

Roof/Gutter De-Icing



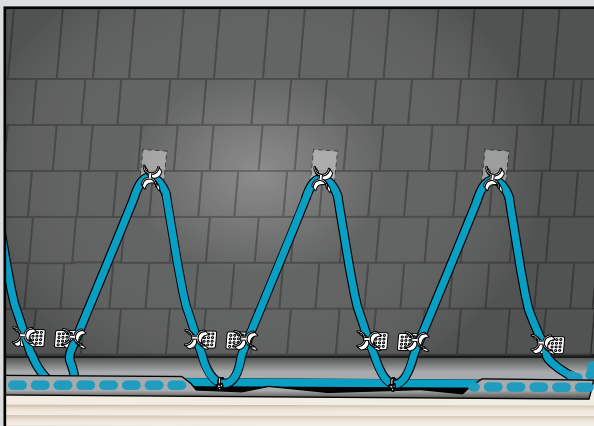
Roof/Gutter De-icing Systems

King's Roof/Gutter De-icing systems helps prevent snow and ice build-up on roofs and gutters. Whether installed on a shake, shingle or metal roof, the SRP & SR will give you the desired results you are looking for. The system is reliable and will not overheat or burn out if overlapped.

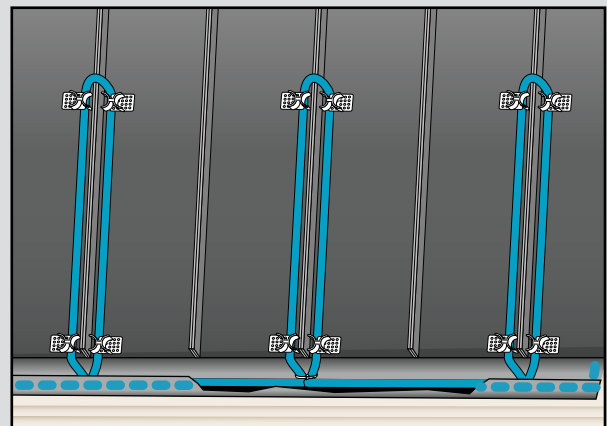
SR Series Self-Regulating Heating Cable is designed for commercial and industrial pipe trace applications. The cable is constructed so that it will not burn out or overheat when overlapped, and can be used on metal and plastic pipes. The cable is available in 100 and 250 ft coils and also 500 and 1,000 ft reels.

SRP Series Self-Regulating Pre-Assembled Heating Cable is designed for a variety of gutter and roof de-icing applications. The cable is constructed so that it will not burn out or overheat when overlapped, and can be used on metallic and nonmetallic downspouts and gutters. The cable is pre-terminated with a 30 inch cold lead and grounded plug

Shake/Shingle Roof Installation



Metal Seam Roof Installation



Self-Regulating Roof/Gutter De-Icing Cable



Model Code:

SR 12 3 -250
A B C D

A: Self Regulating Cable
B: 12 - 120V
24 - 240V
C: Watts per foot
D: Linear Length in feet

SR Series Self-Regulating Heating Cable is designed for a variety of industrial and commercial de-icing applications.

SR Self-Regulating Heating Cable Features

- Cable will not overheat or burn out when overlapped
- 2 year warranty
- Suitable for metallic and nonmetallic gutters and downspouts
- Wattage rating is determined at 32°F (0°C).



