

PSR Pipe and Roof Deicing Heating Cable Installation Instructions

General Information

- PSR heating cable may be used to help prevent water pipes from freezing or to help prevent the formation of ice dams on roofs.
- PSR heating cable is suitable for use on metal and plastic pipes (such as PVC or polybutylene) but not on flexible vinyl tubing (such as garden hose).
- PSR heating cable is suitable for use in metallic and nonmetallic gutters and downspouts.
- PSR heating cable is a self-regulating heating cable designed to change its heat output as the surrounding temperature changes. As the surrounding temperature increases, the output of the PSR cable decreases.
- PSR heating cables feature a pilot light in the plug (120V models only) to indicate when power is applied to the cable.
- PSR cable is suitable for shingle, slate, metal, wood and flat roofs with either plastic or metal gutters/downspouts.

⚠ Precautions

1. Heating cables must be installed in compliance with all national, state, provincial and local electrical codes. Check

with your local inspector for specific details.

2. These instructions must be retained and made available to the user and transferred to future users.
3. Heating cables must not be energized in summer conditions; ensure that all heating cables are de-energized during the summer.
4. It is recommended that the circuit supplying the heating cable have ground fault protection; this is mandatory by electrical code for some applications in many regions. Consult an electrical inspector to determine the specific ground fault requirements for your application prior to installation. If you are unsure that your circuit has ground fault protection, consult an electrician.
5. Do not alter the length of the heating cable - cable is factory sealed and alteration will result in risk of electrical fire or shock.
6. Post warning labels (supplied with cable) to power supply disconnect switch, circuit breaker panel, outdoor receptacle and any other appropriate locations, as applicable. Also post labels along any pipe (on outside of insulation) on which the cable is installed.
7. Do not bend cable to a diameter less than 5 times the cable diameter.
8. Installing cable on a roof below 32°F (0°C) may damage the shingle if it is brittle.
9. Minimum installation temperature for the heating cable set is -30°C (-22°F).

120 Volt Cable Selection Chart

Model No.	Length in Ft. (m)	Wattage @ 50°F (10°C)
PSR1006	6 (1.83)	30
PSR1012	12 (3.76)	60
PSR1018	18 (5.49)	90
PSR1024	24 (7.32)	120
PSR1050	50 (15.24)	250
PSR1075	75 (22.86)	375
PSR1100	100 (30.48)	500

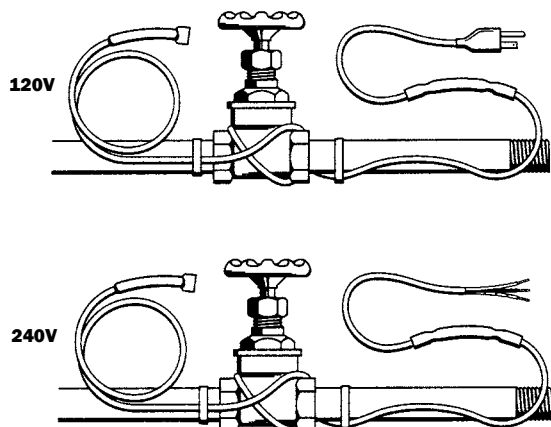
240 Volt Cable Selection Chart

Model No.	Length in Ft. (m)	Wattage @ 50°F (10°C)
PSR2006	6 (1.83)	30
PSR2012	12 (3.76)	60
PSR2018	18 (5.49)	90
PSR2024	24 (7.32)	120
PSR2050	50 (15.24)	250
PSR2075	75 (22.86)	375
PSR2100	100 (30.48)	500

Breaker Size	120V Cable	240V Cable
15 Amp	125/115/100	250/225/205
20 Amp	170/150/135	335/300/270

Maximum total heater length (ft) / Circuit breaker size 20°F (-7°C)/0°F (-20°C)/-20°F (-30°C) start-up

Pipe Freeze Protection



Planning

- Exposure to temperatures above 150°F (66°C) will shorten the life of your cable. Before installing on hot water pipes, set the water heater thermostat below 150°F (66°C).
- Remove any old heating tapes or insulation before installing the new cable.
- Do not alter the length of the cable.
- Do not use thin 1/8" (3.18 mm) foil-backed foam insulation.
- If more than one heating cable is used on a single electrical circuit please refer to the maximum heater length per circuit breaker size chart. Check to make sure the total heating cable length does not exceed the length specified in this table.

