

CARAPACE®

The Only Certified Rural and Municipal Freeze Protected Water Supply Pipe

CARAPACE is a high performance, freeze protected (heated), HDPE polyethylene water pipe designed for use in municipal or domestic water supply and sewage force main applications.

Available as a complete job-ready system or on 1000 foot reels for field splicing and terminating.

**Insulation not included*



Job-Ready



SCAN ME

Cut-To-Length



SCAN ME

See more product information, videos, photos, technical documents, and more



Patents USA and Canada

NSF/ANSI 61

CARAPACE

Features & Benefits

- The only certified rural and municipal freeze protected water supply pipe solution
- Unique construction provides superior heat transfer
- Approved for constant pressure systems
- Approved for direct earth burial and wet location
- Available factory finished, job-ready and tested prior to shipment
- Available cut-to-length for on-site field termination
- Available in a plug-in GFCI model or hard wire cord-set model depending on application
- Compatible with industry standard fittings
- Available in common lengths and long lengths
- Labour savings – no need to excavate below the frost line or blast rock
- Suitable for above ground applications with insulation
- Can be fully insulated to maximize energy efficiency
- Will never melt or overheat, even if pipe is dry
- Proven in -40°F weather above ground with ¾ inch polyethylene insulation

Redundancy

- CARAPACE can be used as a back-up system
- When pipes are installed near the frost line, beneath roadways, or in other critical areas
- CARAPACE can be energized if freezing occurs, restoring water flow in minutes while preventing the need for costly jetting or steaming of pipes

For more Features and Benefits common to all Heat-Line systems, refer to page 6.



Specifications

- cCSAus B137.1 approved (Canada and USA) LR85446
- cNSF 14-61 approved (Canada and USA)
- Approved for potable drinking water
- Certified Usage Type W Canada
- Installation Type A USA
- Self-regulating/conductive polymer heating cable
- Standard wattages include 3 W/ft @ 50°F (10 W/m @ 10°C) and 5 W/ft @ 50°F (16 W/m @ 10°C)
- Available in 120V and 240V
- Max lengths 120V - 240 ft, 240V - 660 ft
- Available with either GFCI plug or CS hard wire connection
- 1 inch ID (SIDR-9) and 1.25 inch ID (SIDR-9) 200PSI NSF STD 14 polyethylene
- 1 inch CTS (SODR-9) 250PSI NSF STD 14 polyethylene
- Constructed of PE 4710 Resin HDPE
- Standard warranty of 5 years, with optional 10 years extended (CARAPACE Job-Ready)

Applications

- Frozen sites where water is required
- Residential water supply, municipal water supply
- Sewage force mains
- Whenever deep blasting would be required to reach frost line
- Floating docks, sea walls, bridge crossings
- Construction sites, mining/oil/gas sites (ordinary locations)
- Shallow trenches
- Remote camps
- Ground source heat pump headers





Unique, Patented Product

CARAPACE is a unique, patented product constructed of high density polyethylene pipe (HDPE) with a proprietary self-regulating heating cable extruded directly onto the outer surface of the pipe. The heating cable is then mechanically protected by a high density polyethylene outer jacket or shell, ensuring the conductive core of the heating cable remains in continuous contact with the pipe wall while protecting it from mechanical injury.

The special construction of CARAPACE provides superior thermal heat transfer and unsurpassed energy efficiency when combined with thermal insulation and a thermostat.

CARAPACE is available in two options depending on job requirements. CARAPACE can be supplied factory finished to a specified length with power and end terminations installed or as a cut-to-length product for field measuring and terminating.

Alternative to Excavating

CARAPACE is an excellent alternative to costly excavating and blasting of rock or wherever permanent or temporary reliable freeze protection is required. The durability and termination flexibility of CARAPACE renders it a suitable product for a vast variety of applications, including residential, agriculture, commercial, industrial, mining and exploration, remote camps and construction.

Direct Earth Burial

CARAPACE is a CSA B137.1, NSF 14-61 approved product constructed with high density PE 4710 polyethylene for potability and is approved for direct earth burial and free air installations.

CARAPACE Rural Grade is available in 120 volt and 240 volt and sized in SIDR (internal diameter), 200 PSI rated, high density polyethylene. CARAPACE Rural Grade 250 PSI rated is also available by special order.

CARAPACE Municipal Grade is available in 240 volt and sized in CTS (copper tube size), 250 PSI rated, high density polyethylene. 120 volt Municipal Grade is available by special order.

