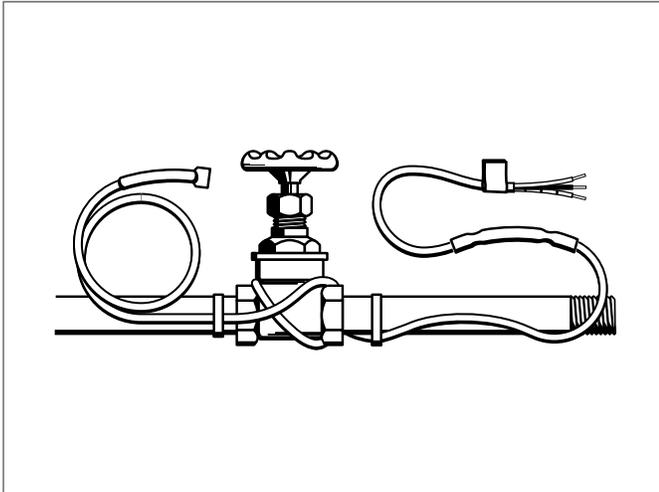


Raychem Gardian W52

PREASSEMBLED PIPE-HEATING CABLES INSTALLATION INSTRUCTIONS



DESCRIPTION

Gardian W52 240-Vac preassembled electric heating cables are intended for installation on metal or plastic water pipes for freeze protection in commercial locations. Gardian W52 heating cables are available in 6-, 12-, 18-, and 24-foot lengths and each comes complete with a 30-inch power cord.

KIT CONTENTS

Item	Qty	Description
1		Gardian W52 preassembled heating cable
3		Wire connectors

ADDITIONAL MATERIALS REQUIRED

- 1 UL Listed or CSA Certified junction box suitable for wet or dry areas
- 1 UL Listed or CSA Certified outlet bushing and fitting
- Cable ties or glass-cloth tape
- Thermal pipe insulation

APPROVALS



HEATING CABLE SELECTION

Determine which Gardian W52 heating cable you will need:

Use the tables to the right to select the correct heating cable. Round up to the next pipe size if your pipe diameter isn't shown. Add 1 foot to your pipe length for each valve or spigot on your pipe system.

The charts assume the lowest outside temperature is -20°F (-29°C), with a minimum of 1/2 in fiber-glass insulation or equivalent. For protection to -40°F (-40°C), use 1 in fiberglass insulation or equivalent fire-resistant insulation.

If length of cable selected is longer than the pipe, spiral cable evenly along the entire pipe. For selections E-G, use two (2x) or three (3x) cables of equal length, run straight along the pipe and evenly spaced around it.

PRODUCT SELECTION CHARTS

A W52 -6L	B W52 -12L	C W52 -18L	D W52 -24L	E 2xW52-18L	F 2xW52 -24L	G 3xW52 -24L
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Metal Pipes

Pipe dia.	Pipe length (ft)							
	3	6	9	12	15	18	21	24
1/2 in	A	A	B	B	C	C	D	D
1 in	A	A	B	B	C	C	D	D
1 1/2 in	A	B	B	C	C	D	D	F
2 in	A	B	B	C	D	D	F	F
2 1/2 in	A	B	C	C	D	E	F	F

Plastic Pipes

Pipe dia.	Pipe length (ft)							
	3	6	9	12	15	18	21	24
1/2 in	A	A	B	B	C	C	D	D
1 in	A	A	B	C	D	D	F	F
1 1/2 in	A	B	C	D	E	E	F	F
2 in	B	C	D	E	F	F	G	G
2 1/2 in	B	C	D	E	F	F	G	G

Important

All thermal and design information provided here is based upon a "standard installation": heating cable fastened to a pipe and thermally insulated. For any other method of installation or application,

consult Pentair Thermal Management at (800) 542-8936 for design assistance to ensure proper design of electrical distribution and acceptable pipe temperatures.

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 Pentair Thermal Management, agency certifications, and the National Electrical Code, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection.
- Use only fire-resistant insulation materials such as fiberglass wrap.
- Do not damage the heating cable and cord connector. 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.
- Leave these installation instructions with the user for future reference.

GENERAL REQUIREMENTS:

- Gardian heating cables are not intended for use inside any pipes, for freeze protection of liquids other than water, or for use in classified hazardous locations.
- Gardian heating cables may be used on metal and plastic water pipes but not on flexible vinyl tubing (such as garden hoses).
- Install with a minimum of 1/2 in fire-resistant thermal insulation. Weatherproof the insulation if it might get wet.
- Never use on any pipes that may exceed 150°F (65°C).