Selection of heating cable. Select the appropriate cable length from one of the two charts on next page. Cable may be up to 2 feet (60.96 cm) shorter than the pipe. Lengths assume lowest ambient temperature is -20°F (-29°C), with a minimum of 1/2" (12.7 mm) fiberglass insulation or equivalent. For protection to -40°F (-40°C), use 1" (25.4 mm) fiberglass insulation. **Note:** Allow an extra foot (30.48 cm) of heating cable for each valve.

Cable Length Selection Chart Ambient Temperature -20°F (-28.89°C), with 0.5" (12.7mm) Thick Fiberglass Insulation

METAL PIPE

Pipe Dia	3' .91m	4'-6' 1.2m-1.83m	7' 2.13m	8'-12' 2.44-3.66m	13'-14' 3.96-4.27m	15'-18' 4.57-5.49m	19'-25' 5.79-7.62m	26'-50' 7.92-15.24m	51'-75' 15.54-22.86m	76'-100' 21.16-30.48m
0.5" (12.7mm)		A	A	B	B	C	C	E	F	G
1.0" (25.4 mm)	A	A	A	B	B	C	C	E	F	G
1.5" (38.1 mm)	A	A	A	B	B	C	D	E	F	G
2.0" (50.8 mm)	A	B	B	C	C	D	E	F	G	H
2.5" (63.5 mm)	A	B	B	C	C	D	E	F	G	H

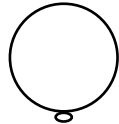
PLASTIC PIPE

Pipe Dia	3' .91m	4'-6' 1.2m-1.83m	7' 2.13m	8'-12' 2.44-3.66m	13'-14' 3.96-4.27m	15'-18' 4.57-5.49m	19'-25' 5.79-7.62m	26'-50' 7.92-15.24m	51'-75' 15.54-22.86m	76'-100' 21.16-30.48m
0.5" (12.7mm)		A	B	B	C	D	D	E	F	G
1.0" (25.4 mm)	A	A	B	C	C	D	E	E	F	G
1.5" (38.1 mm)	A	B	C	D	D	E	E	F	F	H
2.0" (50.8 mm)	A	B	C	E	E	E	E	F	G	H
2.5" (63.5 mm)	A	B	C	E	E	E	F	F	G	H

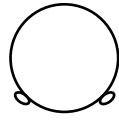
SELECTION CHART KEY

	Model #	# of Cables
A	PSR (*)006	1 Cable
B	PSR (*)012	1 Cable
C	PSR (*)018	1 Cable
D	PSR (*)024	1 Cable
E	PSR (*)050	1 Cable
F	PSR (*)075	1 Cable
G	PSR (*)100	1 Cable
H	PSR (*)100	2 Cable

Replace* with voltage code:
1 for 120V; 2 for 240V



Single Cable



Double Cable

Heating cable control options and power connection

For 120 Volt cables, the heating cable can simply be plugged into a ground fault protected electrical receptacle.

For 240 Volt cables, the cable is designed to be directly connected into an appropriate electrical outlet box supplied by ground fault protected circuit. Since it will be necessary to remove power from the cable from time to time, such as in summer, always connect the cable to an appropriate double-pole electrical switch. If the heating cable is the only load on the circuit, the branch circuit breaker may be used to disconnect power from the cable (switch is not necessary).

In addition, a remote thermostat similar to EasyHeat model C3RC can be used for 120 Volt or 240 Volt cables to reduce energy consumption and extend the life of the cable. Consult your local EasyHeat supplier or representative for other control options.

Attaching heating cable to pipes

Wrap EasyHeat HCA (optional Application Tape) or nylon cable ties at 6" (15.24 cm) intervals to secure the heating cable to the pipe.

- If the heating cable is the same length as the pipe, run it straight along the bottom of the pipe. If two cables are required, position them in the 4 and 8 o'clock positions.
- If the cable selected is exactly double the pipe length, apply a single trace of cable straight along the pipe all the way to the end, and loop back, applying cable straight along the pipe all the way back to the starting point.
- If the cable selected is somewhat less than double the pipe length, spiral the cable evenly along the entire length of pipe.

Protecting the system with thermal insulation

Before insulating, ensure that there is no damage, such as nicks or cuts on the heating cables. Immediately cover the pipe, cables, connections, valves and spigots with 1/2" (12.7 mm) to 1" (25.4 mm) thick fiberglass insulation or equivalent. Do not leave the cables exposed. Use fire-resistant materials such as fiberglass wrap. Make sure the insulation is waterproofed (with polyethylene or other vapor barriers) in areas where water may come in contact with the insulation.

