



SpeedTrace Roof & Gutter **Pre-Assembled Self-Regulating Heating Cable**

*For Snow and Ice Melting on
Roofs and in Gutters and Downspouts*

Instruction Manual



Read and understand this entire manual before installing or operating this SpeedTrace Roof and Gutter Kit. Failure to understand how to safely install and operate the SpeedTrace Roof and Gutter Kit and heating cable could result in an accident causing serious injury or death. This SpeedTrace Roof and Gutter Kit should only be installed and operated by qualified personnel.

TABLE OF CONTENTS

Introduction2

Safety Alert Symbol2

Important Safety Instructions3

Description4

Kit Contents4

General Requirements.....5

Electrical Codes5

Heating Cable Selection6

Installation Introduction7

When to Install7

Roof & Gutter Requirements.....7

Electrical Requirements7

Before Installation7

Cable Pattern Arrangement & Roof Clip Placement ...8

Standard Pitched Roof With Gutters9

Standard Pitched Roof Without Gutters10

Valleys11

Standing Seam Metal & Plastic Roofs12

Installation Instructions13

Installation of Cable & Roof Clips on Standard Pitched Roofs (With or Without Gutters)13

Installation of Cable & Roof Clips on Standing Seam Metal or Plastic Roofs20

Installation in Gutters & Downspouts22

Mark Installation.....24

Check Installation24

Starting the System24

Off-Season/Year-Round Installation & Removal25

General Heating Cable Specifications25

Detailed Heating Cable Specifications25

Troubleshooting.....26

Warranty26

INTRODUCTION

Thank you for purchasing a BriskHeat[®] SpeedTrace Roof & Gutter Kit. Your SpeedTrace Roof & Gutter Kit is designed to provide a long and efficient service life with function, reliability, and safety in mind. For additional information or other BriskHeat[®] products, please contact BriskHeat[®] at 1-800-848-7673 (toll free, U.S. / Canada) or 614-294-3376.



SAFETY ALERT SYMBOL

The symbol above is used to call your attention to instructions concerning your personal safety. It points out important safety precautions. It means “**ATTENTION! Become Alert! Your Personal Safety is involved!**” Read the message that follows and be alert to the possibility of personal injury or death.

⚠ DANGER

Immediate hazards which **WILL** result in severe personal injury or death

⚠ WARNING

Hazards or unsafe practices that **COULD** result in severe personal injury or death

⚠ CAUTION

Hazards or unsafe practices that **COULD** result in minor personal injury or property damage

SAVE THESE INSTRUCTIONS!

Additional copies of this manual are available upon request.

IMPORTANT SAFETY INSTRUCTIONS**⚠ DANGER**

A person who has not read and understood all operating instructions is not qualified to operate this product.

⚠ DANGER

- Keep volatile or combustible material away from heating cable when in use.
- Use the heating cable only in approved locations.
- Keep sharp metal objects away from the heating cable.

Failure to observe these warnings may result in electric shock, risk of fire, or personal injury.

⚠ WARNING**End User Must Comply to the Following:**

- Only qualified personnel are allowed to connect electrical wiring.
- Disconnect all supply power at the source before making any power connections.
- All electrical wiring must follow local electrical codes and highly recommend following NEC Article 427.
- Final installation / wiring is to be inspected by the authority who has jurisdiction in the area where the heating cable is installed.
- The end-user is responsible for providing a suitable disconnecting device.
- The end-user is responsible for providing a suitable electrical protection device. It is highly recommended that a ground fault circuit breaker is used.

Failure to observe these warnings may result in personal injury or damage to the heating cable.

⚠ CAUTION

- Never handle the heating cable while it is in operation; always disconnect the heating cable from the power source and allow to cool prior to handling.
- Inspect heating cable before use.
- If spillage of foreign matter onto heater occurs, disconnect from power source and clean after heating cable has been allowed to cool.
- Fasten heating cable using approved methods only.
- Do not repair damaged or faulty heating cable.
- Do not crush or apply severe physical stress on heating cable or cord assembly.
- Unplug heating cable when not in use.
- Do not use for other applications.

Failure to observe these warnings may result in personal injury or damage to the heating cable.

⚠ WARNING

Read and understand this entire manual before installing or operating this SpeedTrace Roof and Gutter Kit. Failure to understand how to safely install and operate the SpeedTrace Roof and Gutter Kit and heating cable could result in an accident causing serious injury or death. This SpeedTrace Roof and Gutter Kit should only be installed and operated by qualified personnel.

DESCRIPTION

- BriskHeat[®]'s SpeedTrace Roof & Gutter Kit is designed to melt snow and ice on roofs and in gutters and downspouts.
- SpeedTrace Roof & Gutter Kits are available in 50, 75, and 100 foot lengths, and each heating cable comes pre-assembled with a 30-inch power cord and 120 VAC plug. Kits include roof clips, hanger brackets, and cable ties for installation.
- Automatically adjusts heat output based on surface and ambient temperature.
- No temperature controller is required.

KIT CONTENTS

Kit Part Number	FFRG15-50	FFRG15-75	FFRG15-100
Length	50 ft	75 ft	100 ft
Heating Cable	1-SpeedTrace FFSL1-50	1-SpeedTrace FFSL1-75	1-SpeedTrace FFSL1-100
Roof Clips	30	50	80
Hanger Bracket	2	4	4
UV Resistant Cable Ties	50	75	100
Electrical Caution Labels	2	2	2

Need more hanger brackets? Additional hanger brackets are available. (Two are needed per downspout.) Contact BriskHeat[®] for more information at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

Additional items required, but not supplied:

- RTV Adhesive for Roofs
- Caulk Gun
- For Shake or Shingle Roofs: Nails & Hammer OR Screws & a Screwdriver or Drill
- Pen & Paper
- Chalk

Optional Recommended Accessories

The Thermo Cube Thermostatically Controlled Outlet is perfect for worry-free operation all year long. The Thermo Cube is a device which, when plugged into a standard GFCI 120 VAC (15 amp minimum) electrical outlet, will automatically turn power on and off to any device plugged into it. The Thermo Cube will automatically turn on power when air temperature reaches approximately 35°F (2°C) and will turn off the power when the temperature exceeds approximately 45°F (7°C). For more information, please contact BriskHeat[®] at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

⚠ WARNING

Read and understand this entire manual before installing or operating this SpeedTrace Roof and Gutter Kit.

