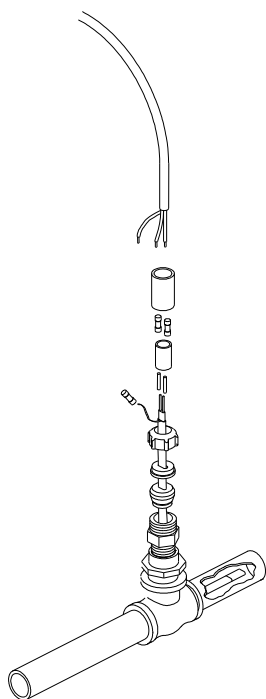


Installation Guide

In-Pipe Connection Kit

For types HTR-CT & HTLe-CT



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1. Description:

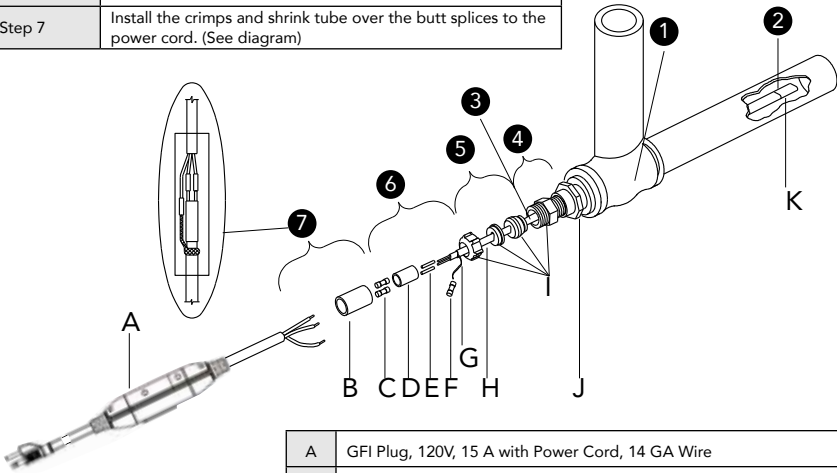
This kit is intended for use with HTR-CT or HTLe-CT type heating cable for in-pipe applications. The system can be used in potable water pipes.

2. Kit Contents:

- Brass fitting kit
- Splicing kit c/w GFCI kit
- End seal kit

3. Installation steps

Step 1	Install the tee* into the water line.
Step 2	Strip and seal the end of the cable.
Step 3	Push/pull the cable into the pipe.
Step 4	Install the seal fitting into the tee* or the reducers*
Step 5	Slide the grommet, compression fitting, and compression cap over the cable (torque the cap at 2.7Nm [24in.-lbs.]).
Step 6	Strip and terminate the heater cable
Step 7	Install the crimps and shrink tube over the butt splices to the power cord. (See diagram)