AVAILABLE LENGTHS

	VOLTS	DE-ICING RATING** WATTS/FT.	AVAILABLE LENGTHS				WEIGHT/FT.
			100 FT. LENGTH MODEL / UPC	250 FT. LENGTH MODEL / UPC	500 FT. LENGTH MODEL / UPC	1000 FT. LENGTH MODEL / UPC	
120V	120	5	SR123-100 / 40513	SR123-250 / 40414	SR123-500 / 48735	SR123-1000 / 40416	0.080 LBS./FT.
	120	8	SR125-100 / 40514	SR125-250 / 40418	SR125-500 / 48736	SR125-1000 / 40420	0.080 LBS./FT.
	120	12.1	SR128-100 / 40515	SR128-250 / 40422	SR128-500 / 48737	SR128-1000 / 40424	0.080 LBS./FT.
	120	14.8	SR1210-100 / 40516	SR1210-250 / 40426	SR1210-500 / 48733	SR1210-1000 / 40428	0.080 LBS./FT.
240V	240	5	SR243-100 / 40517	SR243-250 / 40430	SR243-500 / 48739	SR243-1000 / 40432	0.080 LBS./FT.
	240	8	SR245-100 / 40518	SR245-250 / 40434	SR245-500 / 48740	SR245-1000 / 40436	0.080 LBS./FT.
	240	12.1	SR248-100 / 40519	SR248-250 / 40438	SR248-500 / 48741	SR248-1000 / 40440	0.080 LBS./FT.
	240	14.8	SR2410-100 / 40520	SR2410-250 / 40442	SR2410-500 / 48738	SR2410-1000 / 40444	0.080 LBS./FT.

**Wattage rating for roof and gutter de-icing application is determined at 32°F (0°C).

*Approved for 208, 220, 277 volt operation, refer to wattage adjustment tables for output rating. (See Page 191, Table 4)

Controls and thermostats should always be used with King heating cable systems.

SR ACCESSORIES Refer to page ?? for Roof & Gutter De-Icing Accessories

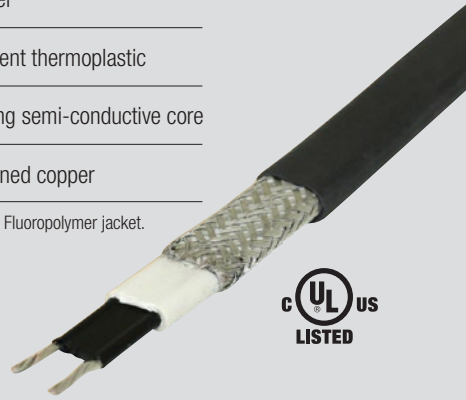
MODEL	UPC	DESCRIPTION	WEIGHT
SRK00	40462	Hard wired power connection kit, includes end seal	0.3 lbs.
SRK02	40461	Connection kit, includes end seal	0.3 lbs.
SRK03	40464	Pipe trace tape (66 ft) and 10 labels per pack	0.1 lbs.
SRK04	61713	2.5" x 50 yards 2 Mil Foil tape	1.0 lbs.
SRK08	40466	Plug in 120V connection kit with GFEP device, includes end seal	1.0 lbs.
SRK10	40468	Weatherproof splice/tee kit, includes end seal	0.2 lbs.
SRK12	40470	End seal kit (2 per package)	0.1 lbs.
SRK17	40477	11 & 13mm Gel end seal	0.1 lbs.
SRK18	40512	Lighted end seal, 85-277V	0.3 lbs.
IFC12	40490	Plug in fixed thermostat, 120V, 15 amp, on at 35°F off at 45°F (12/case)	0.3 lbs.
TRF-115-005	40477	Freeze protection thermostat, weatherproof with 5ft. remote bulb & capillary, 25 amp at 120/208/240V, 22 amp at 277V, adjustable temp 0°F, suitable for 24 VAC operation (w/Power-On indicator light)	0.3 lbs.

Charts & Tables SR Roof/Gutter De-Icing Cable

Cable Construction Table

Outer Jacket	Rugged polyolefin UV jacket
Outer Jacket (-CT)*	Fluoropolymer jacket
Ground Braid	Tinned copper
Inner Jacket	Flame retardent thermoplastic
Core	Self-regulating semi-conductive core
Bus Wire	16 gauge tinned copper

*Add -CT to the end of the model number for Fluoropolymer jacket.



Technical Data Table

Maximum operating temperature	150°F (65°C)
Maximum exposure temperature	185°F (85°C)
Minimum installation temperature	-40°F (-40°C)
Minimum bending radius	1" (24mm)
Dimensions	0.496" x 0.236" (12.6mm x 6mm)
Service Voltage	110V-120V, 208V-277V
Wattage rating temperature	50°F (10°C)
Hazardous Location Rating (-CT Outer Jacket only)	Class I, Div. 2 Class II, Div. 2 Class III

Selecting the Required Heating Cable Length for Roof and Gutter De-icing

How to Calculate the proper Heating Cable Length:

Use the formula below to determine the amount of heating cable required.

