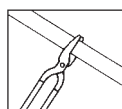
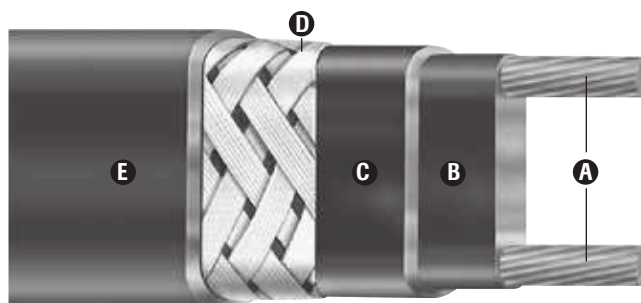


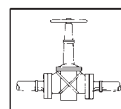
SRF

Self-Regulating Freeze Protection

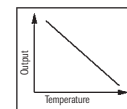
- Self-Regulating, Energy Efficient
- Designed for Freeze Protection
- Max. Exposure Temp. 185°F (Power Off)
- Cost Effective for Commercial Construction Freeze Protection Applications
- Freeze Protection of Fire Protection System Piping
- Industrial Grade, 16 AWG Buss Wire
- Standard Braid and Optional Overjacket
- Circuit Lengths, Up to 660 Ft.
- 3, 5 and 8 W/Ft.
- 120, 208 - 277 Volt From Stock
- Approximate Size 3/8"W x 1/8"H
- Minimum Bend Radius 1-1/8"
- For Use on Metal and Plastic Pipes



Cut to Length
in Field



Can be Single
Overlapped



Self Regulating
Output

Description

Chromalox SRF cable is ideal for keeping metal and plastic pipes warm in commercial construction, institutional buildings and some industrial freeze protection applications. SRF cable is constructed of a self-regulating polymer core that varies its output along its entire length, saving energy and eliminating hot spots along the pipe. Parallel construction makes it easier to install than zone or series types of cable since it can be cut-to-length at any point on the pipe. It can be single overlapped without overheating the cable.

Features

- Energy efficient, self-regulating SRF uses less energy when less heat is required.
- Easy to install, SRF can be cut to any length (up to max. circuit length) in the field.
- Field splices can be performed easily in minutes with no scrap or wasted cold sections.
- SRF can be overlapped without burnout, which simplifies heat tracing of in-line process equipment such as valves, elbows and pumps.
- Because SRF is self-regulating, over-temperature conditions are minimized.
- Chromalox termination, splice, tee and end seal kits reduce installation time.

Construction

- A Twin 16 AWG Copper Buss Wires** — Provide high electrical current capability.
- B Semiconductive Polymer Core Matrix** — its electrical resistance varies with temperature. As process temperature drops, the core's heat output increases; conversely, as process temperature rises, the heat output decreases.
- C Polyolefin Jacket** — Flame retardant, electrically insulates the matrix and buss wires. Also provides resistance to water and some inorganic chemical solutions.
- D Tinned Copper Braid** — The braid covering the jacket provides additional mechanical protection in any environment and a positive ground path.
- E High Temperature TPR Overjacket (optional)** — The TPR overcoat protects the braid and provides resistance to certain inorganic chemical solutions.

WARNING — A ground fault protection device is required by NEC to minimize the danger of fire if the heating cable is damaged or improperly installed. A minimum trip level of 30mA is recommended to minimize nuisance tripping.

Approvals

UL Listed for ordinary areas.

UL Listed for fire protection system piping

CSA Certified for ordinary areas.

FREEZE
PROTECTION

SRF

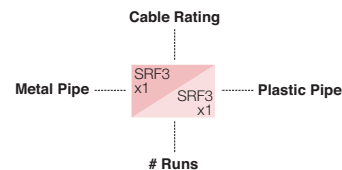
Application & Selection Guidelines

Commercial Freeze Protection SRF Cable Selection Charts

These charts are designed to speed selection of the appropriate wattage of cable when used for freeze protection. Find the diameter of pipe below and cross reference with the expected minimum ambient temperature for the recommended cable.

- Selections suitable for 120 and 208 to 277V applications.

- Design based on straight runs of cable or pipe. Spiralling is not required.
- Heat loss is based on 40°F maintenance temperature and Fiberglas® insulation $k = 0.25$ at 50°F.
- Non-metallic pipe heat losses are based on using Chromalox AT-1 aluminum tape for improving heat transfer.
- Only 3 W/Ft. rating is UL Listed for non-metallic pipe applications, however, 5W/Ft. and 8 W/Ft. can be used.



Each block specifies cable rating and # of runs for metal pipe (dark) and plastic pipe (light).

