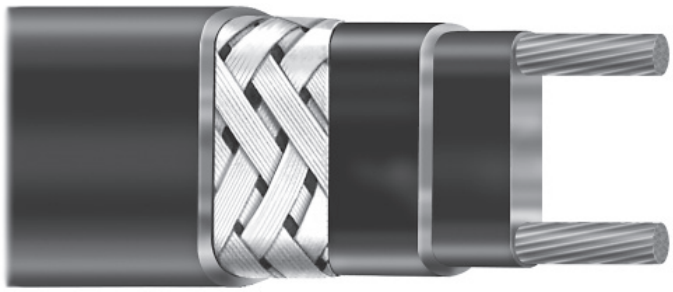
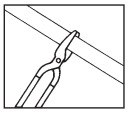
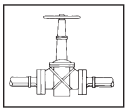
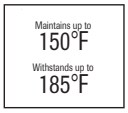
SRL

Self-Regulating Low Temperature Heating Cable

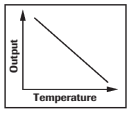



Cut to Any Length in Field


Can be Single Overlapped



Low Temperature



Self Regulating

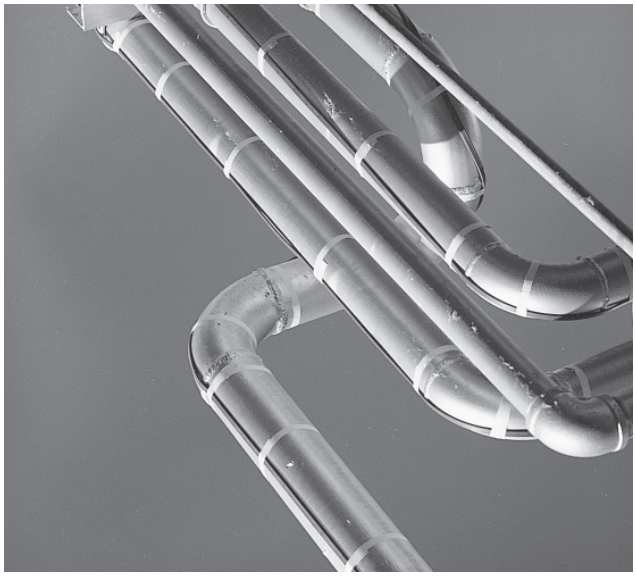
- **Self-Regulating, Energy Efficient**
- **16 AWG Buss Wire**
- **Circuit Lengths to 660 Feet**
- **Process Temperature Maintenance to 150°F (65°C)**
- **Maximum Continuous Exposure Temperature (Power Off) 185°F (85°C)**
- **Industrial Freeze Protection Applications**
- **Freeze Protection of Fire Protection System Piping**
- **Field Splicing Without Disrupting Heat Output**
- **3, 5, 8 and 10 Watts per Foot**
- **120 and 208-277 Volts Available From Stock**
- **Approximate Size 3/8" x 1/8"**
- **Minimum Bend Radius is 1-1/8"**

Description

Chromalox SRL self-regulating heating cable provides safe, reliable heat tracing for freeze protection of pipes, valves, tanks and similar applications. Constructed of industrial grade 16 AWG buss wire with a tinned copper braid and optional overjacketing, SRL ensures operating integrity in Div. 2 hazardous environments as well as certain corrosive industrial environments. SRL heating cable has a maximum maintenance temperature rating of 150°F (65°C).

