

English



SpeedTrace

Pre-Assembled Self-Regulating Heating Cable

Instruction Manual


	<p>Read and understand this manual before operating or servicing this heating cable. Failure to understand how to safely operate these heating cables could result in an accident causing serious injury or death. These heating cables should only be operated by qualified personnel.</p>
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SAFETY ALERT SYMBOL

INTRODUCTION

Thank you for purchasing a SpeedTrace Pre-Assembled Self-Regulating Heating Cable. Your heating cable is designed to provide a long and efficient service life with function, reliability, and safety in mind.

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.

3376.



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



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



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.

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IMPORTANT SAFETY INSTRUCTIONS



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

Agency Approvals


⚠ DANGER

- Do not immerse heater in liquid.
- Keep volatile or combustible material away from heater when in use.
- Use heater only in approved locations.
- Keep sharp metal objects away from heater.

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

⚠ 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 to pipes 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 heater.

⚠ 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.
- The person who performs the final installation / wiring must be qualified for this work.
- 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 heater.

⚠ WARNING

Read and understand this entire manual before operating this heating cable.

SUMMARY OF OPERATION

1. Trace Heating Cables are designed for freeze protection on metal and plastic pipes.
2. Suitable for indoor or outdoor use.
3. Easy-to-install: pre-assembled with power cord and plug. (230V models have bare wire leads).
4. Safe to overlap and insulate.
5. Automatically adjusts heat output based on surface and ambient temperature.
6. No temperature controller is required.

DESCRIPTION

SpeedTrace pre-assembled, self-regulating heating cables are designed for commercial metal and plastic pipe freeze protection.

SpeedTrace heating cables are available in 6, 12, 24, 50, 75, and 100 foot lengths, and each comes assembled with a 30-inch power cord and plug. (230V models have bare wire leads).

KIT CONTENTS

1. SpeedTrace pre-assembled, self-regulating heating cable.
2. Electrical tracing pipe labels.

Additional items required, but not supplied for pipe applications

Adhesive tape, select from fiberglass or aluminum:

- Fiberglass tape, PSAT36A, 0.5 in wide, 36 yards long.
- Aluminum tape, AAT260, 2.0 in wide, 60 yards long.

Insulation:

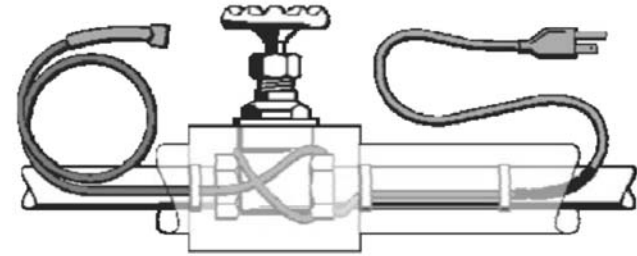
- INSUL-LOCK DS Flexible Closed Cell Pipe Insulation.

⚠ WARNING

Fire and shock hazard. This product is an electrical device that must be installed correctly to ensure proper operation and to prevent shock or fire. Read these important warnings and carefully follow all the installation instructions.

- To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of BriskHeat and 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.
- For pipe freeze protection applications, use only fire-resistant insulation materials such as preformed foam or fiberglass.
- Do not damage the heating cable and power cord or plug. Remove any damaged cables from service immediately.
- Do not use any wire or metal clamps to attach the cable to the pipe. Use tape (1/2 inch wide to 2 inch wide) or plastic cable ties.
- Leave these installation instructions with the user for future reference.
- De-energize all power circuits before installation or servicing.
- The conductive layer of this heating device must be connected to a suitable grounding terminal.

PIPE FREEZE PROTECTION



General requirements for pipe freeze protection:

- SpeedTrace heating cables may be used on metal and plastic water pipes, but not on flexible vinyl tubing, (such as garden hoses).
- SpeedTrace heating cables are not intended for use inside any pipes, for freeze protection of liquids other than water, or for use in classified hazardous locations.
- Install with a minimum of 1/2" fire-resistant, waterproof thermal insulation.
- Never use on any pipes that may exceed 150°F (65°C).
- Do not use an extension cord.

GENERAL INSTRUCTIONS

- Install only in accessible locations; do not install behind walls or where the cable would be hidden.
- Do not run the heating cable through walls, ceilings, or floors.
- Connect only to ground-fault protected outlets that have been installed in accordance with all prevailing national and local codes and standards and are protected from rain and other water.

ELECTRICAL CODES

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 heating cable for pipe freeze protection and must be followed.

Important: For the SpeedTrace heating cable 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 fastened to an insulated pipe.

CABLE SELECTION

Use the tables below to select the correct heating cable. Add 1ft (30cm) to your pipe length for each valve or spigot on your pipe system.

The charts assume the lowest outside temper-thick waterproof, fire-resistant thermal insulation. (preformed foam). For protection to -20°F (-29°C), use 1" (25mm) thick insulation.