GENERAL REQUIREMENTS FOR ROOF AND GUTTER DE-ICING

- BriskHeat[®]'s SpeedTrace Roof & Gutter Kit is designed to melt snow and ice on roofs and in gutters and downspouts.
- The SpeedTrace Roof & Gutter heating cable will not keep snow or ice from falling off the roof. Snow fences or snow guards should be used to eliminate snow movement.
- Use the product only as described in this manual.
- SpeedTrace Roof & Gutter Kits may be used on:
 - Standard pitched roofs with or without a gutter
 - Roofs made from all types of standard roofing materials including: shake, shingle, rubber, tar, wood, plastic, and metal
 - Gutters made from standard materials including metal and plastic
- **Not** for use on:
 - Flat roof tops
 - Slate or tile roofs as damage may occur to the roof material
- Use of an extension cord is not recommended, but if an extension cord is needed, call your local electrical inspection agency for a recommendation on the proper outdoor-safe extension cord.
- Do not install the heating cable underneath any roof covering for roof and gutter de-icing.
- Install only in accessible locations. Do not install behind walls, ceilings, floors, in insulation, or where the cable could be hidden.
- Do not alter the SpeedTrace pre-assembled heating cable.
- SpeedTrace heating cable, roof clips, and hanger brackets must be installed properly to ensure proper operation and to prevent the risk of electrical hazard or fire. Follow all design, installation, assembly, and test instructions carefully.
- Connect only to GFCI 120 VAC (15 amp minimum) outlets that have been installed in accordance with all prevailing national and local codes and standards and are protected from rain and other water.
- De-energize all power circuits before installation or servicing.
- Keep ends of heating devices and kit components dry before and during installation.
- While using pliers to close clamps on heating cable, heating cable should not be crushed or altered in any way.
- The cable should not be twisted during installation.
- Damaged heating cable can cause arcing or fire. Do not energize damaged heating cable. Replace damaged heating cable prior to applying power.
- To minimize the risk of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection.

ELETRICAL CODES**⚠ WARNING**

Failure to meet these electrical system requirements may result in ice formation or an accident from electrical shock or fire.

Articles 422 and 427 of the National Electrical Code (NEC), and Part 1, Section 62 of the Canadian Electrical Code (CEC), govern the installation of SpeedTrace Roof & Gutter Kits and must be followed.

Important: For the BriskHeat[®] SpeedTrace Roof & Gutter Kit warranty to be valid, you must comply with all the requirements outlined in these guidelines.

All thermal and design information provided here is based upon a standard installation with heating cable on roofs and gutters. For any other application or method of installation, please contact BriskHeat[®] at 1-800-848-7673 (U.S. / Canada), or 1-614-294-3376 (worldwide).

HEATING CABLE SELECTION FOR ROOF & GUTTER DE-ICING

Use the table below and the equation to calculate the required heating cable length:

Roof edge length (ft) x (feet of heating cable per foot of roof edge in table)

+ Total gutter length (ft)

+ Total downspout length (ft) +1 ft

Total Heating Cable Length Required (If less than the SpeedTrace Roof and Gutter Kit lengths, round up to the nearest cable size.)

Example (Standard Roof):

Measurements:

Roof edge: 15 ft

Roof overhang: 1 ft

Roof gutter: 15 ft

Downspout (at end of circuit): 15 ft

Equation:

Roof edge: 15 ft x 2 (from table)

Roof gutter: 15 ft

Downspout: 15 ft + 1 ft

61 ft, Requires SpeedTrace Roof & Gutter Kit FFRG15-75, 75 ft length

Length of Cable per Foot of Roof Edge

Roof Overhang	Standard Roof	Standing Seam Roof 18" Seam	Standing Seam Roof 24" Seam
None, *Gutter Required	2.0 ft	2.5 ft	2.0 ft
12"	2.0 ft	2.8 ft	2.4 ft
24"	3.0 ft	3.6 ft	2.9 ft
36"	4.0 ft	4.3 ft	3.6 ft

- For standard roofs, add 1 ft of heating cable for each foot of gutter.
- If the downspout is at the end of a run, add 1 ft of heating cable per foot of downspout.
- If the downspout is not at the end of a run, you will need to loop the cable down and back up. Double the length of the downspout to determine the length of the cable to install.
- For valleys, run the heating cable two thirds of the way up and down the valley.
- Heating cable in downspouts should extend below the frost line if tied into a drainage system.
- If installing the cable in a gutter at the very end of a run, do not allow the end of the heating cable to stick out in the air at the end of the downspout. Instead loop the cable back up the downspout for 1 ft and connect with a cable tie if possible.
- For roof drains leading into a heated area, a loop of heating cable is installed to a typical depth of 3.3 ft.

Important: All thermal and design information provided here is based upon a standard installation. For any other application or method of installation, please contact BriskHeat[®] at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

INSTALLATION INTRODUCTION

WARNING

Read and understand this entire manual before installing or operating this SpeedTrace Roof and Gutter Kit. Failure to understand how to safely install and operate the SpeedTrace Roof and Gutter Kit and heating cable could result in an accident causing serious injury or death. This SpeedTrace Roof and Gutter Kit should only be installed and operated by qualified personnel.

WHEN TO INSTALL

Install the SpeedTrace Roof & Gutter Kit when the conditions are warm, dry, and safe. The best time to install is in advance of cold temperatures arriving. Warmer temperatures will also allow standard shingles or shakes to set or reseal after installation.

When using an RTV adhesive, follow the application directions provided by the RTV manufacturer. Be sure to allow time for the RTV to cure and set without being interrupted by inclement weather.

ROOF & GUTTER REQUIREMENTS

Suitable For:

- Standard pitched roof with or without a gutter
- Standard roofing materials including shingle, shake, rubber, tar, wood, metal and plastic roofs
- Gutters made from standard materials including metal and plastic
- Downspouts made from standard materials including metal and plastic

Not Suitable For:

- Flat roof tops
- Slate, stone, ceramic, composite (tar and gravel) roofs

ELECTRICAL REQUIREMENTS

WARNING

Failure to meet these electrical system requirements may result in ice formation or an accident from electrical shock or fire.

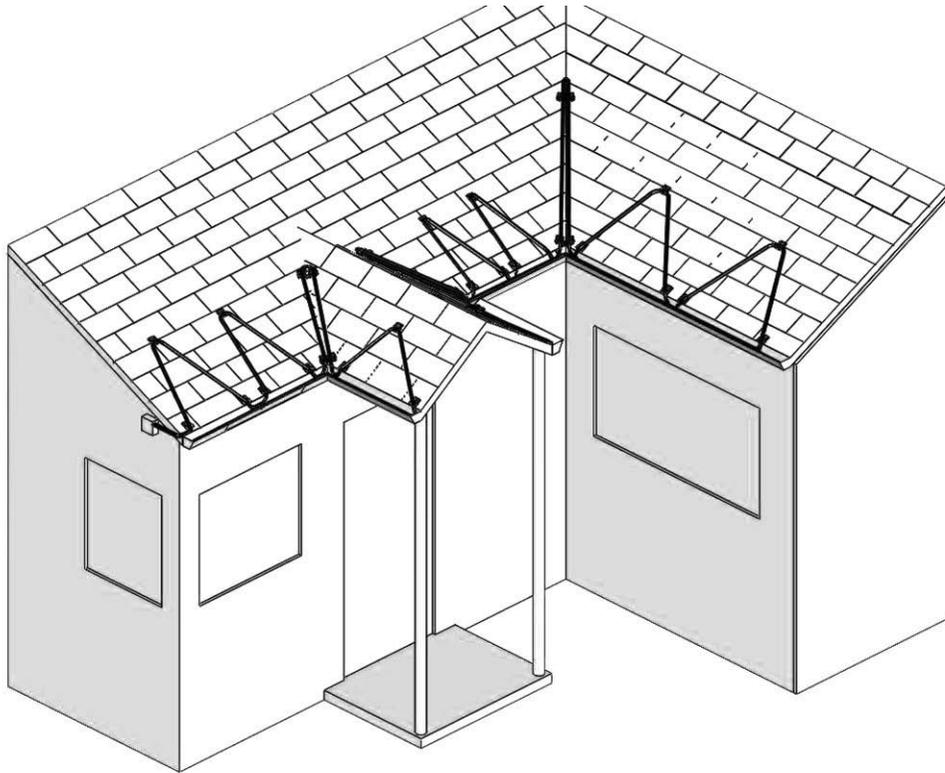
SpeedTrace Roof and Gutter Kits require a GFCI 120 VAC (15 amp minimum) outlet that is close to the cable starting point on the roof and protected from the weather.