For larger pipe sizes, refer to the Technical section in the back of this catalog or contact your Local Chromalox Sales office.

Note – AT-1 Aluminum tape must be used on plastic pipe installation

0.50" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1
	1.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1
	1.5	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1
	2.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1

3.00" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF8 x1 SRF8 x1	SRF5 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2
	1.0	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1
	1.5	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1
	2.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1

1.00" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1
	1.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1
	1.5	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1
	2.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1

4.00" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF5 x3 SRF8 x3
	1.0	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2
	1.5	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1
	2.0	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1

2.00" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2
	1.0	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1
	1.5	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1
	2.0	SRF3 x1 SRF3 x1	SRF5 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1

5.00" Pipe

		Min. Ambient Temp.				
		0°	-10°	-20°	-30°	-40°
Insulation Thickness (in.)	0.5	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x3
	1.0	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2
	1.5	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2
	2.0	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1
	3.0	SRF3 x1 SRF3 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1

SRF

Application & Selection Guidelines (*cont'd.*)

6.00" Pipe

	0°	-10°	-20°	-30°	-40°
0.5	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4
1.0	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2
1.5	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2
2.0	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF8 x1
3.0	SRF3 x1 SRF5 x1	SRF3 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1

14.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4	SRF8 x3 SRF8 x4
1.5	SRF8 x1 SRF8 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3
2.0	SRF8 x1 SRF5 x2	SRF8 x1 SRF8 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x3
3.0	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF8 x1 SRF8 x2	SRF5 x2 SRF8 x2

8.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3
1.5	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2
2.0	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF8 x2 SRF8 x2
3.0	SRF5 x1 SRF5 x1	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1

16.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4	SRF8 x4 SRF8 x4	SRF8 x4 SRF8 x4
1.5	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3
2.0	SRF8 x2 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3
3.0	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2

10.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3
1.5	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x2
2.0	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2
3.0	SRF5 x1 SRF5 x1	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2

18.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x4	SRF8 x3 SRF8 x4	SRF8 x4 SRF8 x4	SRF8 x4 SRF8 x4
1.5	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4
2.0	SRF8 x1 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3
3.0	SRF8 x1 SRF8 x1	SRF8 x2 SRF5 x2	SRF8 x1 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2

12.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4
1.5	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3
2.0	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2
3.0	SRF5 x1 SRF8 x1	SRF5 x1 SRF8 x1	SRF8 x1 SRF8 x1	SRF8 x1 SRF5 x2	SRF8 x1 SRF8 x2

20.00" Pipe

	0°	-10°	-20°	-30°	-40°
1.0	SRF8 x3 SRF8 x3	SRF8 x4 SRF8 x4	SRF8 x4 SRF8 x4		
1.5	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3	SRF8 x3 SRF8 x4	SRF8 x3 SRF8 x4
2.0	SRF5 x2 SRF8 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x3	SRF8 x2 SRF8 x3	SRF8 x3 SRF8 x3
3.0	SRF8 x1 SRF8 x1	SRF8 x2 SRF5 x2	SRF5 x2 SRF8 x2	SRF8 x2 SRF8 x2	SRF8 x2 SRF8 x2

