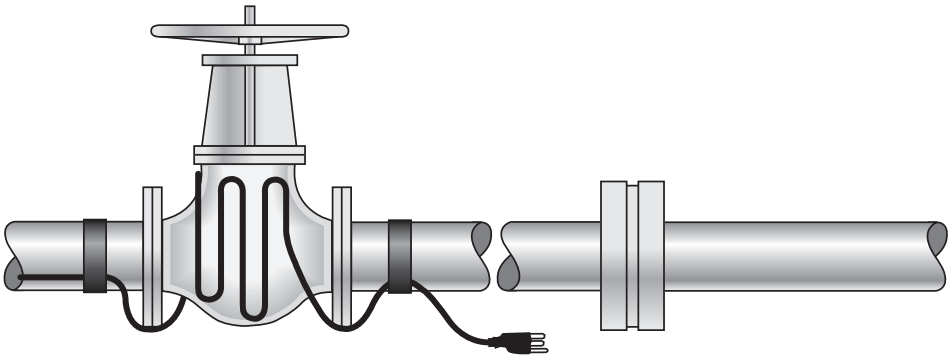
Installation Instructions

and

RENEWAL PARTS IDENTIFICATION

SERVICE REFERENCE			
DIVISION 4		SECTION	STW
SALES REFERENCE	(Supersedes PJ489-2)		PJ489-3
			161-562405-002
DATE	SEPTEMBER, 2007		

STW Pre-Terminated Cable



GENERAL

Safe-T-Wrap preassembled and pre-terminated cables are intended for use on metal or plastic water pipes for freeze protection of these pipes in residential, mobile home or other ordinary area installation applications. The cables are provided in 6, 12, 18, 24, and 50 foot lengths which include a factory sealed power connection with 30 inch power cord and plug, and a factory sealed end termination.

Package Contents -
1 Safe-T-Wrap preassembled electric heating cable

Other Items Required for Proper Installation -
- Thermal Insulation - fi" Fiberglas® or equivalent
- Weatherproof covering for the insulation
- Glass cloth tape to fasten cable to piping
- Cable tie for power cord strain relief
- GFI protected power receptacle

Tools Required -
- Utility Knife - used to cut insulation, weather barrier and glass cloth tape
- 2500 VDC meggar - used to test electric heating cable insulation resistance

Approvals -
- Safe-T-Wrap preassembled heating cables are UL Listed for use in residential and mobile home pipe freeze protection applications. UL files - E68611 and E174357.

Conditions of Use -
Safe-T-Wrap cables are designed for use in residential, mobile home or other ordinary area installation applications on the outside of metal or plastic piping only. This electric heating cable is designed to be used in conjunction with suitable thermal insulation and protective weather barrier - the cable will not provide sufficient heat on its own to prevent pipe freeze-up. Clean, dry, fireproof thermal insulation is necessary to provide a complete and functional installation. Please review the following cautions related to the use of the STW preassembled cable.

⚠CAUTION

ELECTRIC SHOCK AND/OR FIRE HAZARD.

1. Do NOT use STW cable in classified hazardous areas. This product is approved for ordinary area use only.
2. Do NOT use STW cable for underground or buried pipe applications.
3. Do NOT use STW cable for vinyl garden hose applications. This product is approved for use on fixed metal and plastic piping only.
4. Do NOT use STW cable for flexible hose or flexible piping applications. This product is approved for use on fixed metal and plastic piping only.
5. Do NOT use STW cable for piping installations - behind walls, in ceilings, through flooring or any other inaccessible locations.
6. Do NOT use STW cable directly INSIDE pipes - This product is approved for use installed on the OUTSIDE of metal and plastic pipes only.
7. Do NOT install STW cable without use of proper thermal insulation and protective weather barrier.
8. Do NOT use STW cables on piping that may exceed 90 deg F.
9. Do NOT use STW cables on piping that contains fluids other than water - This product is approved for use on pipes containing water only.
10. Do NOT use an extension cord with STW cables.

GENERAL

⚠WARNING

ELECTRIC SHOCK HAZARD. This product is an electrical device that must be properly installed to prevent electric shock and/or fire. Read and understand these important safety warnings and follow all installation instructions.

GFI Circuit Protection - To minimize danger from possible sustained electrical arcing due to damaged or improperly installed heating cable, and to comply with agency certifications and the National Electric Code (Article 427) - Ground Fault Equipment Protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. Contact a qualified electrician for installation if GFI is not available.