Use of an extension cord is not recommended, but if an extension cord is needed, call your local electrical inspection agency for a recommendation on the proper outdoor-safe extension cord.

BEFORE INSTALLATION

- Carefully remove any existing cables, clips, and roof clips from the roof, gutter, and downspouts.
- Clean the roof, gutter, and downspouts of leaves and other debris.
- Check the roof, gutter, and downspouts for sharp edges and file them down.
- Test the heating cable to make sure it's functioning. Unwind the cable and then plug it in. Wait 5 minutes then touch the cable. The cable should feel slightly warm to the touch.
- Unplug the cable before installing.

CABLE PATTERN ARRANGEMENT & ROOF CLIP PLACEMENT



Arrangement for Standard Pitched Roof with Gutter Shown

To save time and ease the installation of the SpeedTrace heating cable, plan the Cable Pattern Arrangement and Roof Clip Placement prior to installation. It is recommended to install the cable in areas that are prone to freezing, ice dams, snow build-up, and icicles.

- Premeasure the length of the roof, gutters, and downspouts.
- Using this information and the arrangements listed below, sketch the Cable Plan Arrangement and Roof Clip Placement on paper.
- After sketching it on paper, it's recommended that you chalk the roof to match the drawing for easy installation.

Plan the pattern for your roof.

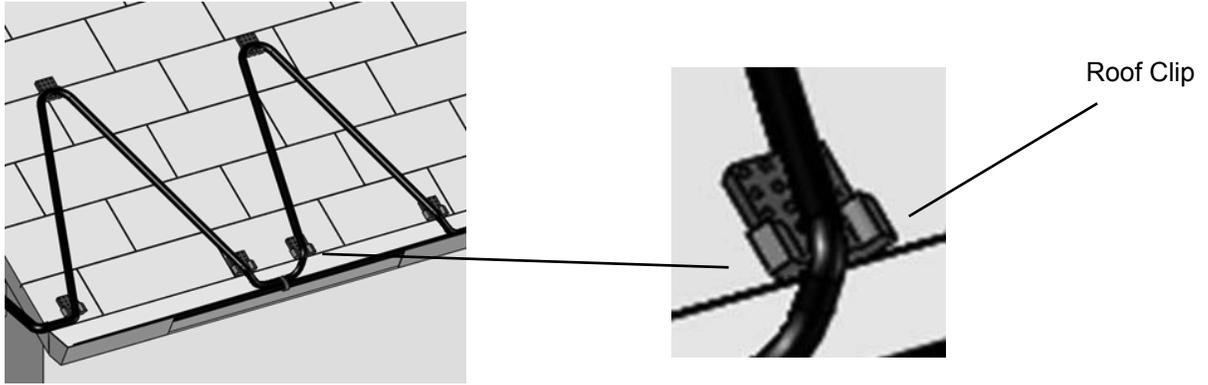
Choose a Starting Point

Select a starting point for the cable near a power outlet. The outlet should be protected from the inclement weather.

STANDARD PITCHED ROOFS WITH GUTTERS

*For use with seamless standard pitched roofs. For standard pitched metal or plastic standing seam roofs, see page 12.

Cable Placement: The cable will be installed in a triangular zig-zag pattern with the lower corner points overhanging the edge of the roof into the gutter and almost touching the bottom of the inside of the gutter.



Clip Placement: Use 1 roof clip at each top corner point of the zig-zag and 2 clips at each bottom corner point.

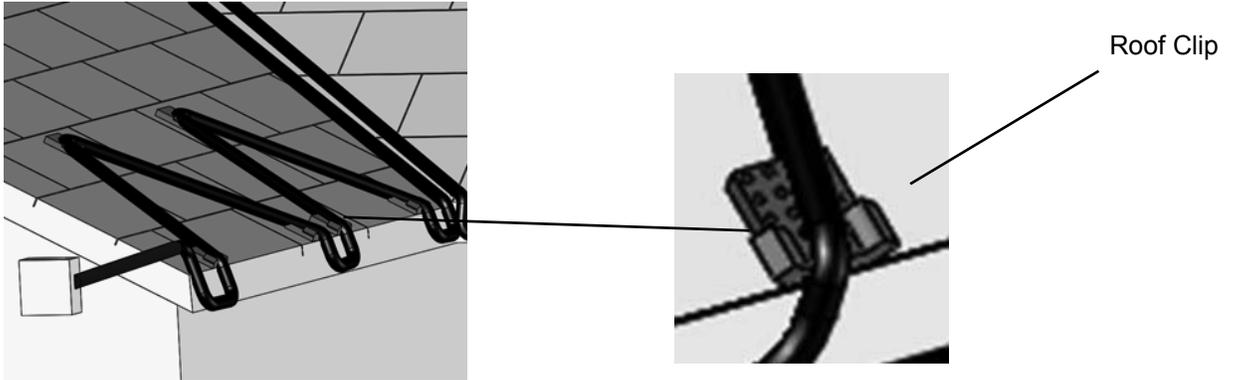
Shake and Shingle Roofs

Roof Overhang	Tracing Width	Tracing Height	Feet of Cable per Foot of Roof Edge, Not Including Gutter
None, *Gutter Required	24"	18"	2 ft
12"	24"	18"	2 ft
24"	24"	30"	3 ft
36"	24"	42"	4 ft

STANDARD PITCHED ROOFS WITHOUT GUTTERS

*For use with seamless standard pitched roofs. For standard pitched metal or plastic standing seam roofs, see page 12.

Cable Placement: The cable will be installed in a triangular zig-zag pattern with the lower corner points overhanging the edge of the roof.



Clip Placement: Use 1 roof clip at each top corner point of the zig-zag and 2 clips at each bottom corner point.

