



Raychem

FROSTEX

PIPE FREEZE PROTECTION
FOR RESIDENTIAL AND
MANUFACTURED HOUSING

 @pentairTBS

THERMAL BUILDING SOLUTIONS

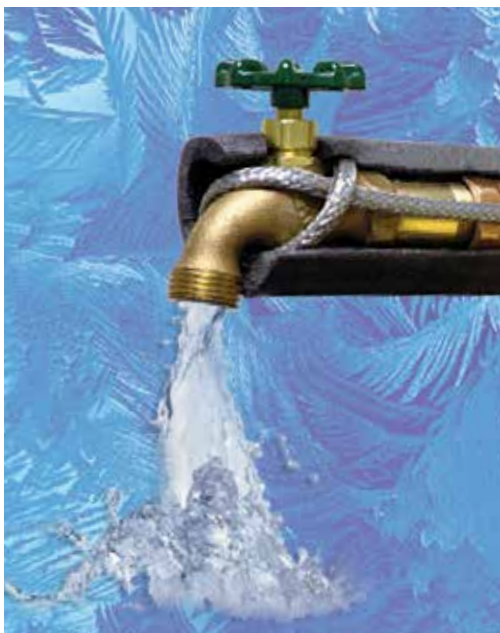
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WRAP UP THE PROBLEMS OF FROZEN WATER PIPES

With reliable, easy-to-install Frostex heating cable and our 9800 FlexFit plug, you can say goodbye to frozen or burst water pipes. The Frostex system protects vulnerable water pipes, even in the most bitter winter weather. And it keeps on protecting, winter after winter. The Frostex system comes with a two-year warranty.

The heating element in Frostex heating cable is not the fragile filament wire used in most other heat tapes, but a durable, patented heating core. Because it regulates its own heat output automatically, it can be overlapped or overinsulated and still perform correctly. The 9800 FlexFit plug, with its 30-inch (77-cm) power cord allows you to use less heating cable to reach the electrical outlet resulting in a more economical installation.

The reliability and simplicity of the Frostex system add up to convenience and peace of mind for you. Install it today and forget about frozen water pipes for winters to come.



WORKS WHENEVER YOU NEED IT.

WINTERIZE VACATION HOMES OR CABINS.

The Raychem Frostex system provides freeze protection you can count on, whether you're there or not. It's self-regulating so there's no need to worry about unexpected warm spells.



PROTECT PIPES UNDER MANUFACTURED HOUSING.

Frostex heating cable keeps pipes running free and clear, no matter how low the temperature drops.



SAFEGUARD UNHEATED ATTICS, BASEMENTS, OR GARAGES.

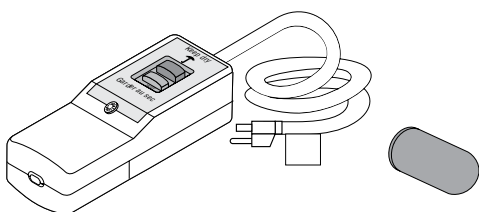
With the Frostex system, you don't have to worry about bursting water pipes in unheated areas of your home.



CIRCUIT PROTECTION UNMATCHED BY ANY OTHER HEATING CABLE

The Raychem Frostex system provides circuit protection you won't find on any other heating cable. Should it be improperly installed or damaged, its advanced-design plug with built-in ground-fault protection automatically shuts off electrical current (even in situations where household fuses or circuit breakers fail to blow). The easy-to-install, gel-filled end seal provides a permanent seal for protection against dirt and moisture that might otherwise contaminate the cable end. A durable metal braid provides electrical grounding and increased protection against damage.

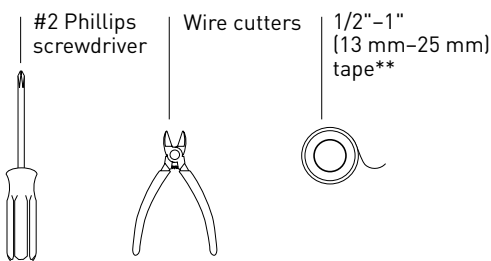
WHAT YOU NEED



- 9800 Frostex FlexFit Plug Kit. The 9800 Frostex FlexFit Plug Kit is not compatible with and should not be used with earlier versions of Frostex that have no braid.
- Frostex pipe heating cable (see page 7)
- Appropriate thickness of pipe insulation*

*Waterproof, fire resistant thermal insulation such as preformed foam.

Also make sure you have the following items:



**Frostex 9610 application tape is recommended.

Two 10" (25 cm) plastic cable ties may be used to secure the ground-fault unit to the pipe insulation.

WARNING: Fire Hazard

Frostex heating cable must be installed with the Frostex 9800 FlexFit Plug Kit. Failure to use this kit can create a risk of fire.

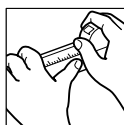
The 9800 Frostex FlexFit Plug Kit is not compatible with and should not be used with earlier versions of Frostex that have no braid.

HOW TO DETERMINE THE LENGTH OF FROSTEX HEATING CABLE YOU NEED

STEP 1: COLLECT THE NECESSARY INFORMATION.

You will need to know the following:

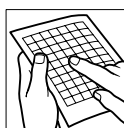
- Type of pipe (plastic or metal).
- Length and diameter of pipe.
- Lowest expected air temperature (disregard windchill).
- Number of valves and spigots (requires additional heating cable).
- If there is a crock (typically for manufactured housing applications).



STEP 2: DETERMINE THE AMOUNT OF FROSTEX HEATING CABLE YOU WILL NEED.