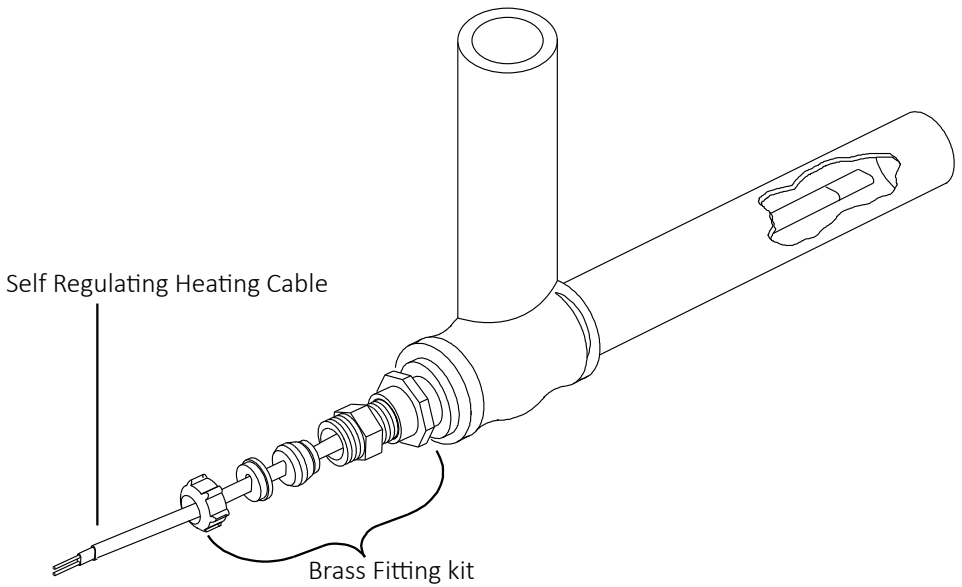


A	GFI Plug, 120V, 15 A with Power Cord, 14 GA Wire
B	Shrink Tube, 19mm (.75") ID
C	Butt Splices (2) (heat shrink the nylon jacket after splicing the conductors)
D	Shrink Tube, 19mm (.75") ID
E	Shrink Tube, 3.2mm (.125") ID
F	Butt Splices
G	*Ground Braid
H	*Heating Cable
I	Brass Fitting Kit
J	*Coupling Plastic Pipe to .75 NPT
K	End Seal Kit

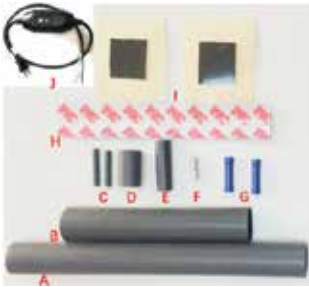
4. Brass Fitting Kit

1 Brass coupling including

- 1 Compression fitting and strain relief
- 1 Silicone rubber grommet
- 1 Compression cap



5. Splice kit and GFI power supply cord



Kit Contents		
Item	Qty.	Description
A	1	Black heat shrink tube 203mm long x 19mm dia. (8" long x 3/4" dia.)
B	1	Black heat shrink tube 125mm long x 19mm dia.(5" long x 3/4" dia.)
C	2	Black heat shrink tube 25mm long x 3mm dia. (1" long x 1/8" dia.)
D	1	Black heat shrink tube 25mm long x 13mm dia.(1" long x 1/2" dia.)
E	1	Black heat shrink tube 38mm long x 7.4mm dia.(1 1/2" long x 1/3" dia.)
F	1	Uninsulated braid crimp
G	2	Insulated bus wire crimps
H	1	Black cloth tape 152mm long x 25mm width (6" long x 1" width)
I	2	Mastic strips
J	1	GFCI Power supply cord

- Slide 125 mm (5") tube and 203 mm (8") black heat-shrinkable tube over the end of the plug-in cord.



- Cleanly cut off the end of each cable. Lightly score completely around and then down the outer jacket for a length of 70 mm (2-3/4").

Do not cut the braid or the inner jacket.



- Bend the heating cable to break the jacket at the score, then peel off the outer jacket



- Straighten the braid and twist into a "pigtail"



5. Lightly score completely around and then down the inner jacket for a length of 45mm (1 4/5"). Do not cut the bus wires!



6. Bend the heating cable to break the jacket at the score, then peel off the inner jacket.



7. Skive the outer core material from the conductors with a utility knife.



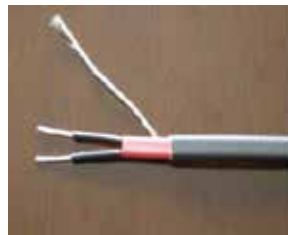
8. Peel the exposed wires back from the core.



9. Cut away the core, leaving only the bare conductors



10. Slide the 3.2 mm (1/8") x 25 mm (1") shrink tubes over the bus wires. To shrink the tubing, move the heat source continuously from side to side. While shrinking, ensure that the tubes remain up against the black core.



- 11.** Center the 13 mm (1/2") × 25 mm (1") heat shrinking- tube over the end of the heating cable as shown. Heat the tube evenly until it shrinks and adhesive flows out both ends. Shrink the tube completely. Immediately after shrinking, pinch with pliers between the wires while the tube is still hot. Hold for 10 seconds to ensure seal.



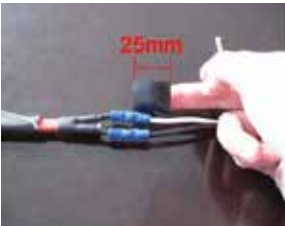
- 12.** Trim the bus wires to 7 mm (1/4").



- 13.** Use the insulated bus wire crimps and the crimp tool to connect the black and white wires to the bus wires of the heating cable.



