



SOIL AND CONCRETE HEATING RIBBONS INSTALLATION INSTRUCTIONS

Soil and concrete Heating Ribbons utilize amorphous metal heating technology. It is essential to follow the installation instructions and safety precautions in order to guarantee the best possible results.

HSI Heating Cables are easy to install.

Product Description

- Product is designed and intended for ice dam prevention, keep (parts of) surfaces de-iced and de-snowed in outdoor exposed environments.
- Product is available in 120, 240V and 400V
- The product cannot be cut or modified. The power is fed to each element through one end only. Cutting or altering the product will void the warranty.

Mechanical considerations in the planning stage:

1. The minimum bending radius of the heating ribbon is 5/8 inch or 15 mm at a temperature $> 5\text{ C} / 41\text{ F}$.



2. Ribbons should be installed with appr 7 – 8 inch in between.
3. Ribbons should be fixated with the right material. By installing the ribbons in sand it's not necessary to fixate the ribbons. For installing in concrete fixate the ribbons with tieraps.



4. All electrical junction boxes should be located in a protected area. In all cases a drip loop should be installed.



Special Considerations:

1. The maximum exposure temperature (not working) of the heating ribbon is 140F / 60 C
2. For any application that is not mentioned in this document, consult your distributor or dealer for recommendations.

Controls:

HSI recommends a controller system based on a combination of ambient air temperature and moisture sensors.

- 1) The temperature sensor should be installed at the coldest area near the surface and in a place not exposed to direct sun.
- 2) The moisture sensor should be located at the lowest point of the surface to ensure when it is dry the entire surface is dry.

For simple small applications, a manual on/off switch is an adequate solution. It is recommended to use a timer based switch in order to ensure that the system will not be unnecessarily left under power.

Electrical Components:

Installation of Electrical Connections must be made by a certified licensed electrician and in accordance with NEC National electric Code Section 426 – fixed outdoor electric de-icing and snow melting equipment, ANSI/NFPA 70. Ground fault protection for equipment must be provided. It is recommended a local permit be obtained prior to installation.

Installation Procedures

1. Prior to the installation of the Heating Ribbons:
 - a. A resistance check should be performed and recorded before installing the product.



Figure A



- b. Look for any physical damage which may have occurred during shipping.
- c. Verify that you use the correct product in terms of wattage output and voltage rating.
- d. Inspect the mounting surface for sharp edges where the heating cable will be located.

2. During installation:

- a. Start the installation at the power connection by unrolling product.
- b. Install the heating ribbons with every 4 -6 inch between. Keep even distance.



- c. Location of power connection should be preferred in a protected area.

Specific statements

"Do not cross or overlap cable heating section." (This statement may be omitted in the case of any cable unit shown by test not to exceed the prescribed temperature limits.)

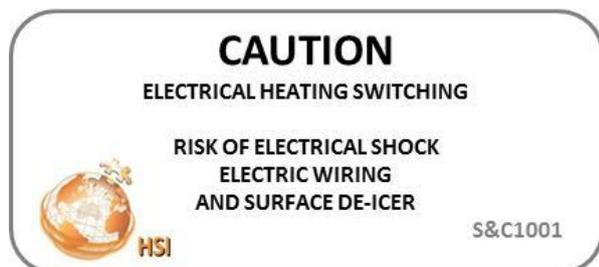
"Use only watertight construction or enclosure Type 3, 3S, 4, 4X, 6, or 6P junction box when installing."

3. Testing:

After installation and before powering the system, perform a second resistance check and insulation test to ensure integrity of the heat ribbon. Note and record the measured values on the enclosed forms. Measure the resistance between the L and N. Measure the insulation between the L and Earth.

4. Place Warning Labels:

Apply warning stickers provided with the product on appropriate locations as indicated below. These labels are an integral part of this heating system and must be installed for warranty to be in force.



S&C1001 To be affixed on or next to the on/ off switching of the Heating system.



S&C1002 To be affixed to the location of the installed electrical roof heating cables



S&C1003 To be affixed to the outside of the Control Unit/ fuse or circuit breaker panel (Control unit not delivered by HSI)

Trouble Shooting the System

1. Turn off the power to the system.
2. Check the Resistance Readings. See pic A.
3. Check controller for its operation.
4. Check the functionality of the GFEP. (Ground Fault Equipment Protector Device)
5. Check the electrical junction boxes to verify that they are free of moisture and water.



Contents of this kit



Heating Ribbon, Installation instruction, warning labels (S&C1001, S&C1002, S&C1003)

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