Features

- Energy efficient, self-regulating SRL uses less energy when less heat is required.
- Easy to install, SRL can be cut to any length (up to maximum circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- SRL features lower installed cost than steam tracing, less maintenance expense, and less downtime.
- SRL can be single overlapped without burnout, which simplifies heat tracing of in-line process equipment such as valves, elbows and pumps.
- Because SRL is self-regulating, overtemperature conditions are virtually impossible.
- Chromalox termination, splice, tee and end seal kits reduce installation time.
- UL listed for use on fire protection System piping

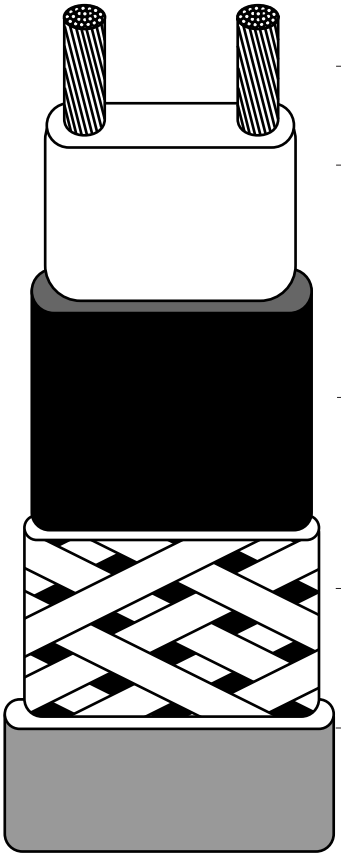


Chromalox®
PRECISION HEAT AND CONTROL

PH: 1-888-996-9258 • FX: 615-793-3563

SRL — Self-Regulating Low Temperature Heating Cable

Construction



Twin 16 AWG Copper Buss Wires ..... Provide reliable electrical current capability.

Semiconductive Polymer Core Matrix ..... "Self-Regulating" component of the cable, its electrical resistance varies with temperature. As process temperature drops, the core's heat output increases; as process temperature rises, the heat output decreases.

Water Resistant Polyolefin Jacket ..... Flame retardant, electrically insulates the matrix and buss wires and provides resistance to water and some inorganic chemical solutions.

Tinned Copper Braid ..... Provides additional mechanical protection in any environment, and a positive ground path.

High Temperature Fluoropolymer or TPR Overjacket (Optional) ..... Corrosion resistant, flame retardant overjacket is highly effective in many environments. TPR coatings protect against certain inorganic chemical solutions. Fluoropolymer coatings are used for exposure to organic or corrosive solutions. These coatings also protect against abrasion and impact damage.

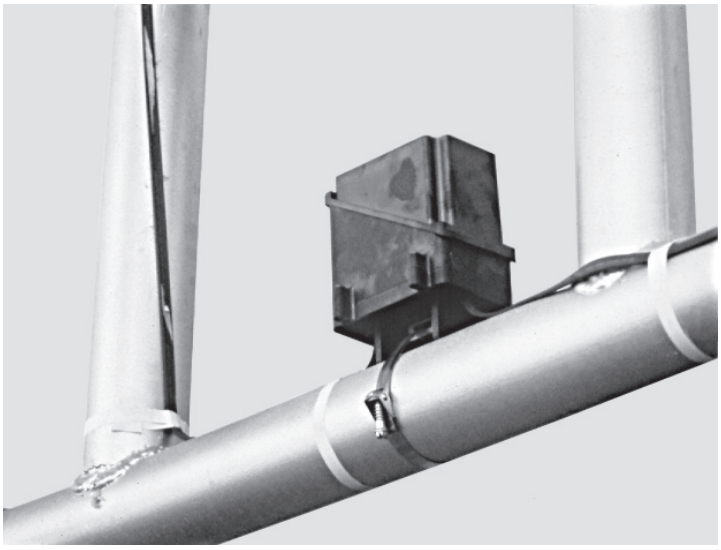
Approvals

FM – Factory Mutual approved for ordinary areas.
UL Listed, CSA Certified for ordinary areas.
UL Listed for fire protection system piping
FM approved for hazardous (classified) areas when used with Chromalox accessories:

- Class I, Div. 2, Groups B, C, D (gases, vapors)
- Class II, Div. 2, Groups F, G (combustible dust)
- Class III, Div. 2 (easily ignitable fibers and filings)
- 3 Watt rated T6 temperature class
- 5 and 8 Watt rated T5 temperature class
- 10 Watt rated T4A temperature class

