



# Retro-FM™

## Force Main and Large Diameter Pipe Freeze Protection

### Installation Instructions

#### Kit Description

Retro-FM is a tubular self-regulating heating system designed for use in pressurized sewage and grey water force mains, as well as other large diameter pipe systems. The entry fitting is pressure rated and CSA certified for this use. The tubular core is constructed of HDPE (high density polyethylene) and will push inside most pipes for long distances. They can also be drawn in with a fish tape.

Retro-FM utilizes a conductive polymer tubular heater technology which provides a barrier from the fluids while providing extremely efficient freeze protection. Retro-FM can be used as a system to prevent freezing or as a precautionary system. If the system freezes, Retro-FM can be energized to begin the thawing process.

Retro-FM is supplied job ready with a 1 inch stainless steel MIP staged fitting and a 1 inch FIP x 2 inch MIP PVC reducing bushing to quickly interface into force main Tee fittings. Supplied with a 20 foot electrical cold lead. Available with Ground-Fault Protection (GFCI) or Cord-Set (CS) both in 120 volt and 240 volt.



#### Tools Required

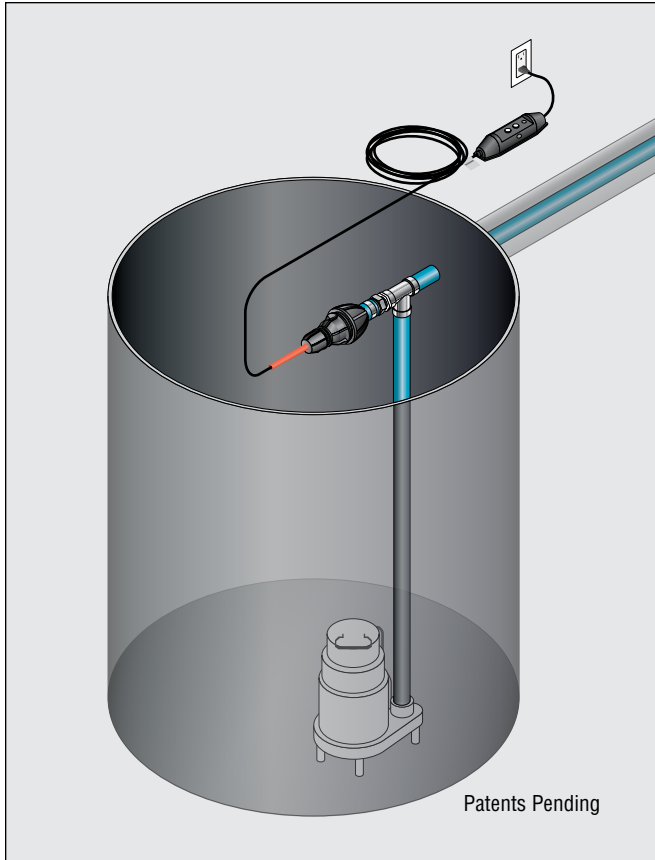
- Adjustable wrench
- Pump pliers

#### Additional Materials Required

- Teflon tape or thread sealant
- Reduction bushings and fitting components as required

#### Approvals

Heating Cable Pipe  LR85446 CSA 2E, 3A, 3B, 3C, 3D TYPE A (USA)  
 Drinking Water  NSF PE 4710 ASTM 2737  
 NSF/ANSI 61

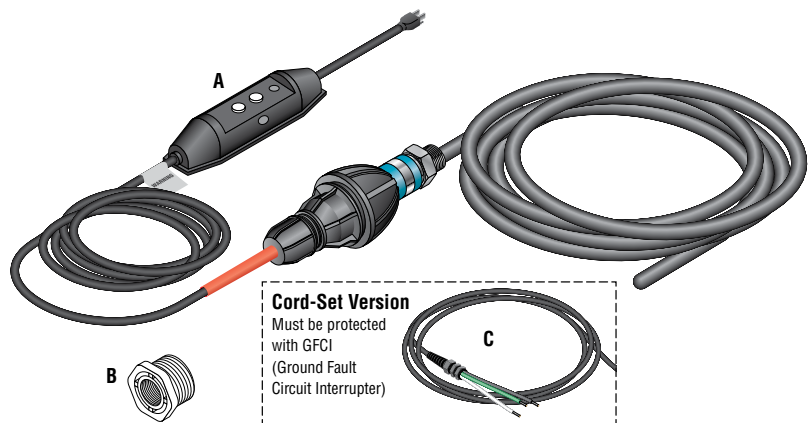


#### Kit Contents

Item	Qty	Description
A	1	Retro-FM –Predetermined length (GFC shown)
B	1	1" FIP x 2" MIP PVC reducing bushing
C	1	Optional Cord-Set (CS) power connection