Table 1 Metal Pipes

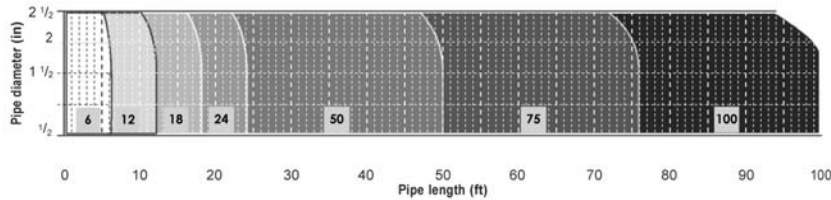
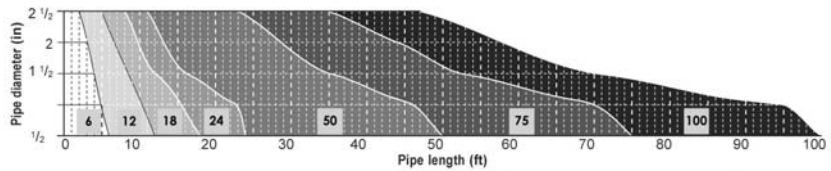


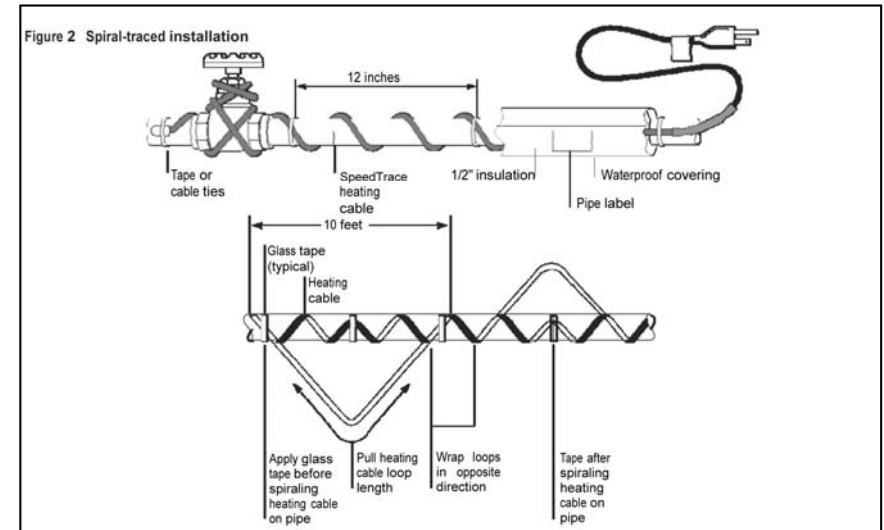
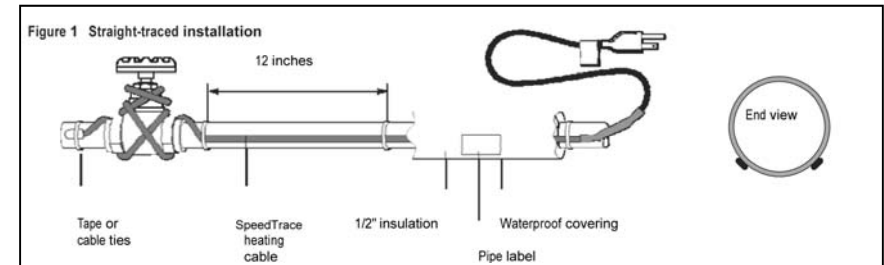
Table 2 Plastic Pipes



Add 1 foot to the pipe length for each valve or spigot on your pipe system. If cable selected is longer than the pipe, spiral it evenly along the entire pipe.

Important: All thermal and design information provided here is based upon a standard installation.

HEATING CABLE INSTALLATION

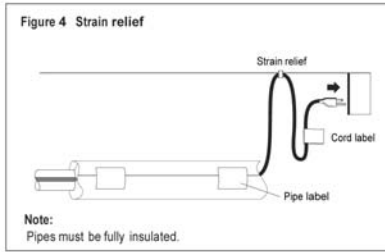
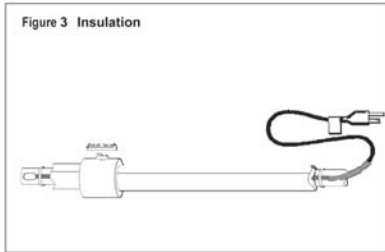


1. Prepare for installation

- Store the heating cable in a clean, dry place.
- Complete piping pressure test.
- Prior to installing the cable, remove any sharp surfaces on the pipe that might damage the heating cable.
- Review the SpeedTrace heating cable design and compare to materials received to verify that you have the proper SpeedTrace heating cable.
- Walk the system and plan the routing of the SpeedTrace heating cable on the pipe.
- 230V models only: Install approved electrical plug device suitable for 208-277VAC prior to installation of heating cable.

2. Position and attach heating cable to pipe

- Be sure all piping to be traced is dry.
- Install heating cable, using straight tracing Figure 1, or spiraling Figure 2.



