HEATIT®

Self Regulating Pipe Heating Cable

HTM

INSTRUCTION MANUAL

HEATIT HTM SYSTEM HAS BEEN DESIGNED FOR USE ONLY IN THE PIPE FREEZE PROTECTION IN DRY LOCATION.
IMPROPER INSTALLATION OR DAMAGE OF THE CABLE IN USE AND/OR MAINTENANCE OF ELECTRICAL HEATING CABLE CAN RESULT IN FIRE, ELECTRICAL SHOCK AND/OR FREEZING PIPE.

WARNING

HEATIT HTM was only used on water supply and drain pipes. ALWAYS read and follow the safety instructions. Wrong installation can result in serious injury or death from the fire or electrical shock.

For more information, please visit www.heatitcable.com

These instructions ***MUST*** be
- Available to the heating cable users
- Saved for the reference in the future
- Available to the future owners

RECORD OF PURCHASE

PURCHASING DATE: _____
WHERE DO YOU PURCHASE FROM: _____
INSTALLED BY WHOM: _____
INSTALLATION FINISHED DATE: _____

IMPORTANT SAFETY INSTRUCTIONS

- HEATIT HTM Heating cables MUST be installed in compliance with ALL National, State and Local codes. If you are not very clear, please check with your local electrical inspector for specific details.
- HEATIT orange cable connector housing and fiberglass thermal insulation with vapor seal must be kept dry and waterproof to avoid possible electrical shock or fire.
- Please understand the instructions and warnings and carefully follow them.
- ALWAYS use a ground fault protection device (GFPD) to reduce the danger of fire from a damaged or improperly installed heating cable. Electrical fault currents caused by damaged or improperly installed cable MAY NOT BE LARGE ENOUGH to trip a conventional circuit breaker. If you DO NOT know whether your electrical system is protected by a GFPD, ALWAYS consult an electrician.
- Many mobile home heat tape receptacles are NOT protected by a GFPD. A cord-connected GFPD or GFCI suitable for outdoor applications is available at most hardware stores.
- In mobile home applications, ONLY connect the plug to an electrical outlet UNDERNEATH the mobile home. The outlet MUST be in an unexposed, dry location because the plug is NOT weatherproof.
- NEVER use an extension cord.
- Place the "Caution" label provided in the HEATIT HTM system on the completed system where it can be EASILY seen. This "Caution" label is REQUIRED by the National Electrical Code.
- Do not install heating cable when temperature is below -20°F (-29°C)
- HEATIT HTM system was only used on metal and plastic domestic water pipes(Such as PVC, PEX or polyethylene) Only for fry location. Do not use for others applications such as flexible vinyl tubing (garden hose), on buried pipes, on pipes carrying any fluid other than water, or ANY non-pipe heating applications such as roof and gutter DE-icing or driveway snow melting.
- Do not expose HEATIT HTM self regulating heating cable to temperature above 150°F (66°C). Especially when installed the heating cable on hot water pipes, please set the heater thermostat temperature below 150°F (66°C).
- Please do not alter the plug in any way.
- Please only use the fused plug kit (HEATIT HTM connection 1) for making connections.
- Please do not twist the wires inside the HEATIT HTM Cable together OR allow them to touch each other or the outer braid to avoid the short circuits.
- Only use the end seal in the kit to seal the cable.
- Please keep the cable ends clean and dry.
- ALWAYS remove old heating tapes or insulation.
- ONLY cut the HEATIT HTM Cable jacket at the ends when attaching the fused plug and end seal.
- The braid MUST be intact. NEVER cut, nick, or allow the plastic jacket of the HEATIT HTM Cable to be worn down.
- Do not install the cable where it might be hit or cut by something. Do not install the cable where it might be damaged by rubbing against rough surfaces.
- For the insulation, only use ½" or 1" vinyl or fiberglass tape to attach cable to pipe.
- Do not repair a damaged cable and do not splice a damaged cable..
- If you see a cut, nick or worn spot on the cable, IMMEDIATELY disconnect the system and replace it.

BEFORE THE INSTALLATION

Pick up the right length of the cable with the reference of Chart #1 and chart #2.

Make sure you have selected the CORRECT length heating cable for the pipe to be protected(see Chart#1 or#2).

HEATIT HTM connection Kit should contain:
- One fused plug body with a built-in,non-replace-
- Two piece cable ties
- Yellow "CAUTION" labels
- one end seal (PUSH ON)

ADDITIONAL TOOLS AND MATERIALS REQUIRED

- high quality electrician's tape
- 1/2" thick fiberglass pipe insulation with vapor seal.
- Wire cutters or heavy scissors
- Phillips#2 and slotted screwdrivers.
- Ruler or measuring tape.

HOW TO DETERMINE THE LENGTH OF CABLE YOU NEED (MAXIMUM CIRCUIT LENGTH:75 FEET)

STEP 1 THE LENGTH SELECTION CHARTS

You will get the reference form the charts about the length of the cable which you need per foot of pipe and recommended distance between each spiral wrap of the cable on the pipe.