GENERAL INSTRUCTIONS:

- Install only in accessible locations; do not install behind walls or where the cable would be hidden.
- Do not run the heating cable through walls, ceilings, or floors.
- Connect only to junction boxes that have been installed in accordance with all prevailing national and local codes and standards and are protected from rain and other water.
- Prior to installing the cable, remove any sharp surfaces on the pipe that might damage the heating cable.
- Follow the specific installation instructions that begin below.
- Follow the maintenance guidelines on page 3.

1

Side View

1a Spiral traced

1b Straight traced

End View

1c Two cables in 4 and 8 o'clock positions

1d Three cables in 4, 8, and 10 o'clock positions

- If your Gardian cable is longer than the pipe, spiral it evenly along the pipe (Figure 1a).
- If your Gardian cable is the same length as the pipe, run it straight along the pipe (Figure 1b) in the 4 o'clock or 8 o'clock position.
- If two Gardian cables are used, position them in the 4 o'clock and 8 o'clock positions (Figure 1c).
- If three Gardian cables are used, position them in the 4, 8, and 10 (or 2) o'clock positions (Figure 1d).

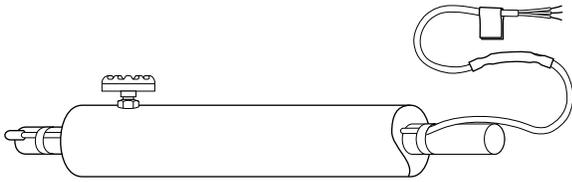
2

Spiral-traced Installation

Straight-traced Installation

- Fasten the cable to the pipe at 12-inch intervals with glass cloth tape or plastic cable ties. If excess cable remains at the end of the pipe, double it back along the pipe and cover it with insulation.
- Provide extra heat at valves and spigots by wrapping each with an additional foot of heating cable, overlapping as required.

3



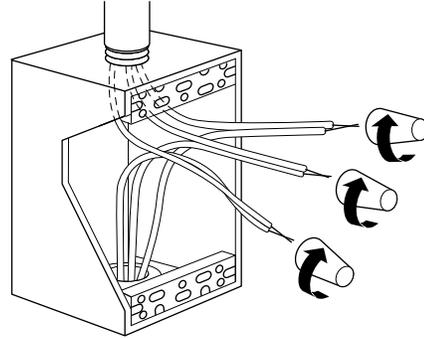
Thermal insulation

- Before installing the thermal insulation, check to see that the heating cable is free from mechanical damage (such as from cuts or clamps) and thermal damage (such as from solder or overheating).
- Using a megohmmeter, test each circuit according to the "Cable testing and maintenance instructions below, both prior to and after installing the thermal insulation.

Note: A reliable Gardian system depends on properly installed and dry, weatherproofed thermal insulation.

- Ensure that at least 1/2 in of fiberglass or equivalent thermal insulation is used and that all pipework, including valves, joints, and wall penetrations, has been fully insulated. To minimize the potential for mechanical damage after installation, install the insulation on the pipework as soon as possible.
- Be sure the Gardian W52 label is visible on the outside of the thermal insulation.

4



Connecting the Gardian cable to power

Using the three wire connectors included in the kit, connect the black and white cold leads to both phase wires and the green cold lead to ground. Provide suitable UL Listed and CSA Certified junction box and outlet bushing and fitting.

CABLE TESTING AND MAINTENANCE

Using a 2500-Vdc megohmmeter, check the insulation resistance between the lead wires and ground wire during installation. Minimum reading should be 1000 megohms.

The installer should record the original values for each circuit. Subsequent readings taken during regular maintenance schedules should be compared to the original value.

If the readings should fall below 1000 megohms, replace the Gardian W52 cable with a new unit. Do not attempt to repair the unit.



WARNING: Fire and Shock Hazard. Damaged heating cable can cause electrical shock, arcing, or fire. Do not attempt to repair or energize damaged heating cable. Remove it at once and replace with a new length.

Product Specifications

	W52-6L	W52-12L	W52-18L	W52-24L
Cable length in feet (meters)	6 (1.8)	12 (3.7)	18 (5.5)	24 (7.3)
Min. thermal output on a pipe at 40°F/4°C (watts)	30	60	90	120
Min. thermal output on a pipe at 0°F/-18°C (watts)	46	92	138	184
Max. current draw on a pipe at 40°F/4°C (amps)	0.21	0.43	0.64	0.85
Max. current draw on a pipe at 0°F/-18°C (amps)	0.32	0.64	0.96	1.28

General Specifications for all W52 Products

Nom. cable width (in/mm)	0.34 (8.5)
Nom. cable thickness (in/mm)	0.23 (5.8)
Cable bus wire gauge (AWG)	20
Cold lead length (in/mm)	30 (750)
Voltage rating (Vac)	208-240
Circuit breaker size	15 A max.
Max. exposure temperature	150°F (65°C)
Electrical classification	Ordinary areas only
Exposure to chemicals	None

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