Testing the system

Once the installation is complete, apply power to the heating cable; wait about one hour, and then turn on a water tap supplied by the protected pipe and test the temperature of the water. It should feel warm almost immediately as the water heated by the cable flows through the pipe.

Operation. Energize the cable/control upon the arrival of cold weather in the fall and de-energize the cable in late spring.

Maintenance

Check cable each year for any damage before energizing the heating cable. Check any ground fault protection device for proper operation. Check pipe insulation and replace any that may be loose or damaged. Do not operate the cable if any damage is found.

Roof Deicing

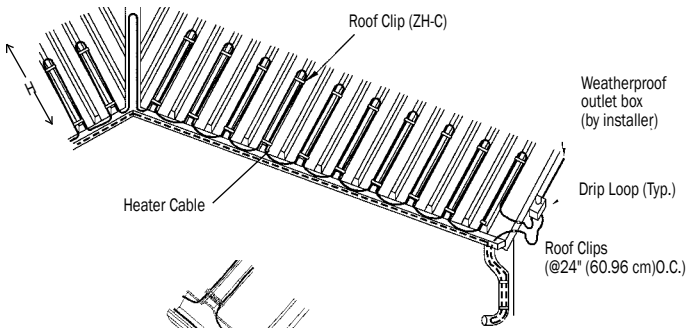
Selection of heating cable. The total heating cable length for deicing is determined by including all elements of the roof system that need protection. Use Tables 1 and 2 to determine the total length of cable. Usually one cable will be sufficient for both roof and gutter areas. For larger installations, use separate cables for roof area and gutter/downspout area.

Installation procedures

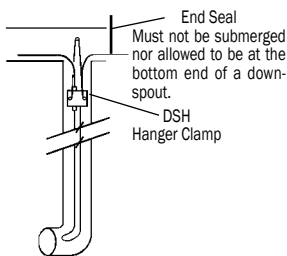
- Remove leaves, pine needles, or any combustible debris from roof, gutters and downspouts before installing roof deicing cable.
- Use ZH-C Roof Clips (sold separately) for attaching the heating cable to the roof (shingle and metal roofs).
- For downspouts longer than 20 feet (6.10 m), use DSH Downspout Hanger (sold separately) to support the heating cable where it enters/exits a downspout.

One hanger is required for each downspout. Always loop the cable down to the bottom of downspout and back up toward gutter, clamping it into downspout hanger to prevent cable from being damaged by drain/gutter edge. This also ensures that the cable tail is secured on the roof. Cable to be linked to roof loop (see diagrams).

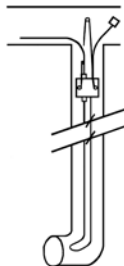
TYPICAL METAL ROOF (Separate cables shown for roof and gutter)



Clip gutter cable to roof cable to provide a path for water to get to ground



**END CIRCUIT
DOWNSPOUT
INSTALLATION**



**MID CIRCUIT
DOWNSPOUT
INSTALLATION**

Table 1 Determination of total cable requirements

Model #	# of Cables
Roof Edge	From Table 2 based on eave overhang
Gutter	1' (30.48 cm) of cable/foot of gutter (if gutter is wider than 6" (15.24cm), use 2 traces)
Downspout	2' (60.96 cm) of cable/foot of downspout—cable is looped down and back
Roof Valley	6' (1.83m) of cable/valley - loop 3' (0.91m) up valley and back
Dormer Perimeter	1' (30.48 cm) of cable/foot of dormer perimeter