Fire Resistant Thermal Insulation -
Use only fire resistant thermal insulation such as Fiberglas® wrap with STW heating cables.

Fastening Cable to Pipe -
Use only glass cloth tape or plastic cable ties to fasten STW heating cable to the pipe. Use of metal tie wire or pipe clamps could damage STW heating cable electrical insulation and lead to an electric shock or fire hazard.

⚠WARNING

ELECTRIC SHOCK AND/OR FIRE HAZARD. If cable is damaged, remove from service. Do not attempt to repair. There are no user serviceable parts. Replace damaged cable with new assembly.

KEEP INSTRUCTIONS FOR FUTURE REFERENCE.

CABLE SELECTION

Use the tables below to select the proper STW preassembled heating cable for your application. Use the metal pipe table for metal pipes and the plastic pipe table for plastic pipes only.

IMPORTANT NOTES ON CABLE SELECTION -

1. All cable selection tables are based on standard installation - cable fastened to pipe and covered with thermal insulation and weather barrier. For any "non-Standard" installations please contact ProTherm at (615) 834-4044.
2. The tables assume a minimum ambient temperature of 0 deg F and a thermal insulation of fi" thick Fiberglas® wrap or equivalent. For protection to -20 deg F minimum ambient use 1" thick Fiberglas® wrap or equivalent.
3. Add 1 foot of heating cable for every valve or spigot in the pipeline - make sure to apply this extra cable at each valve / spigot when installing.
4. If your pipe diameter does not appear in the table, round up to the next pipe size.
5. If your selected cable length is longer than your pipe length, spiral the cable evenly along the length of pipe.

STW Pre-terminated Cable Selection Charts

A = STW51-6P B = STW51-12P C = STW51-18P D = STW51-24P E = STW51-50P

METAL PIPE S (for freeze protection to 0 deg F minimum ambient with 0.5" insulation or -20 deg F with 1" insulation)

	Pipe Length											
Pipe Diameter	3'	6'	9'	12'	15'	18'	21'	24'	27'	30'	40'	50'
.5"	A	A	B	B	C	C	D	D	E	E	E	E
1"	A	A	B	B	C	C	D	D	E	E	E	E
1.5"	A	A	B	B	C	C	D	D	E	E	E	E
2"	A	A	B	B	C	C	D	E	E	E	E	NR
2.5"	A	B	B	C	C	D	E	E	E	E	E	NR

Note - NR = not recommended - consult factory for further design information

PLASTIC PIPE S (for freeze protection to 0 deg F minimum ambient with 0.5" insulation or -20 deg F with 1" insulation)

	Pipe Length											
Pipe Diameter	3'	6'	9'	12'	15'	18'	21'	24'	27'	30'	40'	50'
.5"	A	A	B	B	C	C	D	D	E	E	E	E
1"	A	B	B	C	C	D	D	E	E	E	E	NR
1.5"	A	B	C	C	D	D	E	E	E	E	NR	NR
2"	A	B	C	D	E	E	E	E	E	NR	NR	NR
2.5"	A	C	D	D	E	E	E	NR	NR	NR	NR	NR

Note - NR = not recommended - consult factory for further design information

INSTALLATION

⚠CAUTION

ELECTRIC SHOCK AND/OR FIRE HAZARD.

1. ***Do NOT use STW cable in classified hazardous areas. This product is approved for ordinary area use only.***
2. ***Do NOT use STW cable for underground or buried pipe applications.***
3. ***Do NOT use STW cable for vinyl garden hose applications. This product is approved for use on fixed metal and plastic piping only.***
4. ***Do NOT use STW cable for flexible hose or flexible piping applications. This product is approved for use on fixed metal and plastic piping only.***
5. ***Do NOT use STW cable for piping installations - behind walls, in ceilings, through flooring or any other inaccessible locations.***
6. ***Do NOT use STW cable directly INSIDE pipes - This product is approved for use installed on the OUTSIDE of metal and plastic pipes only.***
7. ***Do NOT install STW cable without use of proper thermal insulation and protective weather barrier.***
8. ***Do NOT use STW cables on piping that may exceed 90 deg F.***
9. ***Do NOT use STW cables on piping that contain fluids other than water - This product is approved for use on pipes containing water only.***
10. ***Do NOT use an extension cord with STW cables.***
11. ***Prior to installing cable, remove any sharp surfaces from the pipe that may damage heating cable jacket.***
12. ***Connect to outlets that have been installed in accordance with all local and national codes and that have been protected from rain or other sources of water/moisture.***
13. ***Connect to outlets that are ground fault equipment protected outlets.***

