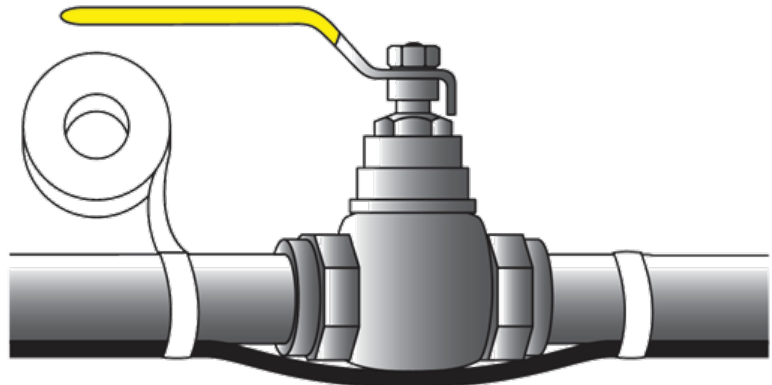


INSTALLATION AND MAINTENANCE



GWP

**Constant Wattage Pipe
Heating Cable**



GENERAL INFORMATION

This product has been designed, manufactured and has instructions written for the sole use of preventing water pipes from freezing. Improper installation, use and/or maintenance of electrical heating cable can cause fire, electric shock and/or freezing pipes. If after reading the following instructions, you still have questions regarding installation or operation of this heating cable, contact King Electrical Mfg. at 206-762-0400. Heating cables must be installed in compliance with all National, State, Provincial and Local codes. Check with your local electrical inspector for specific details.

! WARNING !

READ CAREFULLY - The following points must be strictly be adhered to:

- Use on water pipes only and comply with these important instructions.
- For use on minimum pipe length of 3 ft.
- Always wear safety glasses during installation.
- Never plug in the heating cable while it is coiled.
- Never install so that external heat sources might overheat installation. Do not use heating cable on pipes above 150° F (65° C) such as steam lines.
- Never alter the heating cable in any way. If made shorter, over heating will occur. Any attempt to physically alter the heating cable will void warranty.
- The thermostat and entire heating cable must be in contact with the pipe.
- Never use metal binding material such as a hose clamp or bailing wire to secure heating cable to pipe.
- The heating cable must maintain contact with the pipe at all times, do not jump from one pipe to another as this could create an air gap causing the cable to overheat, burn out and may result in fire or electrical shock. The cable can ONLY be used on a continuous run of pipe.
- Never allow heating cable to touch, cross or overlap itself at any point. Cable will overheat and could result in electrical shock.
- Never install heating cable in walls, floors or ceiling.
- Combustible material must not be within 1/2" (13mm) of completed installation.

INSTALLATION

To choose the right length of pipe freeze protection cable, cable should be long enough to run along the bottom of horizontal pipes or the weather exposed side of vertical pipes (including valves) without crossing or spiraling. Never use cable longer than the pipe it is intended to protect. Cable will be applied straight along pipe, and will protect pipes up to 1-1/2 inches in diameter.

Refer to Cable Length Selection Chart to select the ideal cable length for your pipe application.

For Standard Length Pipe:

- **For pipe with a standard length of heating cable:** Apply the cable straight along the bottom of the horizontal pipe or weather exposed side of vertical pipe following installation instructions. (See Figure 1)

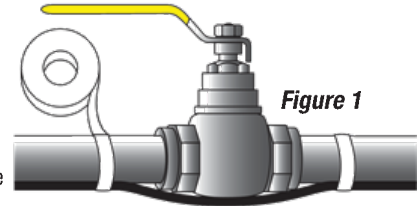


Figure 1

For Non-standard Length Pipe:

- **For pipe diameters from 3/8"-3/4":** Apply the cable straight along the bottom of the horizontal pipe or weather exposed side of vertical pipe. Apply good quality electrical tape at 6" intervals to secure the heating cable. (See Figure 1) **Cable can be up to 2 ft. shorter than the length of pipe.** If 2 cables are required apply 2 separate cables on opposite sides of the pipe, starting from opposite ends following the installation instructions. (See Figure 2) **The overrun in the middle of the pipe should not exceed 3 feet.**
- **For pipe diameters from 1" - 1 1/2":** Apply the cable straight along the bottom of the horizontal pipe or weather exposed side of vertical pipe. Apply good quality electrical tape at 6" intervals to secure the heating cable. (See Figure 1) If 2 cables are required apply two separate cables on opposite sides of the pipe, starting from opposite ends following installation instructions. (See Figure 2) **The overrun in the middle of the pipe should not exceed 3 feet.**

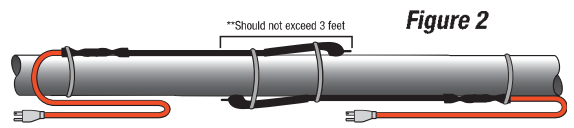


Figure 2

*When using 2 cables, install on opposite sides of the pipe (as shown)
 **Overrun in the middle of the pipe should not exceed 3 feet.

Warning: Do not spiral cable around pipe or cross cable over itself. Do not use one run of cable for two different pipe runs. Failure to do so may result in overheating and fire.

Cable Length Selection Chart

| | | Length of Pipe | | | | | | | | | | | | | | | | |
|--------------------------|----------------|----------------|----------|------|----------|------|--------|------|--------|------|----------|------|----------|------------|------|----------|------------|------|
| PIPE DIA | 3/8"-3/4" | 3' | 4-5' | 6' | 7-8' | 9' | 10-11' | 12' | 13-14' | 15' | 16-17' | 18' | 19-20' | 21-23' | 24' | 25-27' | 28-29' | 30' |
| | (9.53-19.05mm) | 0.9m | 1.2-1.5m | 1.8m | 2.1-2.4m | 2.7m | 3-3.4m | 3.7m | 4-4.3m | 4.6m | 4.9-5.2m | 5.5m | 5.8-6.1m | 6.4-7m | 7.3m | 7.6-8.2m | 8.5-8.8m | 9.1m |
| Select Cable Length (Ft) | | 3' | 3' | 6' | 6' | 9' | 9' | 12' | 12' | 15' | 15' | 18' | 18' | (2pcs) 12' | 24' | 24' | (2pcs) 15' | 30' |

| | | Length of Pipe | | | | | | | | | | | | | | | | |
|--------------------------|---------------|----------------|-----------|------|----------------------|------|-----------|------|----------------------|------|-----------|------|-----------------------|------------|------|------------------------|------------|------|
| PIPE DIA | 1"-1 1/2" | 3' | 4-5' | 6' | 7-8' | 9' | 10-11' | 12' | 13-14' | 15' | 16-17' | 18' | 19-20' | 21-23' | 24' | 25-27' | 28-29' | 30' |
| | (25.4-38.1mm) | 0.9m | 1.2-1.5m | 1.8m | 2.1-2.4m | 2.7m | 3-3.4m | 3.7m | 4-4.3m | 4.6m | 4.9-5.2m | 5.5m | 5.8-6.1m | 6.4-7m | 7.3m | 7.6-8.2m | 8.5-8.8m | 9.1m |
| Select Cable Length (Ft) | | 3' | (2pcs) 3' | 6' | (1pc) 3' (1pc) 6' | 9' | (2pcs) 6' | 12' | (1pc) 6' (1pc) 9' | 15' | (2pcs) 9' | 18' | (1pc) 9' (1pc) 12' | (2pcs) 12' | 24' | (1pc) 12' (1pc) 15' | (2pcs) 15' | 30' |

⚠ WARNING ⚠

⚠ WARNING: Always wear safety glasses during installation.