#### Optional Accessories

- MilliAmp MA-10 electrical equipment protection device (GFCI/ELCI)
- HLJ-Stat 120V thermostat device
- GF-Stat 120V/240V thermostat device
- Closed cell pipe foam insulation for various pipe sizes



### ⚠ WARNING:

**Important Safety Instructions and Rules** for safe Installation and Operation

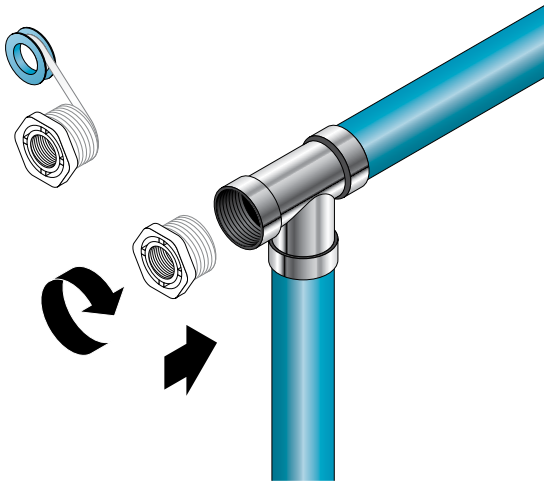
**FIRE AND SHOCK HAZARD.** This component is an electrical device which must be installed properly. Read and follow these rules and instructions carefully. Failure to follow them could result in serious bodily injury and/or property damage.

**WHEN PERFORMING WORK OR REPAIRS ON YOUR WATER SYSTEM BE SURE TO UNPLUG YOUR HEAT-LINE SYSTEM FROM THE POWER SUPPLY.**

- Check your local building, plumbing and electrical codes before installing. You must comply with their rules. Retro-FM meets cCSAus codes for use in Canada and the United States.
- Before installing this product have the electrical outlet checked by an electrician to make sure it is properly installed and grounded in accordance with your local Electrical Code.
- Before installing or servicing your Retro-FM **BE CERTAIN** that the power source is disconnected.
- Do not use extension cords.
- This product is designed to keep drains from freezing in serious climate conditions. The Retro-FM tube may obstruct certain materials, especially solids in the drains so a service schedule for proper maintenance is recommended. **The use of this product is at the sole discretion of the user. Heat-Line will not be liable for obstructions or blockages that may occur in some situations.**
- Never tamper with or alter the electrical apparatus associated with your Heat-Line system.

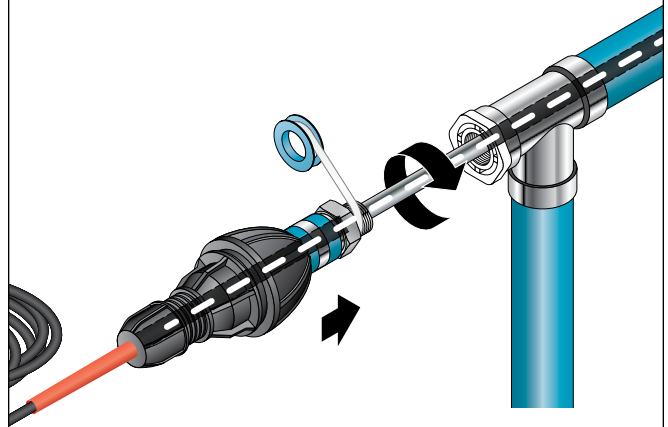
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- Using the provided PVC reducing bushing, install into threaded Tee to accept 1-inch MIP Retro-FM fitting. If the provided PVC reducing bushing is not suitable determine and install required bushing.
- Use appropriate Teflon tape or thread sealants.