INSTALL IN ACCORDANCE WITH ALL CAUTIONS AND WARNINGS PER THE ILLUSTRATIONS BELOW -

Note:

1. Before insulating check to be sure heating cable is free from mechanical or thermal damage (cuts or nicks in cable insulation from utility knife, use of metal clamps, solder or overheating).
2. Use Megohmmeter to test each circuit prior to and after installing thermal insulation. See Megohmmeter test procedure below.
3. Ensure use of proper insulation thickness and type - fi" fire resistant Fiberglas® or equivalent for protection to 0 deg F, 1" fire resistant Fiberglas® or equivalent for protection to -20 deg F.
4. Ensure insulation is dry. Wet insulation will not protect pipe from freeze-up.
5. Ensure all valves, spigots and piping are fully insulated up to and including joints and wall penetrations.
6. Secure heating cable cord as shown above to provide proper strain relief.
7. Plug cable into 120 Vac ground fault circuit protected outlet.
8. Check circuit breaker to verify power to the cable.
9. Proper heat output of cable may be verified by observing warm standing water in pipe within one hour of energizing the cable.

MEGOHMMETER TESTING PROCEDURE -
Use only 2500VDC megohmmeter for this test.

Check insulation resistance between each lead of the heating cable and the round ground lug on the power cord plug. Perform the test by placing one lead of the megohmmeter on the round ground lug and the other on one of the rectangular power lugs. You should read 1000 megohms minimum. Perform the test again by checking the opposite rectangular power lug. Again the reading should be 1000 meohms minimum. If you read less than 1000 megohms on either lead the cable needs to be replaced. Do not attempt to repair the unit. Replace with new product.

The installer should record these megohm readings on these installation instructions and record the date of the test. End user of the system must keep instructions.

This Megohm test should be performed at least once per season, preferably before energizing the system each fall or winter, or immediately after any work has taken place on the piping system.

⚠WARNING

ELECTRIC SHOCK AND/OR FIRE HAZARD. Damaged heating cable can cause electrical shock and/or fire. Do not attempt to repair or energize damaged heating cable. Remove damaged cable immediately and replace with new product.

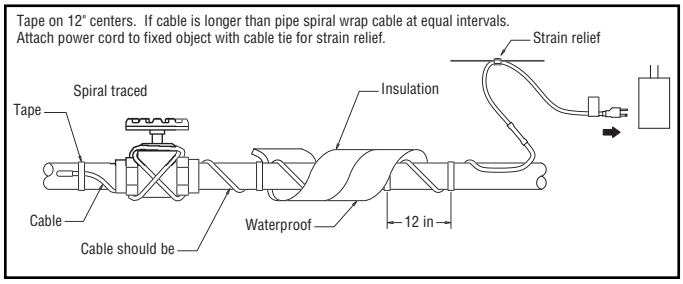


Figure 1: Thermal Insulation - wrap, weather barrier and cord strain relief.

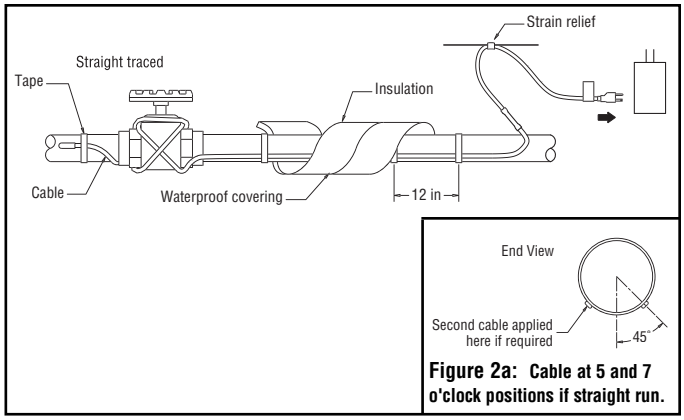


Figure 2a: Cable at 5 and 7 o'clock positions if straight run.

Figure 2: Tape every 12 inches. Straight run cable if cable length is the same as pipe length.