

THERMOSTATS

CARAPACE® is a self-regulating freeze protected water pipe. When combined with insulation and thermostatic control, these systems are so energy efficient, they require only a tiny fraction of the heat as compared to older technologies. The use of a thermostat as an additional control device is completely at the discretion of the installer and is based on installation conditions or requirements.



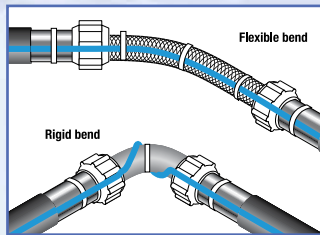
When a thermostat is used with a **CARAPACE**® system, it will cycle the system ON and OFF based on pipe temperature. When the system cycles ON, the heating cable adjusts for temperature variables along the pipe until the sensor shuts the system OFF. Even in the most extreme cold, combined with thermal insulation the system remains OFF for extended periods of time resulting in huge energy savings.

CONTROL OPTIONS

CARAPACE® systems may be applied utilizing many different control options as high limit devices are not required. Optimum control and energy efficiency is achieved when employing a thermostat with a **CARAPACE**® system. The use of a thermostatic control device can reduce duty ON cycle by as much as 80% depending on application, and the result is energy savings.

INSTALLATION

CARAPACE® pipes easily interface to known pipe fitting technologies making it adaptable to all municipal, rural and water well applications.



CARAPACE® is adaptable for replacement of all problematic supply pipes.

CARAPACE® systems are flexible in many different ways. Fittings can be interfaced similar to a non-heated pipe.

For complete installation instruction and specification refer to **CARAPACE**® Installation Guides.

For technical support contact Heat-Line® for an application specialist.

THE HEAT-LINE® PRODUCT GROUP

Heat-Line®

Retro-Line®

Paladin®

CARAPACE®

ArcticVent®

Kompensator®

EDGE-CUTTER®

EXT Series

Commercial/Industrial
self-regulating heating cables

SPECIAL REQUIREMENTS

Since 1988 Heat-Line® has been specializing in freeze protection of all types. If you have a special application of any kind, give us a call. Special system designs are common to us. We manufacture many other innovative products not mentioned in this brochure.

CARAPACE® is a registered trademark of Heat-Line® Corporation.

Patented

For more information contact



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CARAPACE®

by Heat-Line®

CARAPACE® is a self-regulating heated polyethylene water pipe designed for use in municipal and domestic water supply and sewage forced main applications. **CARAPACE**® is an extremely energy efficient and cost effective option to blasting rock. It may also be used as a precaution to freezing in cold climates where burial below the frost line is cost prohibitive. **CARAPACE**® provides energy efficient, reliable freeze protection in the harshest environments.



APPLICATION

CARAPACE® is designed to provide energy efficient municipal and domestic water pipe and sewage forced main freeze protection.

CARAPACE® offers a more reliable, cost-effective alternative to blasting and excavation. This product represents the highest quality pipe freeze protection in the world.

INSULATION

Self-regulating heating cables are employed in every **CARAPACE®** system. The heating cable increases heat output as the surrounding media (water or air) cools and conversely they decrease heat output as this surrounding media warms.

CARAPACE® systems work best when insulation is applied to the pipe as the heat-loss to the outside is substantially reduced thus creating the retained heat principal. Insulation slows the passage of heat energy escaping to the outside, while causing the heater to reduce energy output, therefore reducing energy costs.



FEATURES & BENEFITS

- cCSAus approved (Canada and USA)
- 5 year limited warranty
- Reliable and energy efficient
- Can be buried and fully insulated to increase energy efficiency
- Will never melt or over-heat the water pipe, even if the pipe is dry
- Labour savings - no need to excavate below the frost line or blast rock
- Superior heat transfer
- Approved for constant pressure systems
- Cut to length capability
- Factory finished to length capability
- Field termination capabilities and kits
- Flexible - ability to freeze protect a variety of fittings and bends
- Protection on both sides of the curb stop if required
- Available in 1000' reel lengths
- No splices or joints required throughout lengths
- 5 watt per foot systems up to 540' in length
- 3 watt per foot systems up to 660' in length
- Product and components meet plumbing, electrical and mechanical requirements

CONSTRUCTION & OPERATION

CARAPACE® is constructed using a high density NSF Std 14 approved polyethylene pipe for potability. A self-regulating heating cable is applied directly on to the outer surface of the pipe along with an extruded layer of high density polyethylene providing a protective shell to guard against mechanical injury. The extruded outer layer ensures that the conductive cores of the heating cable remain in unyielding contact to the pipe wall, providing superior heat transfer and unsurpassed energy efficiency when combined with thermal insulation.



PRODUCT SPECIFICATIONS

- cCSAus approved (Canada and the USA)
- 160 PSI Rural – 1 and 1 1/4 inch I.D.
- 200 PSI Municipal – 1 and 1 1/4 inch CTS
- Watt Densities: 3watt/ft and 5watt/ft @ 50°F (10°C)
- Max Length: 3watt 660 feet @ 240 volt
5watt 540 feet @ 240 volt
- 120 volt systems also available

CARAPACE® can be purchased on 1000 foot reels for field cutting and tailoring to length. Also available factory finished to length with integral ground fault protection as a plug in type unit (GFC version) or factory finished to length with a 6 foot lead for connection to ground fault protected circuits (CS version). The CS version is also excellent for use with Heat-Line® GF STAT (Heat-Line®'s exclusive ground fault Nema 4X thermostat)

SELF-REGULATING HEATING CABLES

Heat-Line® freeze protection systems employ the most reliable and advanced heating cable technology in the world. Self-regulating heating cables offer the unique performance required in the freeze protection industry. The **CARAPACE®** self-regulating heating cable is built around a conductive polymer core which automatically adjusts, increasing or decreasing heat output to match heat loss at each point throughout the length of the pipe.

CARAPACE® water pipes cannot overheat.

Self-regulating heating cable technology provides superior performance in the coldest climates and the most rugged environments as heat is gently applied to the pipe, preventing freezing. When conditions dictate, **CARAPACE®** may be turned off until required. These are known as precautionary systems. When used in this manner, should an ice blockage occur, **CARAPACE®** can be energized and over a period of time will clear the ice blockage. (Ambient temperatures, insulation and the extent of the freezing will determine the time required for the pipe to clear)