1. Read through the entire instruction manual before you begin. Make sure you have selected the correct length of heating cable.
2. Before applying the heating cable, make sure that the area on and around the pipe is free and clear of sharp edges and combustible materials. Remove old heat tape and use a file to remove any sharp edges.
3. The minimum installation temperature of the cable is 14 degrees F (-10 degrees C). **Never install the CWP cable when the cable is colder than this temperature.** If heating cable is stiff due to cold, first uncoil it and then plug it into the rated voltage (120V) outlet until it is warm and pliable before unplugging it and applying it to the pipe.
4. Make sure there is a properly grounded electrical receptacle close enough to plug in the cable. We strongly recommend the use of a GFCI protected circuit. Use on 120 volts and be sure the electrical outlet is not overloaded. This heating cable will consume five amps or less of electricity. If an extension cord is necessary, use only a properly sized, grounded suitable for outdoor service.
5. The thermostat (the splice or end of the heating cable) must be placed tightly against the pipe and secured with good quality electrical tape. The thermostat should be placed on the coldest end of the pipe and turn the cable on and off to provide economical operation.
6. Apply good quality electrical tape at 6 inch intervals to secure the heating cable straight along the pipe. Minimum heating cable bend radius is 1 inch.

INSTALLATION INSTRUCTIONS

- ! WARNING:** Always use good quality electrical tape with a minimum of 176 degree F (80 degree C) temperature rating. Other adhesive tapes may allow the cable to move at normal cable operating temperatures and could result in over heating, fire or electrical shock.
- ! WARNING:** We recommend the use of a ground fault circuit interrupter (GFCI) receptacle or circuit breaker to reduce the danger of fire or electrical shock from a damaged or improperly installed heating cable. Electrical fault current caused by a damaged or improperly installed cable **MAY NOT BE LARGE ENOUGH** to trip a conventional circuit breaker. If you **DO NOT** know whether your electrical circuit is protected by a GFCI, **ALWAYS** consult an electrician. **NOTE:** Many mobile home heat tape receptacles are **NOT** protected by a
- ! WARNING:** Never use more than 1/2 inch of fiberglass or other non-flammable insulation made for pipe application. Over-insulation can cause the heating cable to overheat and cause serious fire hazard or electrical shock.
- ! WARNING:** Never install heating cable on plastic pipe unless pipe is filled with water at all times. Use plastic (including PEX tubing) piping material suitable for residential water applications. Never spiral heating cable on pipes. Keep the heating cable straight along the pipe. In order to obtain even heat distribution, we recommend wrapping plastic pipes with aluminum foil before applying the heating cable.

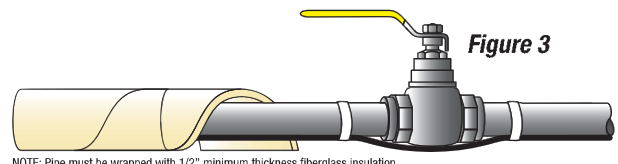
Important: Tools and Materials Required For Installation.

Materials: Electrical Tape, 1/2-inch fiberglass or equivalent non-flammable pipe insulation with vapor seal.

Tools: Scissors, Tape measure, File, Marking pencil, Eye protection.