Total heating cable length = A+B+C+D

A (Roof edge) x (heating cable multiplier)

B (Roof edge x 0.5)

C (Total gutter length)

D (Total downspout length + 1 ft.)

=Total heating cable length required.

Example: Standard Roof

1. Roof edge = 14 ft.
2. Eave overhang = 1 ft. (Refer to cable multiplier table)
3. Gutter = 14 ft.
4. Downspout = 12 ft.

Heating Cable Required:

Roof edge: 14 ft. x 2.8 (Multiplier from table) = 39.2 ft.

Roof extension*: 14 ft. x 0.5 = 7.0 ft.

Roof gutter: 14 ft. = 14.0 ft.

Downspout: 12 ft. + 1 ft. = 13.0 ft.

Total heating cable length required: = 73.2 ft.

Solution for Example = SRP126-75

*Roof extension is the length of cable required to prevent ice dams between the roof edge and the gutter. When there are no gutters present it forms a drip loop to prevent ice dams at the roof edge.

Heating Cable Multiplier Table

Eave Overhang	Standard Roof	Metal Roof (18" Seam)	Metal Roof (24" Seam)
None	2.0	2.5	2.0
12"	2.8	2.8	2.4
24"	3.8	3.6	2.9
36"	4.8	4.3	3.6

Use the number in the table and multiply it by the length of the roof edge.

Calculations for Gutters, Downspouts and Valleys:

1. For standard non-metal roofs, add 1 foot of heating cable for each foot of gutter.
2. Add 1 foot of heating cable per foot of downspout.
3. If the downspout is in the middle of the run, loop the cable down and back up. Double the length of the downspout for determining the length of cable to install.
4. For valleys, run the heating cable two thirds of the way up and down the valley. Add this additional length to the overall cable.
5. For gutters 6 inches wide use two cable runs.

Charts & Tables SR Roof/Gutter De-Icing Cable

Heating Cable Selection for Roof/Gutter De-Icing

Calculation For Heating Cable Length

Total heating cable length = A+B+C+D+E+F+G

A (Roof edge) x (heating cable multiplier)

B (Roof edge x 0.5)

C (Total gutter length)

D (Total downspout length + 1 ft.)

E (1 ft. for each power connection)

F (2 ft. for each splice)

G (3 ft. for each tee connection)

=Total heating cable length required.

Example:

1. Roof edge = 48 ft.
2. Eave overhang = 1 ft. (Refer to cable table 6)
3. Gutter = 48 ft.
4. Downspout = 22 ft.
5. Power connection = 2 each
6. Splice = 3 each

Heating Cable Required:

A Roof edge:	48 ft. x 2.8 (From table 6)	= 134.4 ft.
B Roof extension*:	48 ft. x 0.5	= 24.0 ft.
C Roof gutter:	48 ft.	= 48.0 ft.
D Downspout:	22 ft. + 1 ft.	= 23.0 ft.
E Power Connection:	2 x 1 ft.	= 2.0 ft.
F Splice Connection:	3 x 2 ft.	= 6.0 ft.
G Tee Connection:	0 x 3 ft.	= 0 ft.
Total heating cable length required:		= 237.4 ft.

*Roof extension is the length of cable required to prevent ice dams between the roof edge and the gutter. When there are no gutters present it forms a drip loop to prevent ice dams at the roof edge.

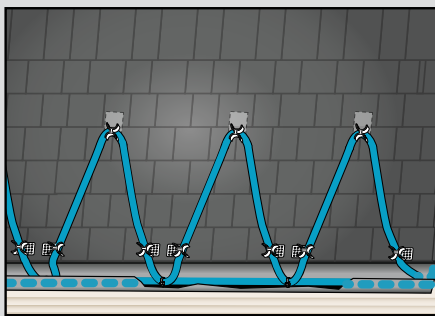


Table 7 - Tracing Heights for Shake/Shingle Roof

Eave Overhang	Tracing Width	Tracing Height	Cable/Roof Edge
None	24"	18"	2.0 ft.
12"	24"	18"	2.8 ft.
24"	24"	30"	3.8 ft.
36"	24"	42"	4.8 ft.