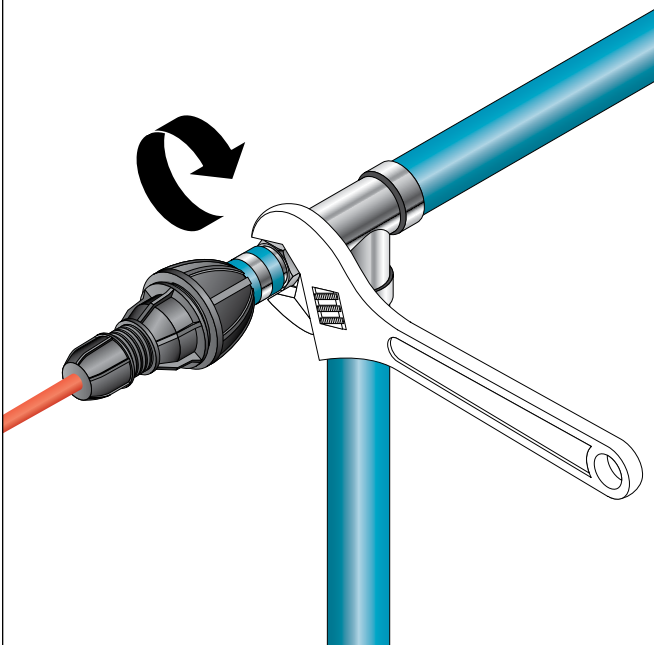
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- Push or draw in Retro-FM tubular heater.
- Use appropriate Teflon tape or thread sealants and apply directly to 1 inch stainless steel MIP staged fitting.



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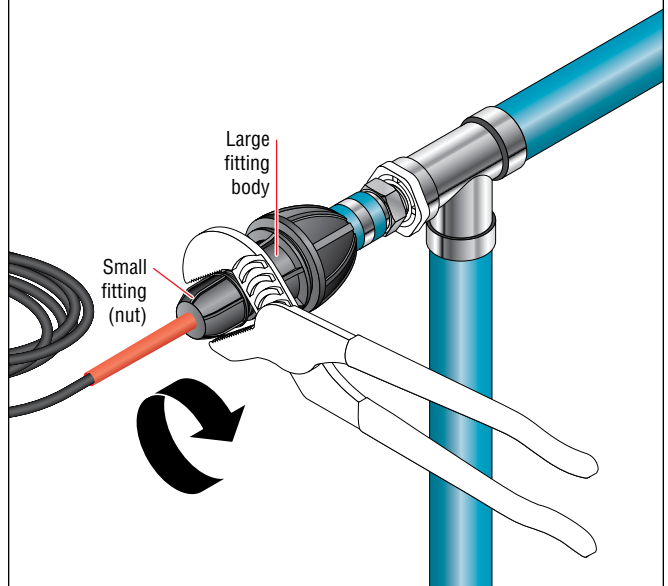
- Tighten 1 inch stainless steel MIP staged fitting with a wrench.
- Large fitting body should rotate around tubular heater as the stainless steel MIP fitting tightens.



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- Engage small fitting (nut) to large fitting body and tighten with a pump plier.

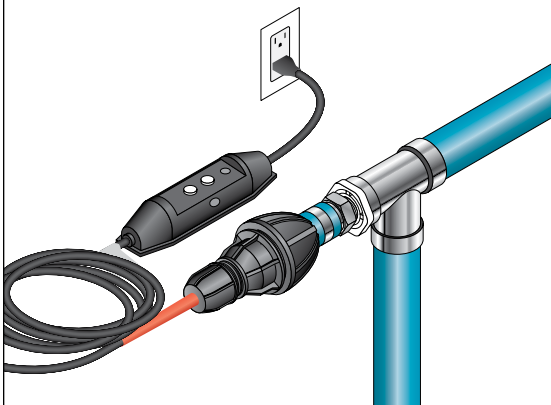
**CAUTION:** It is an O-ring seal, **DO NOT** over-tighten.