How to use the tables:

- Decide on the lowest temperature you can expect in your area, down to -40°F (-40°C).
- Measure the diameter of your pipe in inches.
- Using Table 1 or 2 depending on pipe material, determine how many straight runs of Frostex heating cable are required to protect the pipe. One run is equal to the length of the pipe.
- To minimize the amount of heating cable required, select the optimal insulation thickness from Table 1 or Table 2.



CABLE LENGTH SELECTION TABLES

Table 1. Metal Pipe

Number of heating cable runs required

Metal Pipe		Lowest Expected Temperature			
Insulation Thickness	Pipe Size	20°F (-10°C)	0°F (-20°C)	-20°F (-30°C)	-40°F (-40°C)
1/2"	1/2"	1	1	2	2
	3/4"	1	1	2	2
	1"	1	2	2	2
	1 1/4"	1	2	2	3
	1 1/2"	1	2	3	3
3/4"	1/2"	1	1	1	2
	3/4"	1	1	2	2
	1"	1	1	2	2
	1 1/4"	1	2	2	2
	1 1/2"	1	2	2	3
1"	3/4"	1	1	1	2
	1"	1	1	2	2
	1 1/4"	1	1	2	2
	1 1/2"	1	1	2	2
	2"	1	2	2	2
1 1/2"	3/4"	1	1	1	1
	1"	1	1	1	1
	1 1/4"	1	1	1	1
	1 1/2"	1	1	1	2
	2"	1	1	2	2

Table 2. Plastic Pipe

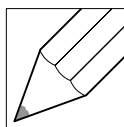
Number of heating cable runs required

Plastic Pipe		Lowest Expected Temperature			
Insulation Thickness	Pipe Size	20°F (-10°C)	0°F (-20°C)	-20°F (-30°C)	-40°F (-40°C)
1/2"	1/2"	1	2	2	
	3/4"	1	2	2	3
	1"	1	2	3	3
	1 1/4"	2	2	3	
	1 1/2"	2	3	3	
3/4"	1/2"	1	2	2	2
	3/4"	1	2	2	3
	1"	1	2	2	3
	1 1/4"	1	2	3	3
	1 1/2"	2	3	3	
1"	3/4"	1	1	2	2
	1"	1	1	2	2
	1 1/4"	1	2	2	3
	1 1/2"	1	2	3	3
	2"	1	2	3	3
1 1/2"	3/4"	1	1	1	2
	1"	1	1	2	2
	1 1/4"	1	1	2	2
	1 1/2"	1	1	2	2
	2"	1	2	2	3

 = Increase insulation thickness

STEP 3: CALCULATE THE TOTAL LENGTH OF HEATING CABLE YOU NEED.

Multiply the number of Frostex heating cable runs from Table 1 or Table 2 by the length of your pipe. Add one extra foot (30 cm) for each valve in your line. Add one extra foot (30 cm) for the power connection. For installations in a crock, add an additional 2 feet (60 cm) of heating cable.



Example (from Step 2):

Pipe size and material:	1 inch diameter, plastic
Lowest ambient temperature:	-20°F (-30°C)
Pipe length:	16 feet (5m)
Valves:	1 ball valve is used

The water connection is in a crock.

From Table 2, Plastic Pipe, for -20°F (-30°C), either two or three runs of Frostex heating cable is required depending on pipe insulation thickness.

Optimal Pipe insulation thickness: 3/4"

Selecting 3/4" thick insulation requires two runs of Frostex heating cable installed along the entire length of the pipe (Table 2).

The total length of heating cable equals:

32 ft (10 m) 2 runs x 16 ft (5 m) of pipe
+ 1 ft (0.3 m) for one ball valve
+ 1 ft (0.3 m) for one power connection
+ 2 ft (0.6 m) for installing in a crock

Total length = 36 ft (11 m)



Note: Do not use more than 50 feet (15 meters) of heating cable per plug. If the total calculated length exceeds 50 feet (15 meters), you will need additional 9800 FlexFit plugs and outlets. Longer circuit lengths will blow the nonreplaceable fuse in the 9800 FlexFit plug. If you require more than 50 feet (15 meters) per plug, call Pentair Thermal Management for information on other products.

Single run

Run the heating cable in a straight line approximately a third of the way up from the bottom of the pipe, as shown in Figure 1.

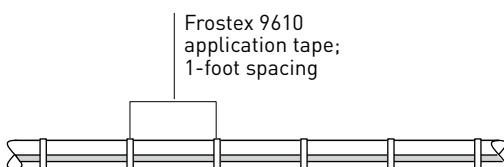


Figure 1. Single run.

Double runs

Run the heating cable in a straight line down and back along the pipe as shown in Figure 2.

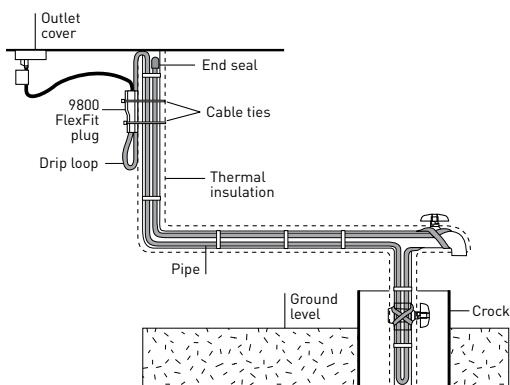


Figure 2. Double runs.

WRAP UP WINTER PIPE PROTECTION

As you can see, selecting a Raychem Frostex pipe freeze protection system couldn't be easier. Installation is simple too—all you need is a standard Phillips screwdriver and follow the installation instructions enclosed with every Frostex 9800 FlexFit Plug Kit.

So wrap up the problem of frozen water pipes. Call your local Frostex system supplier today.

For more information or the name of your nearest Frostex pipe freeze protection system supplier, call us toll free at (800) 542-6258.

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