The last column gives the amount of cable required per foot of roof edge for standard shake and shingle roof (table 7) or a metal seam roof (table 8).

Table 6 - Heating Cable Multiplier

Eave Overhang	Standard Roof	Metal Roof 18" Seam	Metal Roof 24" Seam
None	2.0	2.5	2.0
12"	2.8	2.8	2.4
24"	3.8	3.6	2.4
36"	4.8	4.3	3.6

Use the number in the table and multiply it by the length of the roof

Calculations for Gutters, Downspout and Valley

1. For standard non-metal roofs, add 1 foot of heating cable for each foot of gutter.
2. Add 1 foot of heating cable per foot of downspout.
3. If the downspout is in the middle of the run, loop the cable down and back up. Double the length of the downspout for determining the length of the cable to install.
4. For valleys, run the heating cable two thirds of the way up and down the valley. Add this additional length to the overall cable.
5. For gutters 6 inches wide use two cable runs.

Design Notes

1. In-line splices and tee splices should be avoided where possible.
2. Heating cable in downspouts should be looped and extend below the frost line if tied into a drainage system.
3. End terminations should not be located in an area where moisture is present. End terminations should not be located at the lowest point of downspouts.
4. For roof drains leading into a heated area, a loop of heating cable should be installed to a depth of 3 ft.

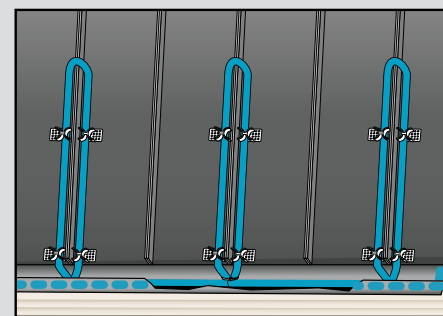


Table 8 - Tracing Heights for Metal Seam Roof

Eave Overhang	Tracing Width	Tracing Height	Cable/Roof Edge
None	18"	18"	2.5 ft.
12"	18"	24"	2.8 ft.
24"	18"	36"	3.6 ft.
36"	18"	48"	4.3 ft.
None	24"	18"	2.0 ft.
12"	24"	24"	2.4 ft.
24"	24"	36"	2.9 ft.
36"	24"	48"	3.6 ft.

Self-Regulating Roof/Gutter De-Icing Cable

Table 9 - Circuit Breaker Protection for De-icing

Cable	Volts	Start up Temp.	15 Amp (ft.)	20 Amp (ft.)	30 Amp (ft.)	40 Amp (ft.)
SR123	120V	32°F (0°C)	273	273	273	273
		20°F (-7°C)	254	268	273	273
		0°F (-18°C)	213	255	273	273
		-20°F (-29°C)	182	248	273	273
SR243	240V	32°F (0°C)	547	547	547	547
		20°F (-7°C)	501	547	547	547
		0°F (-18°C)	426	547	547	547
		-20°F (-29°C)	368	492	547	547
SR125	120V	32°F (0°C)	188	216	216	216
		20°F (-7°C)	166	216	216	216
		0°F (-18°C)	144	193	216	216
		-20°F (-29°C)	127	173	216	216
SR245	240V	32°F (0°C)	381	432	432	432
		20°F (-7°C)	331	432	432	432
		0°F (-18°C)	292	387	432	432
		-20°F (-29°C)	258	347	432	432
SR128	120V	32°F (0°C)	126	168	171	171
		20°F (-7°C)	118	157	171	171
		0°F (-18°C)	103	136	171	171
		-20°F (-29°C)	92	123	168	171
SR248	240V	32°F (0°C)	257	342	347	347
		20°F (-7°C)	235	311	347	347
		0°F (-18°C)	204	268	347	347
		-20°F (-29°C)	184	244	347	347
SR1210	120V	32°F (0°C)	102	143	152	152
		20°F (-7°C)	97	126	152	152
		0°F (-18°C)	88	117	152	152
		-20°F (-29°C)	76	104	152	152
SR2410	240V	32°F (0°C)	172	226	312	312
		20°F (-7°C)	159	215	312	312
		0°F (-18°C)	150	197	298	312
		-20°F (-29°C)	138	182	273	312