CSA Certified for hazardous (classified) areas when used with Chromalox accessories:

- Class I, Div. 2, Groups A, B, C, D;
- Class II, Div. 2, Groups F, G



Applications

- Process Temperature Maintenance
- Freeze Protection of Pipes
- Freeze Protection of Fire Protection System Piping
- Fluid Flow and Viscosity Maintenance

Heating Cable System Design

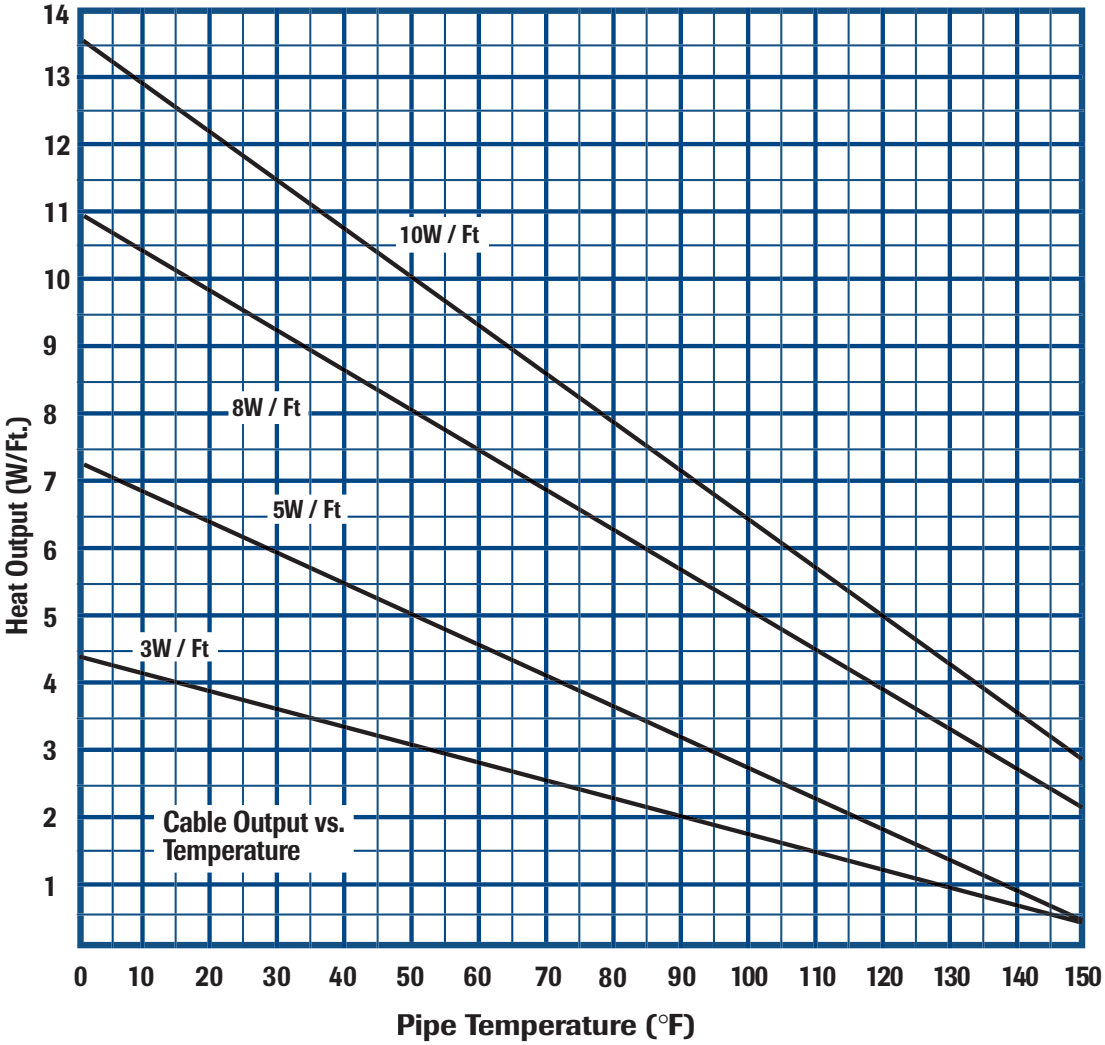
1. Calculate Heat Loss

Using the Chromalox Design Guide (PJ 304) for Heat Tracing, calculate the heat loss of the system. To calculate the heat loss (Watts) you will need to know pipe diameter, insulation type and thickness, minimum ambient temperature and the pipe maintenance temperature.