Shake and Shingle Roofs

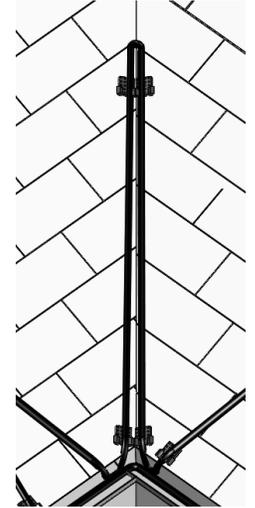
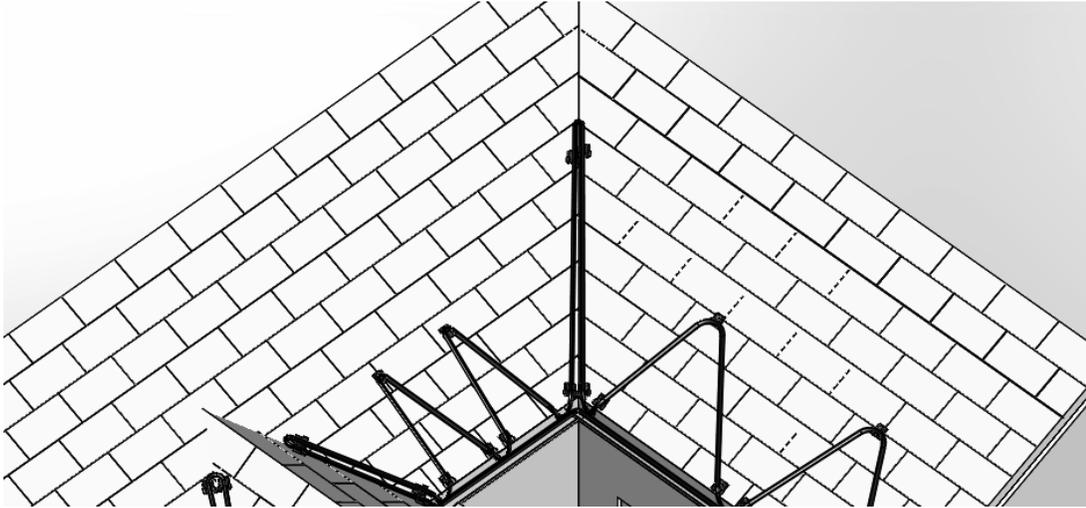
Roof Overhang	Tracing Width	Tracing Height	Feet of Cable per Foot of Roof Edge, Not Including Gutter
None, *Gutter Required	24"	18"	2 ft
12"	24"	18"	2 ft
24"	24"	30"	3 ft
36"	24"	42"	4 ft

VALLEYS

(Angled areas where two sections of roof meet)

Cable Placement: Run the heating cable 2/3rds of the way up and down the valley.

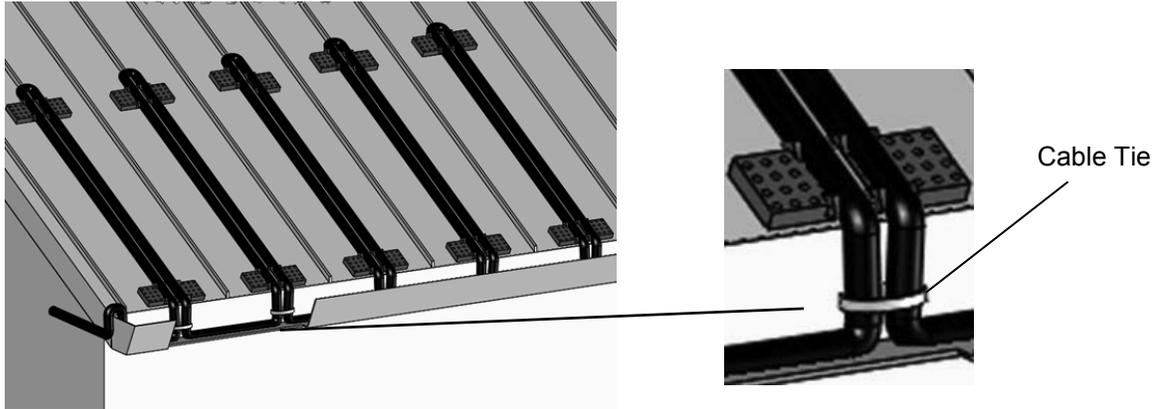
Clip Placement: Use 4 roof clips to secure the cable on the valley. Use 2 roof clips at the top corner point on each side of the run, and 2 roof clips at the bottom corner point on each side of the run.



STANDING SEAM METAL & PLASTIC ROOFS

*For use with pitched metal or plastic standing seam roofs. For use with standard pitched roofs with or without gutters, see pages 9-10.

Cable Placement: Run the heating cable along the standing seam to the tracing height specified in the chart below. Then run the cable to the edge of the roof. Where the two ends of the cable meet at the base of each seam, they will be connected with a cable tie as shown.



Clip Placement: Use 2 roof clips at the top corner points and 2 roof clips at the lower bottom corner points along the standing seam. Where the 2 ends of the cable meet at the base of each seam, they will be connected with a UV-resistant cable tie.

Standing Seam Metal or Plastic Roofs**

Roof Overhang	Tracing Width	Tracing Height	Feet of Cable per Root of Roof Edge, Not Including Gutter
None, *Gutter Required	18"	18"	2.5 ft
12"	18"	24"	2.8 ft
24"	18"	36"	3.6 ft
36"	18"	48"	4.3 ft
None, *Gutter Required	24"	18"	2.0 ft
12"	24"	24"	2.4 ft
24"	24"	36"	2.9 ft
36"	24"	48"	3.6 ft

**No additional heating cable is required for gutter when tracing standing seam metal roofs.

INSTALLATION INSTRUCTIONS

WARNING

Read and understand this entire manual before installing or operating this SpeedTrace Roof and Gutter Kit. Failure to understand how to safely install and operate the SpeedTrace Roof and Gutter Kit and heating cable could result in an accident causing serious injury or death. This SpeedTrace Roof and Gutter Kit should only be installed and operated by qualified personnel.

Choose a Starting Point

Select a starting point for the heating cable near a GFCI 120 VAC (15 amp minimum) power outlet. The outlet should be protected from inclement weather.

Draw Diagram of the Cable Plan Arrangement and Roof Clip Placement

Using the roof, gutter, and downspout measurements and the arrangements listed previously, sketch the cable arrangement and roof clip placement on paper.

Mark the Roof with Chalk

After sketching it on paper, it's recommended that you mark the roof with chalk to match the drawing for easy installation. The markings should indicate where the cable and roof clips will need to be installed.

INSTALLATION OF CABLE & ROOF CLIPS ON STANDARD PITCHED ROOFS (WITH OR WITHOUT GUTTER)

*For use with seamless standard pitched roofs. For standard pitched metal or plastic standing seam roofs, see page 20.