Table 2 Cable length factors vs. eave overhang

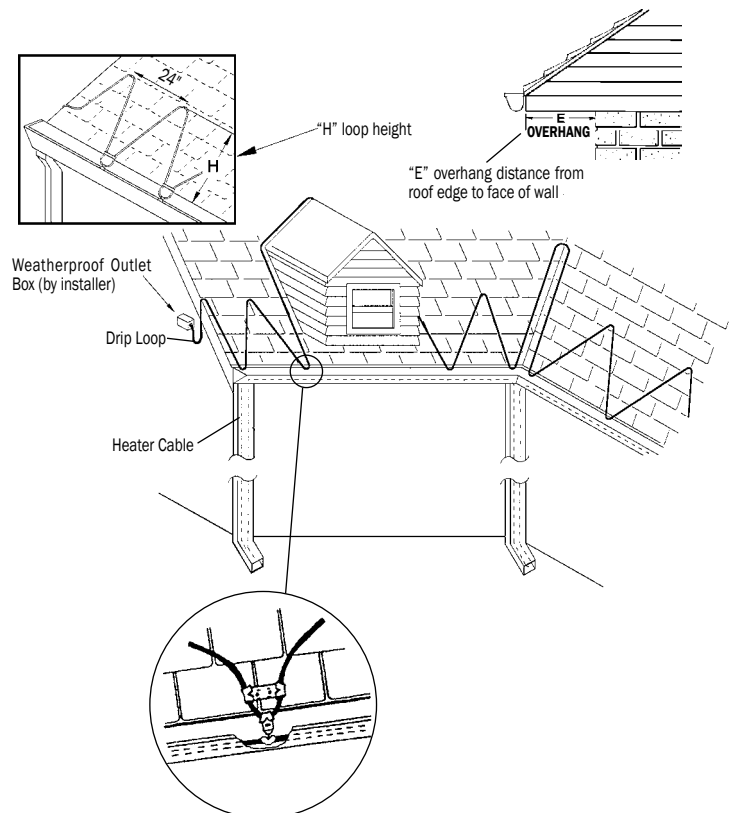
Eave Overhang E	Loop Height H	Length Factor Shingle Roof *	Length Factor Metal Roof **
12"(30.48 cm)	18"(45.72 cm)	1.9	2.5
24"(60.96 cm)	30"(76.20 cm)	2.7	3.5
36"(0.91 m)	42"(1.07 m)	3.6	4.5
48"(1.22 m)	54"(1.37 m)	4.6	5.5

Cable length required = Length Factor × Roof Length (feet/m)

Notes:

- * Typical shingle roof with sawtooth pattern. (See diagram)
 - ** Typical metal roof with loop pattern spaced 24" (61 cm) - for other spacing these factors will need to be adjusted accordingly. (See diagram)
- For other designs, contact EasyHeat.

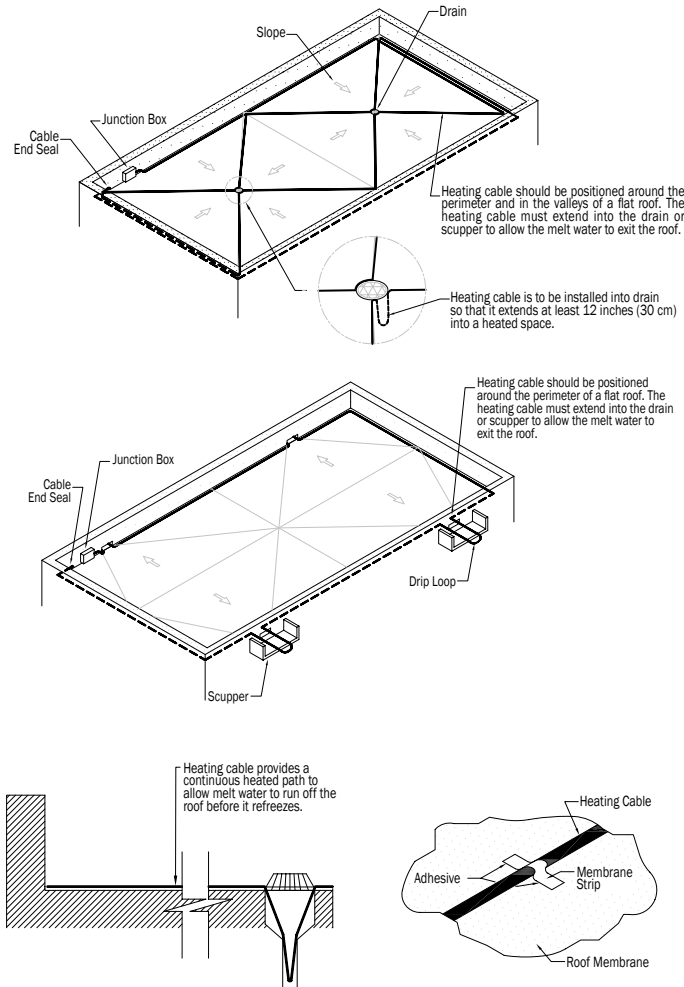
TYPICAL SHINGLE ROOF (Single cable shown for roof and gutter)



TYPICAL MEMBRANE ROOF

Ice dams may occur on flat roofs typically at the edge of the flashing and at drains. Flat roofs are normally pitched toward drains and these paths can become obstructed by snow and ice. To maintain a path for melt water to run off, install the heating cable as shown below using appropriate attachment methods. Additional heating cable may be required for downspouts.