2. Select Cable Rating

After calculating the heat loss in the pipe and adjusting for any application deviations, you may determine which cable rating to choose. Using the SRL Thermal Output Ratings graph, select the lowest cable rating that will provide the pipe maintenance temperature. Adjust the cable output for line voltage if necessary. See figures from output wattage at alternative voltages table on page 5.

Thermal Output Ratings On Insulated Metal Pipe



3. Determine Total Cable Length

In addition to the system piping, in-line equipment such as valves, flanges and pipe supports require additional heat tracing to maintain the system operating temperatures.

Total feet of traced pipe + Cable allowance for components = Total cable length

Component Cable Allowances

Component	Cable Allowance (Ft.)		# of Components		Total Additional Cable
Flange Pair	1.5	x	_____	=	_____
Pipe Support	2.0	x	_____	=	_____
Butterfly Valve	2.5	x	_____	=	_____
Ball Valve	2.7	x	_____	=	_____
Globe Valve	4.0	x	_____	=	_____
Gate Valve	5.0	x	_____	=	_____

If spiral wrapping or multiple runs of cable are being used, adjust the allowance by multiplying by the wrapping factor or the number of runs being used on the pipe.
Guidelines for tracing tanks and vessels are also given in the Chromalox Design Guide (PJ304).

4. Determine Circuits/Circuit Protection

Circuit protection depends on the breaker size being used and the start-up temperature. The National Electric Code (NEC 1999) requires the use of ground fault protection breakers for heating cable. The following chart shows the maximum circuit length for a given breaker rating. To determine the number of circuits required for each pipe, divide the total cable (circuit) length found in Step 3 by the maximum circuit length found in the chart. Round up to the next higher number.

$$\textit{Number of Circuits} = \frac{\textit{Heater Length}}{\textit{Maximum Circuit Length}}$$

Maximum Circuit Length (Ft.) by Start-up Temperature (°F) and Breaker Size (Amps)

Cable Rating	50°F Start-Up (Ft.) Circuit Breaker 10 A	15 A	20 A	25 A	30 A	40 A	0°F Start-Up (Ft.) Circuit Breaker 10 A	15 A	20 A	25 A	30 A	40 A	-20°F Start-Up (Ft.) Circuit Breaker 10 A	15 A	20 A	25 A	30 A	40 A
SRL3-1C	205	305	360	NR	NR	NR	135	200	270	330	360	NR	120	185	245	300	360	NR
SRL3-2C	400	600	660	NR	NR	NR	275	415	555	660	NR	NR	245	370	495	600	660	NR
SRL5-1C	125	185	250	270	NR	NR	90	135	180	225	270	NR	80	120	160	205	245	270
SRL5-2C	250	375	505	540	NR	NR	180	270	360	450	540	NR	160	245	325	405	490	540
SRL8-1C	100	150	200	215	NR	NR	70	110	145	180	215	NR	65	100	130	165	200	210
SRL8-2C	185	285	375	420	NR	NR	135	200	265	335	395	420	120	175	235	300	350	420
SRL10-1C	60	95	130	160	180	NR	50	80	105	130	155	180	45	70	95	120	140	180
SRL10-2C	100	160	210	260	315	360	80	125	170	210	255	340	75	120	160	195	240	320

*Thermal magnetic circuit breakers are recommended since magnetic circuit breakers could "nuisance trip" at low temperature.
NR = Not Required. Maximum circuit length has been reached in a smaller breaker size.