HOW TO USE THE LENGTH SELECTION CHART

Based on the diameter and length of standard pipes, we recommend cable lengths according to the following table.

Cable Length Required per foot of pipe / Distance between Spiral wraps	"S" denotes straight cable (not spiraled)

Chart #1 Water filled Rigid Plastic pipe

Based on the use of 1/2" insulation

Lowest expected Temperature \ Diameter	½" (12.70mm)	¾" (19.05mm)	1" (25.40mm)	1¼" (31.75mm)	1½" (38.10mm)	2" (50.80mm)
+20°F (-7°C)	1 S	1 S	1 S	1 S	1 S	1 S
0°F (-18°C)	1 S	1.1 7 1/4"	1.3 5"	1.6 4 1/4"	1.8 4"	2.1 4"
-20°F (-29°C)	1.5 2 3/4"	1.7 2 3/4"	2 2 3/4"	2.3 2 1/2"	2.5 2 5/8"	3 2 5/8"
-40°F (-40°C)	2 1 1/2"	2.3 1 1/2"	2.7 1 3/4"	3.2 1 3/4"	3.6 1 3/4"	4.3 1 3/4"
-60°F (-51°C)	2.4 1 1/4"	2.9 1 1/4"	3.3 1 3/8"	4.1 1 3/8"	4.7 1 3/8"	5.4 1 1/8"

Chart #2 Water filled Metal pipe

Based on the use of 1/2" insulation

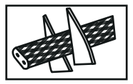
Lowest expected Temperature \ Diameter	½" (12.70mm)	¾" (19.05mm)	1" (25.40mm)	1¼" (31.75mm)	1½" (38.10mm)	2" (50.80mm)
+20°F (-7°C)	1 S	1 S	1 S	1 S	1 S	1 S
0°F (-18°C)	1 S	1 S	1 5"	1.1 11 1/2"	1.2 9"	1.5 6 1/8"
-20°F (-29°C)	1 S	1.1 7 1/4"	1.3 5"	1.6 4 1/4"	1.8 4"	2.2 3 1/4"
-40°F (-40°C)	1.3 3 1/8"	1.5 3"	1.8 2 1/4"	2.1 2 1/8"	2.4 2 1/4"	2.8 2 1/8"
-60°F (-51°C)	1.7 2"	2 2"	2.4 1 7/8"	2.9 1 7/8"	3.2 1 7/8"	3.9 2"

You can use the number in the above chart to multiply the length of your pipe to pick up the right products. For example, if your pipe is metal, the length is 20ft, the diameter of your pipe is 1" and the lowest ambient temperature is -20°F in your area, you will find the "1.3"based on the chart. You can use 20ft x 1.3 = 26ft. If there is also one ball valve. You need 1 additional foot heating cable. The total cable length which you need is 26ft + 1ft =27ft.

If you also need the cable to be used on the valve you may need longer cable. The Maximum cable length is 75 feet. Use of longer length may cause the internal fuse to blow.

STEP 2 HOW TO INSTALL AND ASSEMBLE THE HEATIT HTM HEATING CABLE AND HTM FUSED CONNECTION PLUG KIT.

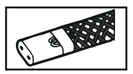
2.1 Cut off the end of the cable clearly.



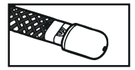
2.2.1 Unravel the braid back 1 inch from the cable end by screwdriver or pencil.

2.2.2 Twist the braid into a tight pigtail.

2.2.1 With a tape to fix the braid pigtail back on top of the braided cable.



2.2.2 Firmly pushing, put the cable into end seal all the way (3/4 inch at least). Don't wipe off if some gel may ooze out.



THE END SEAL IS NOT REUSABLE. DO NOT TWIST THE END SEAL DURING OR AFTER THE INSERTION.

To avoid the short circuits. Never twist the wires inside the HEATIT HTM heating cable together or allow them to touch each other or the outer braid.

STEP 3 HOW TO INSTALLING THE PLUG

DO NOT ATTEMPT TO ASSEMBLE THE PLUG OR END SEAL WHEN PLUG IS CONNECTED TO THE ELECTRIC POWER.

Before the installation, plug the power chord into 120 volt power outlet to check the function of power light indicator. Contact HEATIT customer service to return the plug for a replacement if the light is not lit.

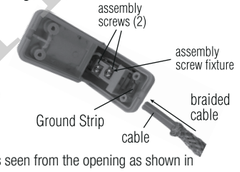
3.1 1. Remove the power chord from the outlet and then remove two cover screws. (Please check the figure 1)

Figure 1

3.2 1. Loosen two assembly screws (around 1/4 inch).
2. Don't fully remove the assembly screws (Please check figure 2a).