Items Needed:

- Roof Clips
- SpeedTrace Heating Cable
- RTV Adhesive for Roofs
- Caulk Gun
- Nails & Hammer OR Screws & a Screwdriver or Drill
- Hanger Brackets if Roof has a Gutter

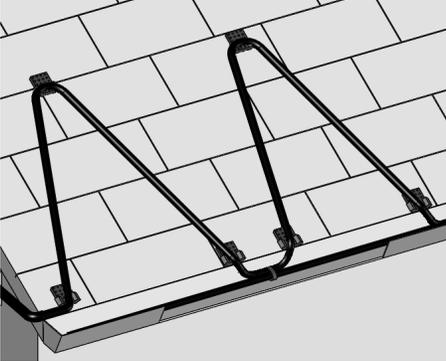
Install the roof clips according to the Cable Pattern Arrangement and Roof Clip Placement diagram and chalk markings on the roof.

NOTE: Roof clips are NOT for use on slate, stone, ceramic, or composite (tar and gravel) roofs.

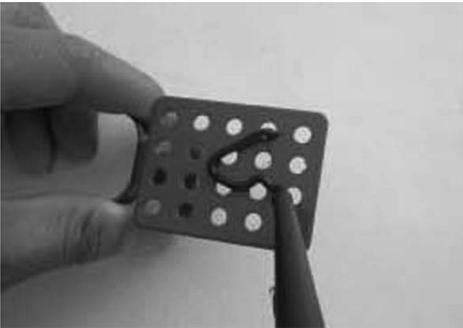
Shingle/Shake Installation

Roof clips may be attached to a shingle or shake roof using RTV adhesive and nails or screws.

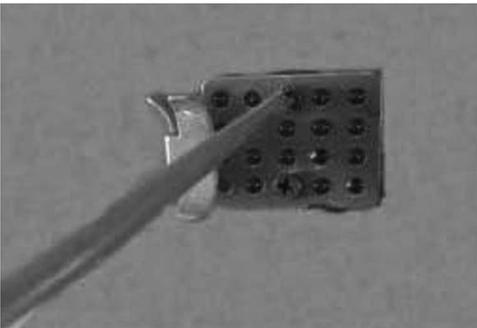
1. Determine the heating cable layout and clip placement according to the Cable Pattern Arrangement and Roof Clip Placement.



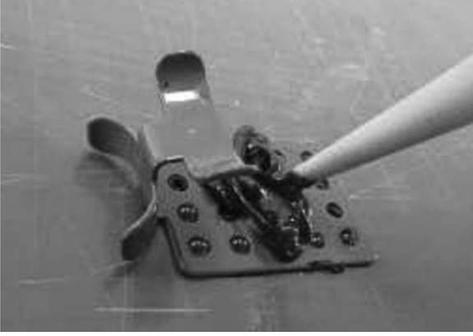
2. Following the RTV adhesive manufacturing instructions, apply RTV adhesive appropriate for your roof, to the back side of the roof clip where the nail or screw will be used.



3. Orient the clip as needed on the roof. Place the roof clip on the roof where the roof is marked. Press down on the clip so that the adhesive flows through the holes. The cable insertion clamp should be vertical on the roof. Attach the clip to the roof using a nail or a screw.



4. Apply the sealant on top of the nail or screw heads.

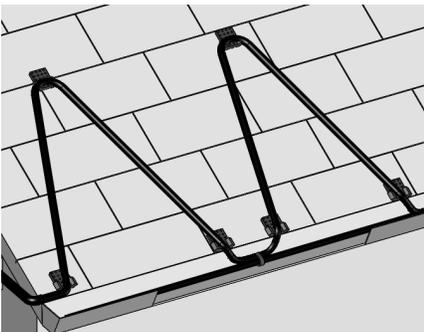


5. Allow the RTV adhesive to cure and dry before installing the cable. Refer to the RTV adhesive instructions for the cure time of the adhesive used.
6. Repeat this process. Wait for all of the adhesive on the roof clips to cure before continuing with the installation of the cable.
7. After the RTV adhesive has cured, install the heating cable between the clip clamps following the Cable Pattern Arrangement and Roof Clip Placement diagrams. Use pliers to close the clamps gently around the heating cable. **Do not crush the heating cable.**



8. Run the cable from the starting point and use a roof clip to connect the cable to the edge of the roof.
9. If chalk lines were made, follow the chalk lines in the standard zig-zag pattern and attach the cable to the roof with the roof clips. The lower corner points of the cable should hang over the edge of the roof. Note: If the roof has a gutter, make sure the lower corner points of the zig-zag touch the bottom of the inside of the gutter.
10. Continue installing the cable according to the specified zig-zag pattern.

The cable should be installed as shown:

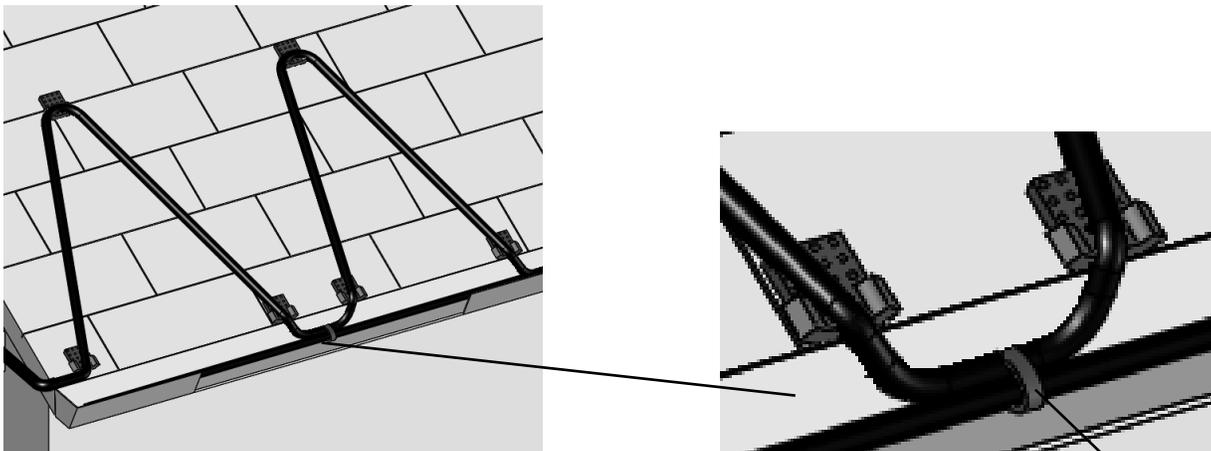


Shake and Shingle Roofs

Roof Overhang	Tracing Width	Tracing Height	Feet of Cable per Foot of Roof Edge, Not Including Gutter
None, *Gutter Required	24"	18"	2 ft
12"	24"	18"	2 ft
24"	24"	30"	3 ft
36"	24"	42"	4 ft

If the Standard Roof Has a Gutter

At the end of the zig-zag pattern, run the cable back through the gutter towards the direction where you started. The cable should be lying along the bottom of the gutter. When running the cable back through the gutter, use a UV-resistant cable tie to connect each bottom lower corner point to the cable running in the gutter. This will help ensure a drainage channel off of the roof and into the gutter and downspout.