Table 10 - Technical Data Ratings

Technical Data Table	
Maximum operating temp.	150°F (65°C)
Maximum exposure temp.	185°F (85°C)
Minimum installation temp.	0°F (-18°C)
Minimum bending radius	1" (24mm)
Dimensions	0.496" x 0.236" (12.6mm x 6mm)
Service voltage	110-120V, 208V-277V

Table 11 - Maximum Single Run Length

Model	Volts	Output at 32°F (0°C)	Maximum Single Run Length
SR123	120V	5.0 w/ft.	273 ft. (83M)
	208V	4.1 w/ft.	530 ft. (129M)
SR243	240V	5.0 w/ft.	547 ft. (161M)
	277V	5.9 w/ft.	590 ft. (180M)
SR125	120V	8.0 w/ft.	216 ft. (66M)
	208V	7.1 w/ft.	397 ft. (121M)
SR245	240V	8.0 w/ft.	432 ft. (132M)
	277V	9.0 w/ft.	466 ft. (142M)
SR128	120V	12.1 w/ft.	171 ft. (52M)
	208V	11.4 w/ft.	312 ft. (95M)
SR248	240V	12.1 w/ft.	347 ft. (106M)
	277V	13.0 w/ft.	385 ft. (117M)
SR1210	120V	14.8 w/ft.	152 ft. (46M)
SR2410	208V	14.2 w/ft.	274 ft. (83M)
	240V	14.8 w/ft.	312 ft. (95M)
	277V	15.8 w/ft.	346 ft. (106M)

Table 12 - Circuit Length Adjustments

Model	208V	277V
SR243	0.97	1.08
SR245	0.92	1.08
SR248	0.90	1.11
SR2410	0.88	1.11

Circuit length adjustments for 240V cables operated 208V and 277V are noted in Table 12

3. The NEC requires ground-fault equipment protection (GFEP) for fixed outdoor de-icing equipment. All electrical connections should be made by a licensed electrician.

Technical Data Notes:

1. The maximum single cable run is the longest length of heating cable before there is a significant voltage drop which will lower the wattage rating of the cable.
2. The circuit breaker sizes in Table 9 are per the National Electric Code (NEC).

SR/SRP Roof & Gutter Accessories



SRK02 Connection Kit

Contains heat shrink tubing and woven braid. Also includes one end seal.



SRK10 Splice and Tee Kit

Contains heat shrink tubing and other materials to make one splice or one tee connection. Also includes one end seal.



SRK12 End Seal Kit

Contains heat shrink tubing and other materials to make two end seals.



SRK08 Plug in 120V Connection Kit with GFEP Device

Contains labels, GFEP protection device with 120V plug, cable ties, crimp type connectors, heat shrink tubing and labels. Includes one end seal.



SRK15 Downspout

Downspout hanger and cable ties.



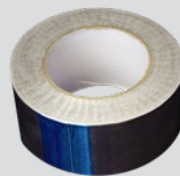
SRK13 Clip

Roof clip for mounting cable



SRK14

3M VHB double sided acrylic foam pads
For use with SRK13 clips in metal gutter



SRK04

2.5" x 50 yards 2 mil Foil tape



SRK17

11 & 13mm Gel end seal

MODEL	UPC	DESCRIPTION	WEIGHT
SRK02	40461	Connection kit, includes end seal	0.3 lbs.
SRK04	61713	2.5" x 50 yards 2 mil foil tape	1.6 lbs.
SRK08	40466	Plug in 120V connection kit with GFEP device, includes end seal	1.0 lbs.
SRK10	40468	Weatherproof splice/tee kit, includes end seal	0.2 lbs.
SRK12	40470	End seal kit (2 per package)	0.1 lbs.
SRK13	40472	Roof clip (25 per package)	0.2 lbs.
SRK14	40473	3M VHB double sided acrylic foam pads (25 per package)	0.1 lbs.
SRK15	40476	Downspout hanger and cable ties	0.3 lbs.
SRK17	40477	11 & 13mm Gel end seal	0.1 lbs.