3.3 1. Cut 1 inch off the cable.
2. Insert braided cable into assembly screw fixture opening (tunnel). Allow braid to slide back as cable is inserted.

Figure 2a



3. Push until the cable is seen from the opening as shown in Figure 2b
4. The ground braid MUST NOT enter the assembly screw which will be a live part when the plug is reassembled and the system is operating.

Figure 2b

3.4 1. Tighten the two assembly screws until they are each snug against the metal surfaces on top of the assembly screw fixture (5" lb. in torque).

Figure 3

3.5 1. Make sure that the ground braid covering the cable is in contact with the ground strip when the plug is reassembled. Contact between the ground braid and ground strip completes the systems ground circuit. Please check figure 3.

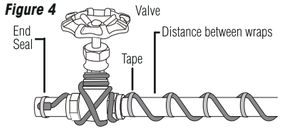
3.6 Close cover and insert two cover screws. Tighten two cover screws until they are snug against their recessed plastic surfaces.

STEP 4 INSTALLED THE CABLE ON THE PIPE

From the plug end, either spiral wrap or straight trace the cable on the pipe.

4.1.1 Spiral wrapping installation. Figure 4

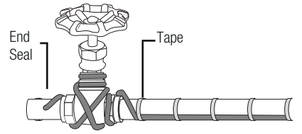
Figure 4



HTM Heating Cable

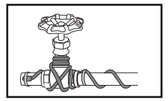
4.1.2 Straight tracing installation. Figure 5
Run the pipe in a straight line parallel to and approximately 1/3 of the way from the BOTTOM of the pipe. (See Figure 5)

Figure 5

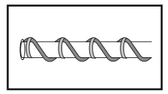


HTM Heating Cable

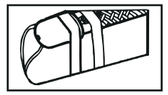
4.2 Provide extra heat at valves and spigots by wrapping each with one additional foot of cable, overlapping as required.



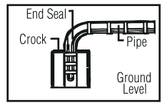
4.3 Use the tape to fasten the cable to the pipe at 6 INCH intervals. If there is any excess cable remains at the end of the pipe, double it back along the pipe where the insulation will COMPLETELY cover it. The cable need to be attached tightly to the pipe.



4.3 Use the tape to attach the heating cable end seal to the pipe.



4.3 In a mobile crock or standpipe, Do not install the HEATIT HTM Cable end seal where it would normally be submerged.



STEP 5 THE INSULATION INSTALLATION

Thermal insulation helps to protect HEATIT HTM Cable and prevent the pipe heat lost.

5.1 BEFORE insulating, Please check HEATIT HTM heating cable to make sure that the cable is not damaged (such as nicks or cuts) and that the braid is intact.

5.2 Please use ½" clean, dry fiberglass insulation to cover the pipe, cable, connections, valves and spigots. Do not cover the Power Indicator Light with insulation or covering. DO NOT LEAVE THE CABLE EXPOSED (See Figure 6). Where jacket damage is possible, protect the exposed cable with insulation or other coverings.

Figure 6

- ONLY use fire-resistant insulation materials such as fiberglass wrap.
- MAKE SURE fiberglass insulation is water-proof by installing a water-tight sleeve or vapor barrier such as polyethylene sheeting around it whenever there is ANY chance that it might come in contact with water.

5.3 " Caution " label should be placed on the insulation-covered pipe where it can be easily seen.

MAINTAIN YOUR HEATIT HTM CABLE SYSTEM

STEP 6 CHECKING YOUR HEATIT HTM SYSTEM

When you finished the installation, plug the cable into a 120 volt AC outlet. Don't use any water for about one hour. After that turn on a water tap pm HEATIT HTM protected pipe. Now you can make a quick test to the water temperature. You should feel slight warm.

STEP 7 IF YOU DIDN'T FEEL THE WARM.

Please check the power light on the plug to see if the cable is energized. If the power light is off, unplug the HEATIT HTM cable and check the below issues:

7.1 Is there any power entering the electric outlet?

7.2 Insulation material is dried?

7.3 The fused plug is installed correctly?

7.4 Make a further check for the amount of cable which you need to make sure you choose enough cable based on the lowest temperature and diameter of your pipe.

7.5 Insulation thickness is also critical.

WARNING

FIRE AND SHOCK HAZARD. This product is an electrical device that must be installed correctly to ensure proper operation and to prevent shock or fire. Read these important warnings and carefully follow all the installation instructions.

- To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of HEATIT Building Solutions agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection.
- For pipe freeze protection applications, use only fire-resistant insulation materials such as preformed foam or fiberglass.
- Do not damage the heating cable and power cord or plug. Remove any damaged cables from service immediately.
- Do not use any wire or metal clamps to attach the cable to the pipe. Use tape (1/2 inch wide to 1 inch wide) or plastic cable ties.
- Do not install the heating cable underneath any roof covering for roof and gutter de-icing.
- Leave these installation instructions with the user for future.