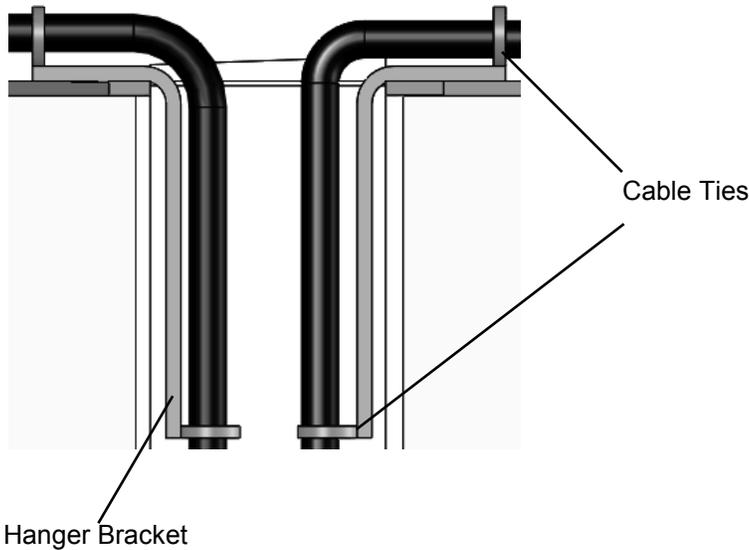
Cable Tie

Downspout Hanger Bracket Installation

Items Needed:

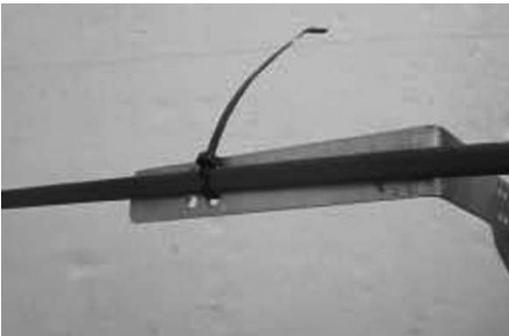
- 2 Hanger Brackets Per Downspout
- SpeedTrace Heating Cable
- 2 Cable Ties Per Hanger Bracket

When running the cable down the downspouts, use hanger brackets to easily suspend the cable into the downspout, ending the run below the freezing level.



Two Hanger Brackets are used in each downspout to protect and provide stability to the heating cable. If you need more Hanger Brackets for additional downspouts, contact BriskHeat[®] for more information at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

1. Bend the hanger bracket to 90 degrees. Position the bracket next to the heating cable and insert cable ties through the bracket holes.



2. Tighten the cable ties to secure the cable. Trim off the excess ends of the ties. **Do NOT cut the heating cable.**

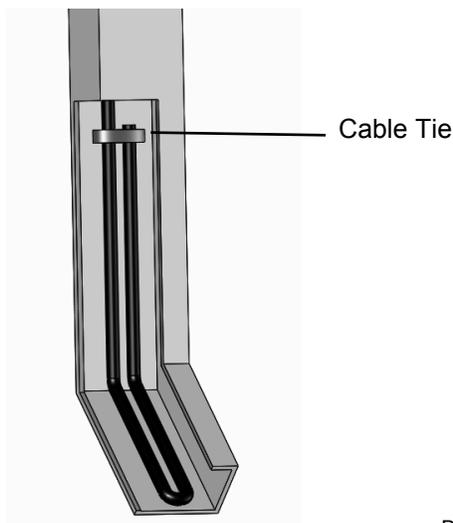


3. Make a "U" in the cable so the cable goes down the downspout and comes back up to complete the run along the remainder of the gutter.
4. Insert the "U" cable into the downspout.
5. On the loose end of the cable, connect it to the second hanger bracket as shown in steps 1 and 2.
6. Position the hanger brackets in the center and on the edge of the downspout to prevent damage and to support the heating cable.

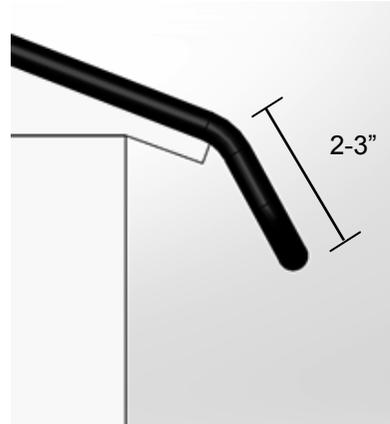
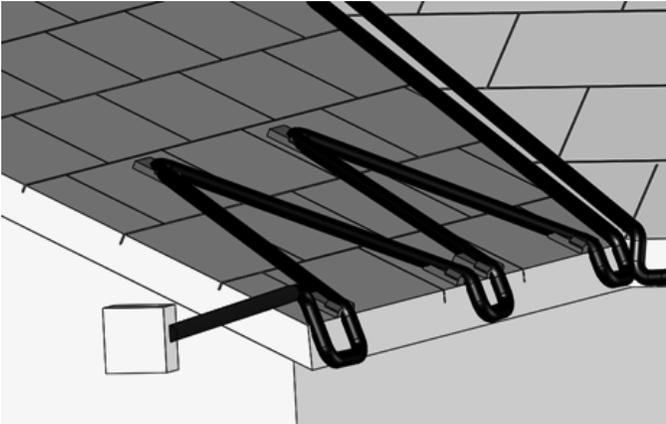


7. Continue running the cable according to the Cable Pattern Arrangement.

Note: If installing the cable in a gutter at the very end of a run, do not allow the end of the heating cable to stick out in the air at the end of the downspout. Instead loop the cable back up the downspout for 1 ft and connect with a cable tie if possible.



If the Standard Pitched Roof Does Not Have a Gutter: The lower corner points of the cable should hang over the edge of the roof. At the end of the run, install the cable so that the end of the cable is hanging off the edge of the roof by 2-3”.



INSTALLATION OF CABLE & ROOF CLIPS ON STANDING SEAM METAL OR PLASTIC ROOFS

*For use with standard pitched metal or plastic standing seam roofs. For seamless standard pitched roofs, see page 13.

Items Needed:

- Roof Clips
- SpeedTrace Heating Cable
- RTV Adhesive for Roofs
- Caulk Gun

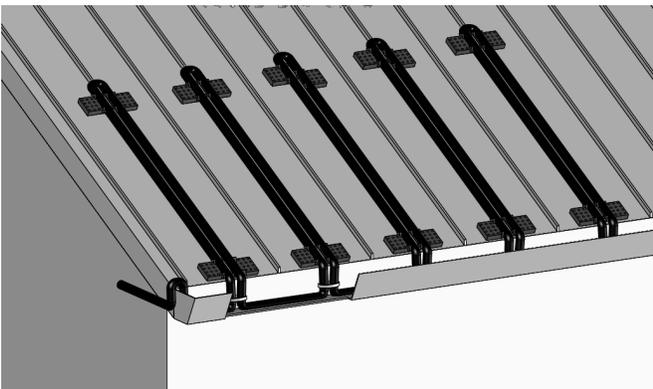
Install the roof clips according to the diagram and chalk markings on the roof.