Pipe temperatures can be maintained using insulation and thermostatic control.

Municipal and Domestic Freeze Protection

CARAPACE is a high performance product designed to provide energy efficient and reliable municipal and domestic pipe freeze protection.

Eliminates Steaming or Jetting Out Pipes

CARAPACE can be used continuously through winter as freeze protection or as a precautionary system in problematic geographies. In this case, as freeze-maintenance on the fringe of the frost line, the system can simply be energized in the event of a freeze. Water will begin flowing within a short time, preventing and eliminating the costly expense and need to steam or jet out pipes.

CARAPACE | Product Code Guide

CARAPACE Job-Ready (Pre-Assembled)

Example: **CR2 – 5 – 125 – 100 – GFC**

Product		Cord-Set Type	
CR	120 V Rural CARAPACE	GFC	Ground fault protected
CR2	240 V Rural CARAPACE	5-15 P	120 V / 6-15 P 240 V
CM2	240 V Municipal CARAPACE	CS	Cord connected (no GFCI)
Nominal Power Output		Length of System	
3	3 W/ft @ 50°F (10 W/m @ 10°C)	GFC Ground Fault Protected	CS Cord Connected (no GFCI)
5	5 W/ft @ 50°F (16 W/m @ 10°C)	Max length	Max length
Pipe Size		3 W/ft 120 V	270 ft
100	Pipe size 1" CR(2) ID, SIDR 9 200 psi	5 W/ft 120 V	230 ft
	CM2 OD, CTS SODR 9 250 psi	3 W/ft 240 V	550 ft
125*	Pipe size 1 ¼" CR(2) ID, SIDR 9 200 psi	5 W/ft 240 V	460 ft

* Not available in CTS pipe size or 3 W/ft system

NOTE: For "CS" system installers must provide 20 Amp circuits for circuit lengths greater than 550 ft for 3 W/ft CARAPACE and 460 ft for 5 W/ft CARAPACE.

CARAPACE Rural and Municipal Cut-To-Length (Sold by the Foot)

Example: **RHPE – 5 – 125**

Product		Pipe Size	
RHPE	120 V Rural CARAPACE	100	Pipe size 1" RHPE(2) ID, SIDR 9 200 psi
RHPE2	240 V Rural CARAPACE		MHPE2 OD, CTS SODR 9 250 psi
MHPE2	240 V Municipal CARAPACE	125*	Pipe size 1 ¼" RHPE(2) ID, SIDR 9 200 psi
Nominal Power Output			
3	3 W/ft @ 50°F (10 W/m @ 10°C)		
5	5 W/ft @ 50°F (16 W/m @ 10°C)		

* Not available in CTS pipe size or 3 W/ft system

NOTE: Installers must provide 20 Amp circuits for circuit lengths greater than 550 ft for 3 W/ft CARAPACE and 460 ft for 5 W/ft CARAPACE.

CARAPACE | Accessories

HLJ-STAT	120V plug-in thermostat (GFC)	MA-10	120/240V GFCI/ELCI (CS)
GFA-STAT	120/240V hard wire thermostat GFEP (CS)	PGFS-23105-98	30A 240V 1PH Permanent ELCI Auto Reset 10mA Trip Level
GPT-130	120/240V hard wire thermostat GFEP (CS)	PGFS-93105-98	30A 208V 1PH Permanent ELCI Auto Reset 10mA Trip Level
HLP-STAT	120/240V hard wire thermostat (CS)	PGFS-33105-98	30A 120/ 240V, 1PH Permanent ELCI, Auto Reset, 10mA Trip Level
TIMER-120P	120V plug-in timer (GFC)	INSUL-1.00	Insulation sleeve for 1 inch ID pipe (1 5/8 inch ID, 6 ft long)
TIMER-240P	240V plug-in timer (GFC)	INSUL-1.25	Insulation sleeve for 1 ¼ inch ID pipe (1 7/8 inch ID, 6 ft long)
TIMER-CS	120/240V hard wire timer (CS)	HLP-TAPE	Tape for insulation sleeve butt joints (100 ft)
FPC-02-120-OD	120V hard wire digital and adjustable thermostat GFEP (CS)	CR-HTLN-CKIT	CARAPACE power and end seal kit
FPC-02-240-OD	240V hard wire digital and adjustable thermostat GFEP (CS)	CR-HTLN-CESS	CARAPACE end seal kit
FRIO-S1-A	120/240V hard wire digital and adjustable thermostat with WIFI/ Ethernet and GFEP (CS)		