INSTALLATION

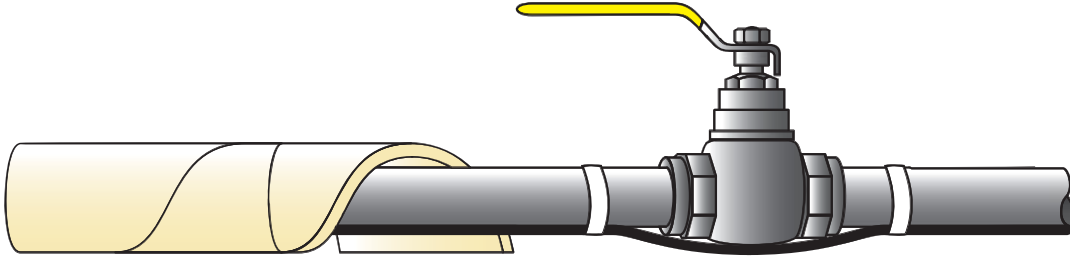
1. Read through the entire instruction sheet before you begin. Make sure you have selected the correct length of heating cable.
2. Before applying the heating cable, make sure that the area on and around the pipe is free and clear of sharp edges and combustible materials. Remove old heat tape before proceeding and use a file to remove any sharp edges that may damage heating cable.
3. The minimum installation temperature of the cable is 14 degrees F (-10 degrees C). **Never install the CWP cable when the cable is colder than this temperature.** If heating cable is stiff due to cold, first uncoil the cable and then plug it into 120 V outlet until warm and pliable before unplugging it and applying to the pipe.
4. Make sure there is a properly grounded electrical receptacle close enough to plug in the cable. We strongly recommend the use of a GFCI protected circuit. Use on 120 V and be sure the electrical outlet is not overloaded. This heating cable will consume five amps or less of electricity. If an extension cord is necessary, use only a properly sized, grounded suitable for outdoor service.
5. Apply good quality electrical tape at 6 inch intervals to secure the heating cable straight along the pipe. **Minimum heating cable bend radius is 1 inch (2.5 cm).**
6. Maximum 1/2" fiberglass (including pre-formed fiberglass) insulation must be used over the heating cable for lower temperature protection. (See Figure 3) Insulation applied over the heating cable must also be applied over the thermostat. Insulation must be protected with an additional waterproof overwrap using opposite spiraling.
7. Never install heating cable on plastic pipes unless pipes are filled with water at all times. Use plastic (including PEX tubing) piping material suitable for residential water applications. Never spiral heating cable on pipes. Keep the heating cable straight along the pipe. In order to obtain even heat distribution, we recommend wrapping plastic pipes with aluminum foil before applying heating cable.



NOTE: Pipe must be wrapped with 1/2" minimum thickness fiberglass insulation

FIBERGLASS INSTALLATION REQUIRED

Maximum 1/2" fiberglass (including pre-formed fiberglass) insulation must be used over the heating cable for lower temperature protection. (See figure below) Insulation applied over the heating cable must also be applied over the thermostat. Insulation must be protected with an additional waterproof overwrap using opposite spiraling



NOTE: Pipe must be wrapped with 1/2" minimum thickness fiberglass insulation

HEATING CABLE SPECIFICATIONS

| Catalog Number | Voltage | Cable length Ft. | Output W/ft. | Watts | Amps | ohms |
|----------------|---------|------------------|--------------|-------|------|-------|
| CWP021-3 | 120 | 3 | 7 | 21 | 0.2 | 685.7 |
| CWP042-6 | 120 | 6 | 7 | 42 | 0.4 | 342.9 |
| CWP063-9 | 120 | 9 | 7 | 63 | 0.5 | 228.6 |
| CWP084.12 | 120 | 12 | 7 | 84 | 0.7 | 171.4 |
| CWP105-15 | 120 | 15 | 7 | 105 | 0.9 | 137.1 |
| CWP126-18 | 120 | 18 | 7 | 126 | 1.1 | 114.3 |
| CWP168-24 | 120 | 24 | 7 | 168 | 1.4 | 85.7 |
| CWP210-30 | 120 | 30 | 7 | 210 | 1.8 | 68.6 |
| CWP280-40 | 120 | 40 | 7 | 280 | 2.3 | 51.4 |
| CWP420-60 | 120 | 60 | 7 | 420 | 3.5 | 34.3 |
| CWP560-80 | 120 | 80 | 7 | 560 | 4.7 | 25.7 |

MAINTENANCE

1. At the beginning of the heating season and monthly during operation, inspect the heating cable and its connection to the electric power source. Discontinue use and remove any unit that has been cut, damaged, immersed in water, shows any evidence of charring or cracking, or has deteriorated for any reason. This cable does not contain any serviceable parts.
2. Heating cable may remain on the pip year round, but we recommend always turning off or disconnecting the power at the end of the season (when air temperatures remain above 50° F). The thermostat turns the heating cable on when exposed to 36° F. It will shut the heating cable off when the pipe has been heated to a temperature of approximately 50° F.