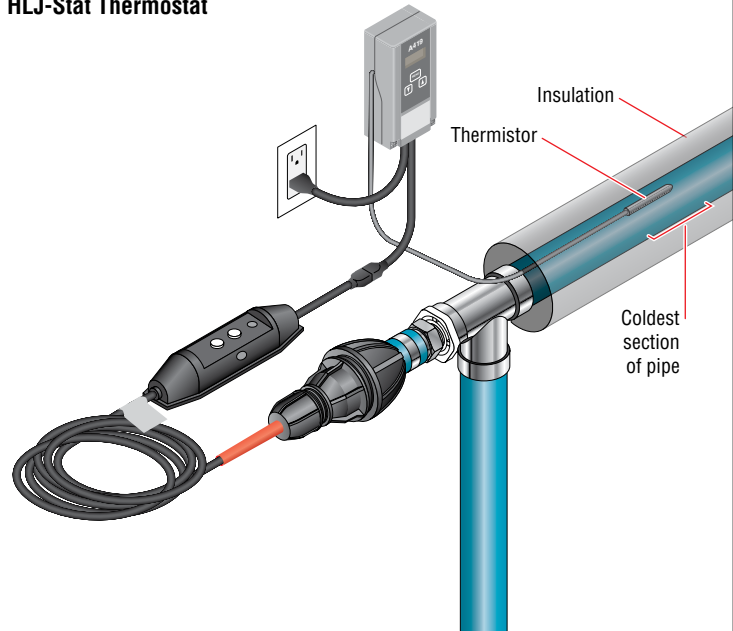
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- In accordance with standard industry practices test the integrity of the seal.
- Plug in heater and Test/Reset GFCI located in cord set and or GFCI located in Heat-Line accessory.

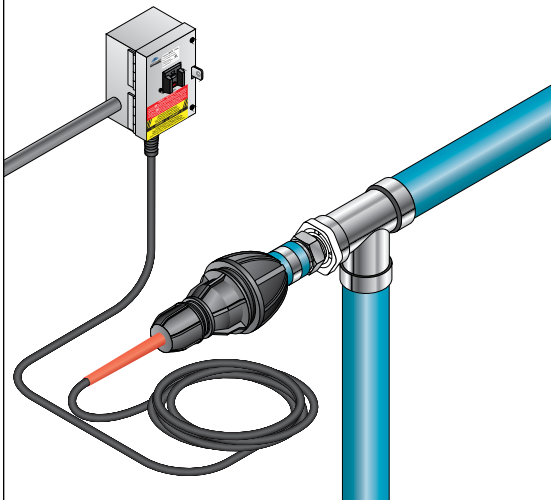
### Typical Retro-FM-GFCI Model Installation



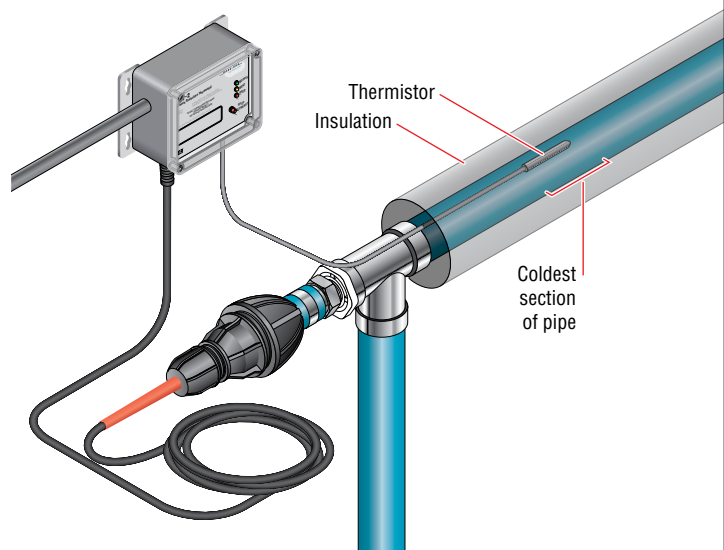
### Retro-FM-GFCI Installation with Heat-Line HLJ-Stat Thermostat