NOTE: Roof clips are NOT for use on slate, stone, ceramic, or composite (tar and gravel) roofs.

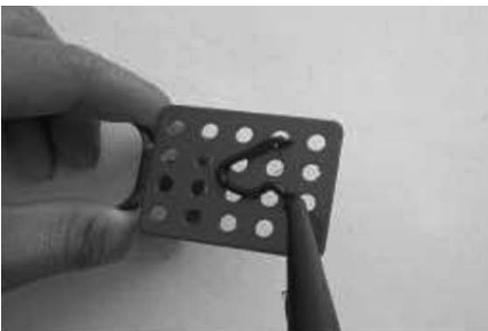
Standing Seam Metal or Plastic Roof Installation

Roof clips may be attached to a metal or plastic roof using an RTV adhesive.

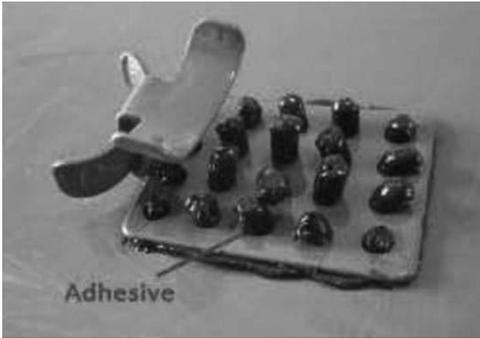
1. Determine the heating cable layout and clip placement according to the Cable Plan Arrangement and Roof Clip Placement.



2. Select the appropriate adhesive. We recommend selecting an adhesive specifically made for outdoor use on roofs.
3. Following the RTV adhesive manufacturing instructions, apply RTV adhesive appropriate for your roof, to the back side of the roof clip.



4. Orient the clip as needed on the roof. Place the roof clip on the roof where the roof is marked. Press down on the clip so that the adhesive flows through the holes. The cable insertion clamp should be vertical on the roof.



5. After the RTV adhesive has cured, install the heating cable between the clip clamps following the Cable Pattern Arrangement and Roof Clip Placement. Use pliers to close the clamps gently around the heating cable. **Do not crush the heating cable.**



6. Run the cable from the starting point and use a roof clip to connect the cable to the edge of the roof.
7. If chalk lines were made, follow the chalk lines in the standing seam cable pattern and attach the cable to the roof with the roof clips. Run the heating cable along the standing seam to the tracing height specified in the chart below.

Standing Seam Metal or Plastic Roofs**

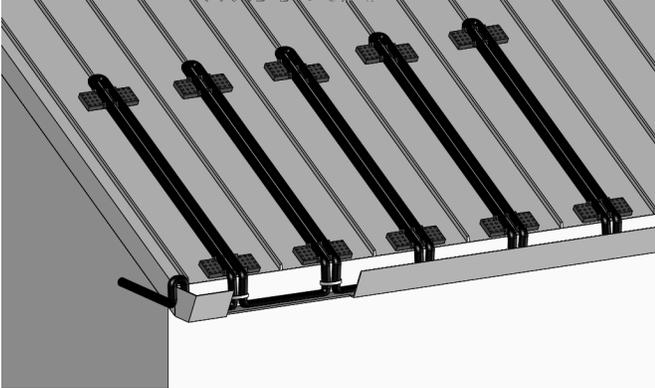
Roof Overhang	Tracing Width	Tracing Height	Feet of Cable per Foot of Roof Edge, Not Including Gutter
None, *Gutter Required	18"	18"	2.5 ft
12"	18"	24"	2.8 ft
24"	18"	36"	3.6 ft
36"	18"	48"	4.3 ft
None, *Gutter Required	24"	18"	2.0 ft
12"	24"	24"	2.4 ft
24"	24"	36"	2.9 ft
36"	24"	48"	3.6 ft

**No additional heating cable is required for gutter when tracing standing seam metal roofs.

Note: The lower corner points of the cable should hang over the edge of the roof.

- Use 2 roof clips at the top corner points and 2 roof clips at the lower bottom corner points along the standing seam. Where the 2 ends of the cable meet at the base of each seam, they will be connected with a UV-resistant cable tie.

The cable should be installed as shown:



- Continue installing the cable according to the standing seam cable pattern.
- Run the cable through the gutter. The cable should be lying along the bottom of the gutter.

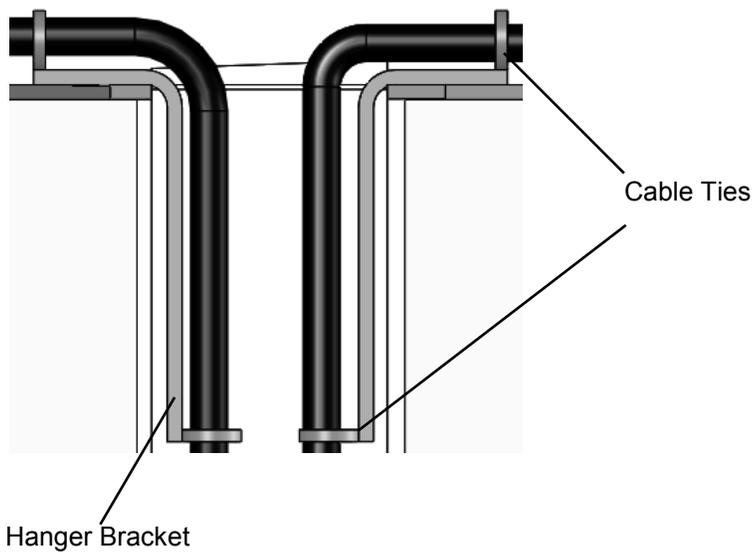
INSTALLATION IN GUTTERS & DOWNSPOUTS

Items Needed:

- 2 Hanger Brackets Per Downspout
- SpeedTrace Heating Cable
- 2 Cable Ties Per Hanger Bracket

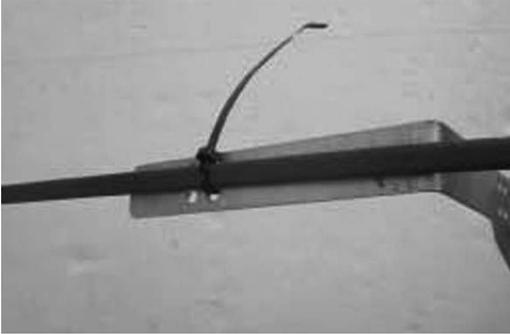
Downspout Hanger Bracket Installation

When running the cable down the downspouts, use hanger brackets to easily suspend the cable into the downspout, ending the run below the freezing level.