- 14.** Remove the release paper from the mastic strips. Wrap one strip of mastic around the black wire against the end of the splice to provide a water block, then repeat for the white wire.



- 15.** Squeeze the mastic together.

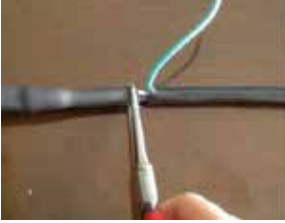


- 16.** Center the 125 mm (5") shrink tube over the splice, making sure the tube extends over the end of the heating cable and the cord. Shrink the tube completely. Start at the middle and work towards each end. Keep heating after the tube has shrunk, in order to melt the mastic and adhesive inside the tube.



Total heating time should be around 3 minutes.

17. Make sure the adhesive appears at both ends. Immediately after shrinking, first pinch one end of the tube and then the other end with needle nose pliers until the ends stay sealed.



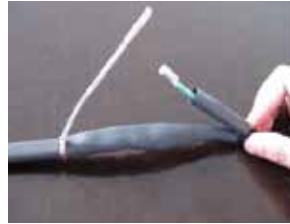
18. Slide one end of an uninsulated crimp connector over the end of the green wire.



19. Crimp using the crimp tool.



20. Slide the 7.4 mm (1/3") x 37 mm (1-1/2") shrink tube over the ground wire, but do not shrink the tube.



21. Twist the braid together into a pigtail. Position the pigtail on top of the splice. Cut the pigtail so that it just reaches the midpoint of the splice.



22. Fold the other metal pigtail over 1/4" and insert into the open end of the uninsulated crimp connector. Crimp using the crimp tool.



23. Center the heat-shrink tube over the uninsulated crimp connector. Shrink the tube completely. Start at the middle and work towards each end. Keep heating after the tube has shrunk, in order to melt the adhesive inside the tube. Make sure the ring of adhesive appears at both ends of the heat shrink tube.



24. Wrap the black cloth tape evenly around the crimp and splice. Cover the crimp completely.



25. Center the 203mm (8") heat shrink tube over the splice, making sure the tube extends over the end of the heating cable and the cord. Shrink the tube completely. Start at the middle and work towards each end. Keep heating after the tube has shrunk, in order to melt the mastic and adhesive inside the tube. Total heating time should be about 5 minutes.

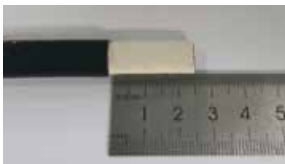


6- End seal kit



Kit Contents		
Item	Qty.	Description
A	1	Heat shrink tube 150mm long x 19mm dia. (5-7/8" long x 3/4" dia.)
B	1	Heat shrink cap 12.5mm dia. (1/2" dia.)
C	1	Mastic strip 12.7mm wide (1/2" wide.)
D	1	Heat shrink tube 80mm long x 16mm dia. (3-1/8" long x 2/3" dia.)

- Score the outer jacket 25mm (1") from the end of the cable. Remove the jacket and cut the braid to expose the insulation.
- Slide the heat shrink cap over the end of the cable. Apply heat evenly until it shrinks around the cable



- Slide the 80mm (3-1/8") heat shrink tube over the end of the cable, allowing at least 5-10mm (1/5"-2/5") to extend past the end of the heat shrink cap.
- Apply heat evenly until it shrinks around the cable.



- While the shrink tube is still hot, gently squeeze the end of the shrink tube with pliers and hold until cool. The end must remain visibly sealed when the pliers are removed. If the tube does not remain sealed, then repeat step 4 & 5.



- Wrap the 12.7mm (1/2") wide mastic strip evenly around the junction of the tube and cable, half on the tube and half on the cable. Press the mastic strip to wrap the cable & tube evenly.



7. Slide the 150 mm (5-7/8") heat shrink tube over the end of the cable, allowing 5-10mm (1/5"-2/5") to extend past the end of the heat shrink tube.



8. Apply heat evenly until it shrinks around the cable.



9. While the shrink tube is still hot, gently squeeze the end of the shrink tube with pliers and hold until cool. The end must remain visibly sealed when the pliers is removed. If the tube does not remain sealed, then repeat steps 8 and 9.



Approvals:



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