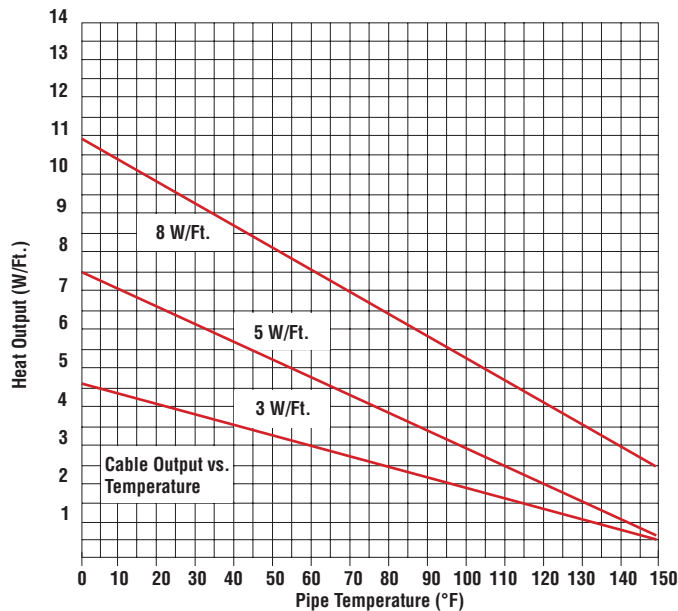
FREEZE
PROTECTION

SRF

Self-Regulating Freeze Protection *(cont'd.)*

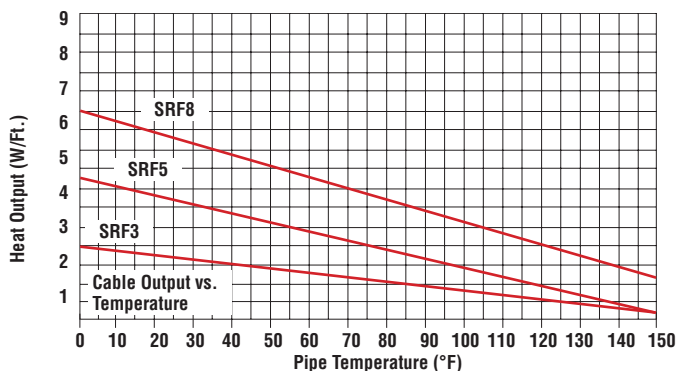


Thermal Output Ratings on Insulated Metal Pipe¹



Note 1 — Thermal output is determined per IEEE 515-2004 Standard for testing, design, installation, and maintenance of electrical resistance heat tracing section 4.1.11 Method C.

Thermal Output Ratings on Plastic Pipe with Aluminum Tape



Output Wattage at Alternate Voltages (W/Ft.)

Model	208V	% Change In Output	220V	% Change In Output	277V	% Change In Output
SRF 3	2.4	-20	2.6	-13	3.4	+15
SRF 5	4.1	-18	4.5	-10	5.6	+13
SRF 8	6.88	-14	7.28	-9	8.96	+12

Circuit Breaker Selection (Max. Circuit Lengths in Ft.)

Cable Rating	40°F Start-Up (Ft.)			0°F Start-Up (Ft.)		
	20A	30A	40A	20A	30A	40A
SRF 3-1C	350	360	NR	270	360	NR
SRF 3-2C	660	NR	NR	555	660	NR
SRF 5-1C	230	270	NR	180	270	NR
SRF 5-2C	450	540	NR	360	540	NR
SRF 8-1C	180	215	NR	145	215	NR
SRF 8-2C	330	420	420	265	395	420

NR = Not Required. Maximum circuit length has been reached in a smaller breaker size.

Note — Thermal magnetic circuit breakers are recommended since magnetic circuit breakers could "nuisance trip" at low temperature.

Heating Cable

SRF

Self-Regulating Freeze Protection *(cont'd.)*

Ordering Information

Output (W/Ft.)	Volts	Model	Stock	PCN	Wt./1000' (Lbs.)
Output at Rated Voltage					
3 @ 50°F	120	SRF 3-1C	S	386943	53
	208 - 277	SRF 3-2C	S	386951	53
5 @ 50°F	120	SRF 5-1C	S	386960	53
	208 - 277	SRF 5-2C	S	386978	53
8 @ 50°F	120	SRF 8-1C	S	386986	53
	208 - 277	SRF 8-2C	S	386994	53
With Optional Overcoat (CR)					
3 @ 50°F	120	SRF 3-1CR	S	386100	64
	208 - 277	SRF 3-2CR	S	386118	64
5 @ 50°F	120	SRF 5-1CR	S	386142	64
	208 - 277	SRF 5-2CR	S	386150	64
8 @ 50°F	120	SRF 8-1CR	S	386062	64
	208 - 277	SRF 8-2CR	S	386070	64

Accessories

Accessories		U Series	DL	EL
Power Connection	Heat trace to electrical service connection	UPC	RTPC	SSK
Splice & Tee		UMC	RTST	RT-RST
End Seal	For terminating cable	UES	RTES	RT-RES
Thermostat	Ambient air sensing thermostat	UAS	RTAS	THL/TXL
	Line sensing mechanical thermostat	UBC	RTBC	THR/TXR

General Application & Installation Accessories such as tape, pipe straps, warning labels, etc., refer to the U Series and DL & EL General Application Accessories page at the end of this section.

Ordering Information

To Order —
Complete the
Model Number
using the Matrix
provided.

Model	Self-Regulating Medium Temperature	
SRF	Self-Regulating, Freeze Protection Heating Cable	
	Code	Output (W/Ft.)
	3	Three
	5	Five
	8	Eight
	Code	Voltage
	1	120
	2	208 - 277
	Code	Braid and Overcoat Options
	C	Standard tinned-copper metallic braid for additional protection and ground path
	CR	TPR overjacket over braid for protection against certain inorganic chemical solutions
SRF	5	- 1 C
Typical Model Number		

FREEZE PROTECTION



**THORNE &
DERRICK
INTERNATIONAL**

Thorne & Derrick
+44 (0) 191 410 4292
www.heatingandprocess.com