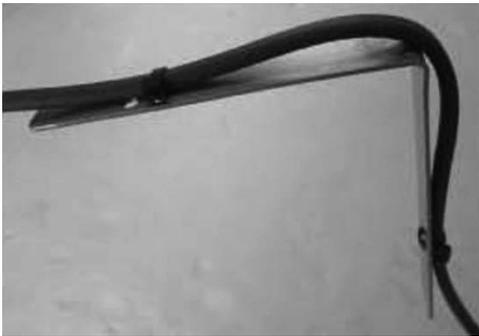


Two Hanger Brackets are used in each downspout to protect and provide stability to the heating cable. If you need more Hanger Brackets for additional downspouts, contact BriskHeat[®] for more information at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

1. Bend the hanger bracket to 90 degrees. Position the bracket next to the heating cable and insert cable ties through the bracket holes.



2. Tighten the cable ties to secure the cable. Trim off the excess ends of the ties. **Do NOT cut the heating cable.**

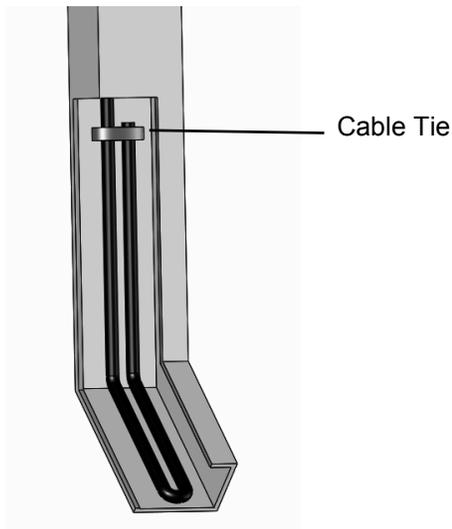


3. Make a "U" in the cable so the cable goes down the downspout and comes back up to complete the run along the remainder of the gutter.
4. Insert the "U" cable into the downspout.
5. On the loose end of the cable, connect it to the second hanger bracket as shown in steps 1 and 2.
6. Position the hanger brackets in the center and on the edge of the downspout to prevent damage and to support the heating cable.



7. Continue running the cable according to the Cable Pattern Arrangement.

Note: If installing the cable in a gutter at the very end of a run, do not allow the end of the heating cable to stick out in the air at the end of the downspout. Instead loop the cable back up the downspout for 1 ft and connect with a cable tie if possible.



MARK THE INSTALLATION

- Using the 2 Electrical Caution Labels provided in the kit, mark the cable with labels that indicate the presence of electric de-icing and snow-melting equipment.
- One label must be posted at the electrical outlet cover.
- The other label must be posted at the fuse or circuit breaker panel.
- The labels must be clearly visible.

CHECK THE INSTALLATION

- Prior to plugging in, check to be sure the heating cable is free of mechanical damage (cuts, clamps, etc.).
- Junction boxes should be inspected for water or evidence of previous water leaks. If moisture is present, the box should be restored to dry conditions and the cause of the leak should be eliminated.
- Functionality of overcurrent protection devices should be checked.

STARTING THE SYSTEM

To turn-on the SpeedTrace heating cable, simply plug it in to a GFCI 120 VAC (15 amp minimum) outlet. To turn it off, unplug the cable.

For worry-free operation all year long, we recommend the Thermo Cube Thermostatically Controlled Outlet. The Thermo Cube is a device which, when plugged into a standard GFCI 120 VAC (15 amp minimum) electrical outlet, will automatically turn power on and off to any device plugged into it. The Thermo Cube will automatically turn on power when air temperature reaches approximately 35°F (2°C) and will turn off the power when the temperature exceeds approximately 45°F (7°C). For more information, please contact BriskHeat[®] at 1-800-848-7673 (U.S. / Canada) or 1-614-294-3376 (worldwide).

OFF-SEASON/YEAR-ROUND INSTALLATION AND REMOVAL

The SpeedTrace Roof and Gutter Kit is safe to leave in place year-round, but remember to unplug the heating cable when temperatures are warm and the cable doesn't need to be running. You can also use the Thermo Cube for worry-free on/off control so that the cable is only running when the air temperature reaches approximately 35°F (2°C) and will turn off the power when the temperature exceeds approximately 45°F (7°C).

If you need to remove the cable for any reason, use pliers to gently bend the clamps on each roof clip apart and remove the cable.

GENERAL HEATING CABLE SPECIFICATIONS

Roof & Gutter Kit	FFRG15-50	FFRG15-75	FFRG15-100
Length	50 ft	75 ft	100 ft
Max Wattage	343 w	515 w	586 w
Voltage	120 VAC	120 VAC	120 VAC
Current (Amps Needed)	2.86	4.29	5.72

*Roof & Gutter Kits are available for the 50, 75, and 100ft cable lengths.

DETAILED HEATING CABLE SPECIFICATIONS

Nominal cable width (in)	0.42
Nominal cable thickness (in)	0.22
Heating cable bus wire gauge (AWG)	16
Cold lead length (in)	30
Voltage rating (VAC)	110-120
Plug rating (amps)	15
Circuit breaker sizing minimum (amps)	15
Max. exposure temperature	150°F (65°C)
Electrical classification	Nonhazardous areas only
Electrical classification	None
Watts/foot at 50°F (10°C)	5
Watts/foot at 32°F (0°C)	8
Outer Jacket Type	Moisture and flame resistant thermoplastic elastomer

TROUBLESHOOTING

Please read this guide prior to contacting BriskHeat[®]. This guide is designed to answer the most commonly asked questions. If you are unable to identify the problem or need additional assistance, please contact BriskHeat[®] toll free (U.S. / Canada only) at 1-800-848-7673 or 1-614-294-3376 (worldwide), or bhtsales1@briskheat.com.

PROBLEM	SOLUTION(S)
Entire heating cable does not heat	Verify heater is connected to proper voltage. Check to see if there is a resistance reading (not an open circuit) in heater using an ohm meter.
Portion of heating cable does not heat	Examine unheated cable for damage.
Circuit breaker is tripping	Validate that the circuit breaker is capable of handling the amp requirement of heater. Examine heater and cord for any damage.

WARRANTY

BriskHeat[®] warrants to the original purchaser for the period of twelve (12) months from date of purchase. BriskHeat[®]'s obligation and the exclusive remedy under this warranty shall be limited to the repair or replacement, at BriskHeat[®]'s option, of any parts of the product which may prove defective under prescribed use and service following BriskHeat[®]'s examination and BriskHeat[®]'s determination that the product is defective. The complete details of the warranty can be found online at www.briskheat.com/t-warranty.aspx or by contacting BriskHeat[®] at 1-800-848-7673 (toll free, U.S. / Canada) or 1-614-294-3376 (Worldwide).

BriskHeat[®]
Corporation

1055 Gibbard Ave, Columbus, OH 43201

Toll Free: 800-848-7673

Phone: 614-294-3376

Fax: 614-294-3807

Email: bhtsales1@briskheat.com

www.BriskHeat.com