
		1 in						1.25	1.50	1.75	2.00		
		1 1/2 in										1.25	1.75
		2 in											1.50

Important: All thermal and design information provided here is based upon a "standard" installation with a heating cable fastened to an insulated pipe. For any other application or method of installation, consult Heat-Line at 1-800-584-4944.

ROOF AND GUTTER CABLE LENGTH

Only the Heat-Line 2705 models of heating cables are certified for use in roof and gutter de-icing applications.

$$\text{Length} = A + B + C + D + E + F$$

- A Roof edge length (ft) x feet of heating cable per foot of roof edge (From Table 5a, 5b, or 5c)
- B Roof edge length (ft) x 0.5*
- C Valley length (ft)**
- D Total gutter length (ft)
- E Total length of all downspouts (ft) + 1 (ft) x number of downspouts***
- F 1 ft for each power connection

= Total heating cable length (ft)

*Roof extension: This length allows the heating cable to extend into the gutter to provide a continuous drain path or extend beyond the roof edge to form a drip loop where no gutters are present.

**For valleys, run the heating cable two thirds of the way up and down the valley. For roof/wall intersections, run the heating cable two thirds of the way up and down the intersection point.

***Depending on the location of the downspout the heating cable may have to run down and back up. Consider this factor when determining the total length of downspouts.

Note: Heat-Line recommends heat traced gutters and downspouts to provide a continuous path for melt water. For standing seam spacing greater than 24 inches heat trace every seam. For metal roofs consider a snow retention system to prevent sliding ice or snow from damaging the heating cable.

Important: This guide covers roof and gutter de-icing for typical winter conditions, installed using "standard" methods.

Table 5a. Cable Length - Shingles/Shakes

Eave Overhang	Tracing Width	Tracing Heights	Heating Cable per Foot of Roof
0	24 inch	12 inch	2.5 feet
12 inch	24 inch	24 inch	3.1 feet
24 inch	24 inch	36 inch	4.2 feet
36 inch	24 inch	48 inch	5.2 feet

Table 5b. Cable Length - Standing Seam Metal

Eave Overhang	Tracing Heights	Heating Cable per Foot of Roof	
		18 inch standing seam spacing*	24 inch standing seam spacing*
0	18 inch	2.5 feet	2.0 feet
12 inch	24 inch	2.8 feet	2.4 feet
24 inch	36 inch	3.6 feet	2.9 feet
36 inch	48 inch	4.3 feet	3.6 feet

* Trace every other seam

Table 5c. Cable Length - EDGE-CUTTER

Feet of Heating Cable per Foot of Roof
1 foot

ELECTRICAL CONNECTION / END SEAL KITS

Connection / End Seal Kits for Pipe

1548-4010C	Power and end seal connection kit, CSA hazardous and non-hazardous
1548-40PTJ	Power connection kit, FM hazardous and non-hazardous
1548-4000C	Power and end seal connection kit, CSA non-hazardous
1548-40000	Power connection/ splice/ end termination, FM approved
1548-82100	Pipe stand off with sealing grommet for one tee connection or power input, Ordinary or Division 2 Locations, CSA approved
SRHC-ES	End seal kit, CSA hazardous and non-hazardous, pipe trace and roof and gutter
HTLN-GFC-KIT-120	Plug-in power connection kit with GFC protection and end seal kit for 120 V
HTLN-GFC-KIT-240	Plug-in power connection kit with GFC protection and end seal kit for 240 V

Note: Heat-Line provides many other connection kits not listed above. These connection kits must be used to ensure compliance with applicable approvals, codes, and warranty. For proper design and installation refer to the specifications of each connection kit to ensure you adhere to requirements. Questions regarding the correct heating cable or connection kit for your application should be directed to Heat-Line at 1-800-584-4944.

CONTROLS

Controls for Pipe

GFA-STAT	Line sensing thermostat, 120-240V with GFEP
HLP-STAT	Line sensing thermostat, 120-240V, 0 to 120F, NEMA 4X Ordinary
HL-TIMER-CS	120/240 V 20 Amps percentage cycle timer, general purpose
FRIO-S1-A	Line sensing thermostat, 120-240V with GFEP, IoT connectivity (WIFI and ethernet)
1660-13A11	Line sensing thermostat, 25-325F, NEMA 4X Ordinary
1660-13A12	Line sensing thermostat, 25-325F, FM Class 1 Div 1
1660-18911	Ambient sensing thermostat, Ordinary Location

Connection / End Seal Kits for Roof

1548-40RGP	Power and end seal kit, CSA, UL
SRHC-ES	End seal kit, CSA hazardous and non-hazardous, pipe trace and roof and gutter
HTLN-GFC-KIT-120	Plug-in power connection kit with GFC protection and end seal kit for 120 V
HTLN-GFC-KIT-240	Plug-in power connection kit with GFC protection and end seal kit for 240 V

Controls for Roof

DS-8C-CONTROLLER	Rain/snow sensor controller c/w remote 10' sensor
CDP-2-RC-DP	Snow sensor control/display panel, indoor only, for DS-8C-CONTROLLER
DS-8C-EX-50	Rain/snow sensor extension 50' kit for DS-8C-CONTROLLER
LCD-8	Configurable snow switch controller
GIT-1	Gutter ice sensor (requires controller, PD-PRO or GF-PRO)
PD-PRO	Snow/ice controller
GF-PRO	Snow/ice controller with GFEP
SNOW-OWL	Aerial snow sensor (requires controller, PD-PRO or GF-PRO)
1660-18911	Ambient sensing thermostat, Ordinary Location
HL-TIMER-CS	20/240 V 20 Amps percentage cycle timer, general purpose

ACCESSORIES

Accessories for Pipe

MA-10	120/240V GFCI/ELCI, indoor only
1528-01017	2700 Series fiberglass tape, 130C rated, 60 yards or 180ft per roll 1/2" wide
FOIL-TAPE	Nashua 330X extreme weather foil tape 150 ft per roll
PLD-CG	6" cable guard, 4 per pack
1548-60400	Pipe heat trace caution label

Accessories for Roof

MA-10	120/240V GFCI/ELCI, indoor only
FOIL-TAPE	Nashua 330X extreme weather foil tape 150 ft per roll
PLD-CG	6" cable guard, 4 per pack
PLD-RDK	Downspout hanger kit
PLD-RC	Roof clips (package of 10)
PLD-EC	EDGE-CUTTER angled
PLD-ECF	EDGE-CUTTER flat

Heat-Line Freeze Protection Systems

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