Self-Regulating Low Temperature Heating Cable – SRL

Specifications

Cable Ratings

Model Number	Output @ 50°F (W/Ft.)	Nominal Voltage (Vac)	Maximum Circuit Length* (Ft.)
SRL3-1C	3	120	360
SRL3-2C	3	208-277	660
SRL5-1C	5	120	270
SRL5-2C	5	208-277	540
SRL8-1C	8	120	215
SRL8-2C	8	208-277	420
SRL10-1C	10	120	180
SRL10-2C	10	208-277	360

*See chart on page 4 for maximum circuit lengths by start-up temperature and circuit breaker size

Output Wattage at Alternate Voltages (50°F) W/Ft.

Cable Rating	208 Volts	% Change In Output	220 Volts	% Change In Output	277 Volts	% Change In Output
SRL3	2.4	-20	2.6	-13	3.4	+15
SRL5	4.1	-18	4.5	-10	5.6	+13
SRL8	6.88	-14	7.28	-9	8.96	+12
SRL10	8.7	-13	9.2	-8	11.1	+10

Ordering Information

Output (W/Ft.)	Voltage (Vac)	Model Number	PCN
3	120	SRL3 - 1C	382678
		SRL3 - 1CR	382731
		SRL3 - 1CT	383400
	208-277	SRL3 - 2C	382686
		SRL3 - 2CR	382740
		SRL3 - 2CT	383419
5	120	SRL5 - 1C	382694
		SRL5 - 1CR	382758
		SRL5 - 1CT	383443
	208-277	SRL5 - 2C	382707
		SRL5 - 2CR	382766
		SRL5 - 2CT	383451

Output (W/Ft.)	Voltage (Vac)	Model Number	PCN
8	120	SRL8 - 1C	382555
		SRL8 - 1CR	382598
		SRL8 - 1CT	383460
	208-277	SRL8 - 2C	382563
		SRL8 - 2CR	382600
		SRL8 - 2CT	383478
10	120	SRL10 - 1C	382820
		SRL10 - 1CR	382846
		SRL10 - 1CT	383486
	208-277	SRL10 - 2C	382838
		SRL10 - 2CR	382854
		SRL10 - 2CT	383494

To Order: Specify length, Model Number, PCN and Installation Accessories.

SRL — Self-Regulating Low Temperature Heating Cable

Model Numbers

SRL **5** **-** **1** **C** **T**

SRL
Self-Regulating, Low Temperature Heating Cable

Output (watts)
3, 5, 8, 10 Watts per Foot

Voltage
1 = 120 Volts
2 = 208-277 Volts

Braid
C = Standard tinned-copper metallic braid for ground path

Overcoat Options
T = Fluoropolymer corrosion resistant overjacket over braid for hostile/ corrosive environments
R = TPR overjacket over braid for protection against certain inorganic chemical solutions

Accessories

Chromalox has a complete line of accessories specifically designed for use with SRL cable. Use only Chromalox accessories to ensure the performance of the heat trace system.

	Model	Description
Thermostat	RTAS	DL Series air-sensing thermostat with Microswitch® for local control of circuit.
	RTBC	DL Series pipewall-sensing thermostat with Microswitch® for local control of circuit.
Power Connection	RTPC	DL Series power connection set kit.
	RTST	DL Series splice and tee set kit.
	RTES	DL Series end seal kit.
Pipe Straps	PS-1, PS-3, PS-10	Pipe straps to affix thermostat and power connection splice kits to pipes.
Fiberglass Tape	FT-2	Tape to affix cable to pipe, 66' x 1/2" roll, install on 12" centers.
Aluminum Tape	AT-1	Tape to aid heat transfer, 180 foot roll. Apply over cable along entire length of circuit.
Caution Labels	CL-1	"Electrical Heat Tracing" caution labels, 5 per package. Install every 10 feet.
Control Panels		Contact your Chromalox representative for Control Panel information.

Note – For PCN's, refer to the DL Series connection system accessories product data sheet.

PJ320-2
PDS SRL
APRIL 04