Note: Heating cable attachment methods are not shown in the diagram below. For attachment we recommend using our ZH-C roof clip. Properly securing this clip to different roofing materials may require differing methods; consult a roofing professional for more information. If the situation warrants it may also be possible to use strips of the roofing membrane to secure the heating cable by adhering the cable under the strip to the main roofing membrane (see figure below).



Heating cable layout on flat roof:

- Install heating cable around the perimeter.
- Install heating cable running from the perimeter to the drain.
- Heating cable is to be installed into drain so that it extends at least 12 inches (30cm) into a heated space.

Heating cable control options and power connection

For 120 Volt cables, the heating cable can be simply plugged into a ground fault protected electrical receptacle, when icing conditions are present on the roof. The (optional) EasyHeat RS-2 Roof Sentry (120 Volt) control can be used to automatically ensure cables are energized only when icing conditions are present on the roof, minimizing energy consumption and extending cable life.

For 240 Volt cables, the cable is designed to be directly connected into an appropriate electrical connection box. Since it will be necessary to remove power from the cable from time to time, such as in summer, always connect the cable to an appropriate double-pole electrical switch. If the heating cable is the only load on the circuit, the branch circuit breaker may be used to disconnect power from the cable (switch is not necessary). Several automatic controls are available from EasyHeat.

⚠ Always connect a pilot light into the circuit of 240V cables to indicate when the cables are energized.

Testing the system. Once the installation is complete, apply power to the heating cable; the surface of the cable will feel warm after about 15 minutes.

Operation

If no automatic controls are installed, energize the cable only when icing conditions are present on the roof, and de-energize when icing conditions are no longer present. For 120 Volt models only, the power cord plug contains a pilot light indicating that power is being applied to the cable. Ensure power is removed from the cable/control in summer.

⚠ Maintenance

Check cable annually for any damage, such as nicks or cuts possibly caused by animals or other activity on the roof. Check any ground fault protection devices for proper operation. Remove all debris (leaves, twigs, pine needles, etc.) from roof, gutters and downspouts prior to energizing the roof cable. Do not attempt to energize the roof cable if any of these problems are discovered.

LIMITED WARRANTY AND LIABILITY

EasyHeat warrants that if there are any defects in material or workmanship in this product during the first twelve (12) months after the date of its purchase, we will replace the product with an equivalent model, not including any labor or other installation costs.

Our obligation to replace the product as described above is conditioned upon (a) the installation of the product conforms to the specifications set forth in our installation instructions and (b) the product not having been damaged by unrelated mechanical or electrical activities.

Product replacement as described above shall be your sole and exclusive remedy for a breach of this warranty. This limited warranty does not cover any service costs relating to repair or replacement.

We shall not be liable for any incidental, special or consequential damages as a result of any breach of this warranty or otherwise, whether or not caused by negligence. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The warranty above is exclusive and makes no other warranties with respect to description or quality of the product. No affirmation of fact or promise made by us, by words or action, shall constitute a warranty. If any model or sample was shown to you, the model or sample was used merely to illustrate the general type and quality of the goods and not to represent that the goods would necessarily be of that type or nature. **No agent, employee or representative of ours has authority to bind us to any affirmation, representation or warranty concerning the goods sold unless such affirmation, representation or warranty is specifically incorporated by written agreement.**

ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE THAT MAY ARISE IN CONNECTION WITH THE SALE OF THIS PRODUCT SHALL BE LIMITED IN DURATION TO TWELVE (12) MONTHS FROM THE DATE OF PURCHASE. WE DISCLAIM ALL OTHER IMPLIED WARRANTIES, UNLESS WE ARE PROHIBITED BY LAW FROM DOING SO, IN WHICH CASE ALL SUCH IMPLIED WARRANTIES SHALL EXPIRE AT THE EARLIEST TIME PERMITTED BY APPLICABLE LAW. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state or province to province.

To obtain a replacement under this warranty any inoperative product or component must be returned, with proof of purchase, to EasyHeat at the addresses noted herein. Buyer is responsible for all costs incurred in removal and re-installation of product and must pre-pay shipment to factory or point of purchase.

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