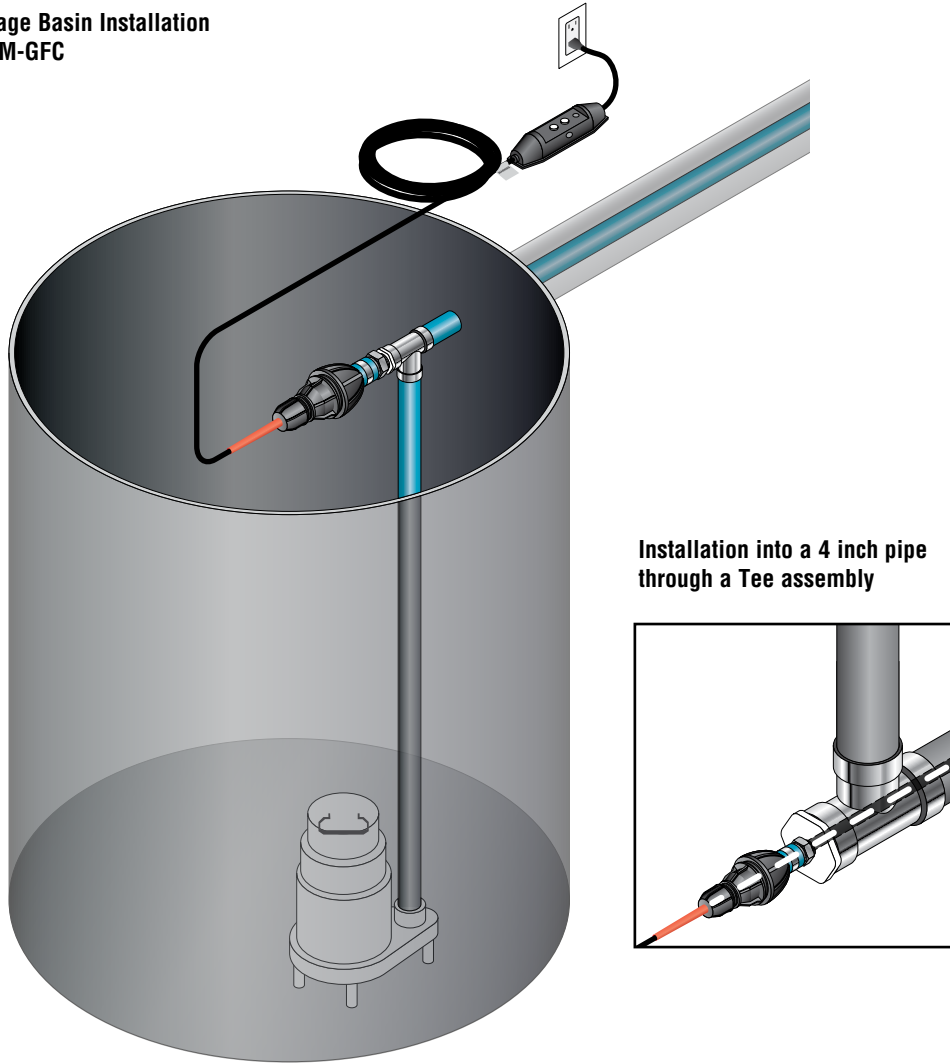
### Retro-FM-CS Installation with Heat-Line MilliAmp GFCI/ELCI



### Retro-FM-CS Installation with Heat-Line GF-Stat Thermostat with Built in GFCI/ELCI



**Typical Sewage Basin Installation with Retro-FM-GFC**



**Installation into a 4 inch pipe through a Tee assembly**

**Electrical System Check** (performed monthly while in use)

- A. Unpack the Heat-Line system plug from its protective package.
- B. Plug into your dedicated outlet. 120V outlet for 120V systems or 240V outlet for 240V systems.
- C. Push reset button on the cord set ground fault device until light comes ON. If light does not illuminate check power to outlet. Do not remove or tamper with the cord set. If used with a thermostat it may be necessary to bypass the thermostat control and plug directly into receptacle to perform test.
- D. Push test button and light will go OFF. This indicates that the electrical circuit is intact and fully protected.
- E. Push reset button again and light will come ON. This indicates that your Heat-Line is working.
- F. Follow this test procedure before each season and monthly while in use.

**Your Heat-Line is now fully functional.**

If at any time your Heat-Line system fails to work call your local electrician or Heat-Line for assistance at (800) 584-4944.

**Heat-Line**  
**A division of Christopher MacLean Ltd.**  
 1095 Green Lake Road  
 Algonquin Highlands, ON Canada  
 KOM 1J1  
 Tel: (705) 754-4545  
 (800) 584-4944  
 Fax: (705) 754-4567  
 info@heatline.com  
 www.heatline.com

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