- For straight tracing, install the heating cable on a lower half of the pipe; for example, in the 4 o'clock or 8 o'clock position.
- Be sure to install the additional heating cable required for valves, flanges, etc. as shown in Figures 1 and 2.
- When the design calls for spiraling, begin by suspending a loop every 10 feet as shown in Figure 2. To determine the loop length, divide the SpeedTrace heating cable length by your pipe length and multiply by 10. For example, if you are using a 50 ft. SpeedTrace heating cable on a 40 foot pipe, leave a 12 foot loop of heating cable at every 10 foot section of pipe. Grasp the loop in its center and wrap it around the pipe. Even out the distance between spirals by sliding the wraps along the pipe. Use recommended fiberglass or aluminum adhesive tape to secure the center of the loop to the pipe.
- Fasten SpeedTrace heating cable to the pipe at 1- foot intervals using PSAT36A fiberglass tape or AAT260 aluminum tape. Do not use vinyl electrical tape, duct tape, metal bands, or wire.
- If excess cable remains at the end of the pipe, double it back along the pipe.

3. Check the installation

- Prior to installing thermal insulation make sure the heating cable is free of mechanical damage (from cuts, clamps, etc.) and thermal damage (from solder, overheating etc.).

4. Install thermal insulation

- A reliable SpeedTrace heating cable system depends on properly installed and dry, weatherproofed thermal insulation like the INSUL-LOCK DS Flexible Closed Cell Pipe Insulation.
- Ensure that at least ½" of preformed foam or equivalent thermal insulation is used and that all piping, including valves, joints, and wall penetrations, has been fully insulated as shown in Figure 3.
- For protection to -20°F (-29°C), use 1" (25mm) thick insulation.
- Install the insulation on the piping as soon as possible to minimize the potential for mechanical damage after installation.
- Be sure the SpeedTrace heating cable label is visible on the outside of the thermal insulation.

5. Finishing the installation

- To prevent damage to the heating cable or cord, secure the power cord (cold lead) with a plastic cable tie, glass cloth tape, or duct tape as shown in Figure 4.
- Electrical tracing labels indicating the presence of electric pipe heating cable are included with the heating cable. Attach the supplied "Electrical Tracing" labels on the outer surface of the pipe insulation at an interval of one label for every 10 ft (3 m) of pipe to indicate the presence of the SpeedTrace heating cable.

6. Starting the system

- ProTherm recommends that the system be tested per the "Cable testing and maintenance" section below.
- Plug the heating cable into a ground-fault protected outlet.
- Check the circuit breaker to verify power to the cable.
- Standing water in the pipe should feel warm within an hour.

7. Ground fault protection

- ProTherm and national electrical codes require ground-fault equipment protection on each heating cable branch circuit.
- To reduce the risk of fire caused by damage or improper installation, circuit breakers or equivalent, with a 30-mA trip level, should be used. Alternative designs providing comparable levels of ground-fault protection may also be acceptable. For technical assistance, please contact ProTherm at 615-834-4044.



- Conditions of maintenance and supervision ensure that only qualified persons service the installed systems.
- Continued circuit operation is necessary for safe operation of equipment.

CABLE TESTING AND MAINTANENCE

- Using a 2500-Vdc megohmmeter, check the insulation resistance between both of the rectangular (power) prongs on the plug and the round (ground) prong after installing the heating cable. Minimum reading should be 1000 megohms.
- Record the original values for each circuit, and compare subsequent readings taken during regular maintenance schedules to the original values.
- If the readings fall below 1000 megohms, replace the SpeedTrace heating cable with a new unit. Do not attempt to repair the unit.

⚠ WARNING

Fire and shock hazard. Damaged heating cable can cause electrical shock, arcing, and fire. Do not attempt to repair or energize damaged heating cable. Remove it at once and replace with a new length.

PRODUCT SPECIFICATIONS

Cable (120V)	Cable (230V)	Cable Length (feet)	Min. power output at 50°F (10°C) on pipe (watts)	Nominal power output at 32°F (0°C) in ice and snow (watts)
PRTSL1-6	PRTSL2-6	6	30	60
PRTSL1-12	PRTSL2-12	12	60	120
PRTSL1-18	PRTSL2-18	18	90	180
PRTSL1-24	PRTSL2-24	24	120	240
PRTSL1-50	PRTSL2-50	50	250	500
PRTSL1-75	FPRTL2-75	75	375	750
PRTSL1-100	PRTSL2-100	100	500	1,000

General Specifications for all FFSL Products

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 (120V)	110-120
Voltage rating (230V)	208-277
Plug rating (amps)	15
Circuit breaker sizing minimum (amps)	15
Max. exposure temperature	150°F (65°C)
Electrical classification	Nonhazardous areas only
Exposure to chemicals	None
Watts/foot at 50°F (10°C)	5
Watts/foot at 32°F (0°C) in ice and snow	10
Outer Jacket Type	Moisture and flame resistant thermoplastic elastomer

TROUBLESHOOTING GUIDE

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 INFORMATION

ProTherm warrants to the original purchaser of this product for the period of eighteen (18) months from date of shipment or twelve (12) months from date of installation, whichever comes first. ProTherm's obligation and the exclusive remedy under this warranty shall be limited to the repair or replacement, at ProTherm's option, of any parts of the product which may prove defective under prescribed use and service following ProTherm's examination, is determined by ProTherm to be defective.