

Instruction Sheet

Hot-LinkPlus® System for Domestic Hot Water Recirculation

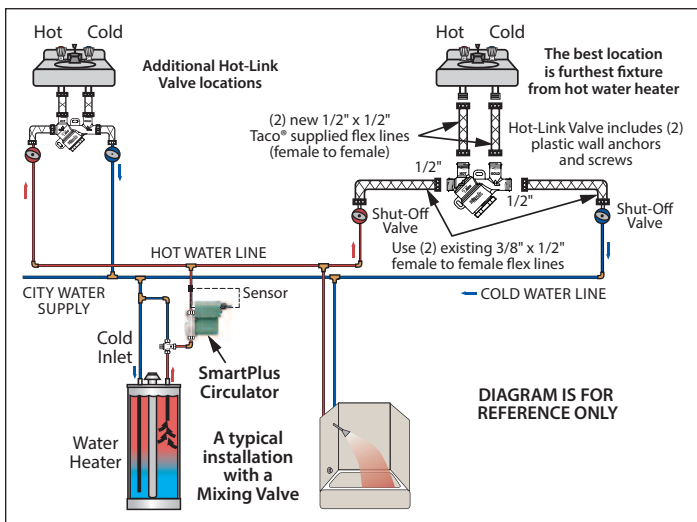
SUPERSEDES: NEW

EFFECTIVE: November 28, 2017

Plant ID# 001-5006

Application:

The Taco **Hot-LinkPlus System** for Domestic Hot Water recirculation ensures instant hot water comfort at showers and faucets. By supplying fresh hot water to the fixtures while returning the “cooled” hot water back to the water heater through the cold line, it also saves thousands of gallons of wasted water per year. The average family can achieve yearly savings of up to 12,000 gallons of water normally wasted down the drain while waiting for hot water.



High Quality Features:

The **Hot-LinkPlus System** includes a Taco SmartPlus circulator designed specifically for use with the Taco Hot-Link Valve. The circulator and valve are suitable for most residential homes with hot water supply lines up to 100 feet.

The unique **Hot-Link Valve** is the key to the system. Made of durable high temperature polymer, it creates an easy-to-install return loop through the cold line from the furthest fixture back to the water heater. An integral thermal sensor disc closes when hot water reaches the valve. An internal flow check prevents cold water from backing into the hot line. Stainless steel braided flex hoses complete the installation.

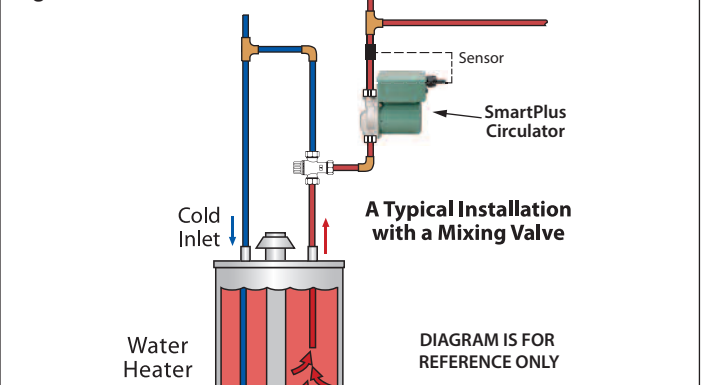
Installing the Hot-LinkPlus System Circulator:

WARNING: To avoid electrical shock, disconnect the power supply to the circulator and the main electrical unit.

WARNING: 1. Circulator must be installed on and supported by the circulation piping.
2. The addition of unions on both the suction and discharge side of the circulator is recommended.

1. Follow all local plumbing and electrical codes when installing the **Hot-LinkPlus System**.
2. Shut off cold water supply valve to water heater.
3. Open a hot water faucet in the house to drain the hot water line.
4. Open water heater drain valve located at the bottom of tank to drain remaining hot water from the lines. It is not necessary to drain the entire tank.
5. Disconnect hot water supply line at water heater outlet nipple.
6. Install the 3/4" female tailpiece union adapter provided to the water heater outlet. Apply pipe dope or Teflon tape to all male threads as required.
7. Install the 3/4" male tailpiece union adapter to the pump outlet connection. Apply pipe dope or Teflon tape to all male threads. Be sure flow arrow located on the pump casing is in the proper direction. See diagram.

Figure 1:



8. Install the stainless steel **Hot-LinkPlus** circulator by connecting to the union nut/tailpiece attached to the water heater outlet. Circulator motor must be in the horizontal position.



CAUTION: Do not run circulator dry. Permanent damage may result and will void warranty.

9. Reconnect the hot water supply line to the union tailpiece attached to the circulator discharge.
10. Open supply valve to water heater. Let water run until all air is purged from lines. Check for any leaks. If leaks are detected, close supply valve and tighten all connections.
11. Shut off open hot water faucet.



Prepare the SmartPlus Circulator for Operation:

PUMP CONTROL OPTIONS

The SmartPlus circulator has a “Mode Select” toggle switch that allows for 2 operation modes. “Pulse” or “Smart” mode can be selected using the toggle switch located on the electronic control board (see Figure 2). A yellow LED indicates which mode is selected. All operation is automatic, no manual timer or temperature setting is required.

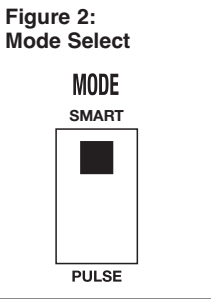
• “Pulse” Mode

When set for “Pulse” operation, the SmartPlus will run for 1 to 10 minutes “ON” and 10 minutes “OFF” to maintain hot water at all fixtures.

• “Smart” Mode

When set for “Smart” operation, the SmartPlus will run in “Pulse” mode as above for the first 7 days. During the first 7 days, the SmartPlus will monitor and record the home’s hot water usage pattern. For the next 7 days, the SmartPlus will use the preceding week’s usage pattern to cycle the pump. This process will be repeated every 7 days. The pump will cycle for 1 hour before and after each recorded hot water demand.

Figure 2:
Mode Select



WARNING: All local plumbing and electrical codes should be followed when installing this product.

WARNING: Risk of electrical shock. This pump is supplied with a grounding conductor and grounding-type attachment plug. To reduce the risk of shock, be certain that it is connected only to a properly grounded grounding-type receptacle.

CAUTION: Do not plug in the SmartPlus power cord until the system is filled with water and purged of air.

1. The SmartPlus is shipped from the factory in “Smart” mode. To switch the pump to “Pulse” mode, remove the 2 electrical box screws and cover. Change the position of the toggle switch on the circuit board to “Pulse” (see Figure 2). Replace the cover and secure with 2 screws.
2. Plug the external temperature sensor provided into the “TEMP SENSOR” receptacle on the side of the electrical box. Attach the sensor to the hot water supply pipe downstream of the pump using the black zip-tie connector provided. See Figure 1.
3. Plug the SmartPlus circulator cord into the closest 110V power outlet. The circulator will start in pulse mode and operate for the programmed run time.

NOTE: The temperature sensor must be installed and connected in either “Pulse” or “Smart” mode.

NOTE:The SmartPlus must be installed and supported by the circulation piping.

• Variable Run Time Setting

The SmartPlus run time can be set for varying domestic hot water pipe sizes and loop length. The factory default setting is 3.

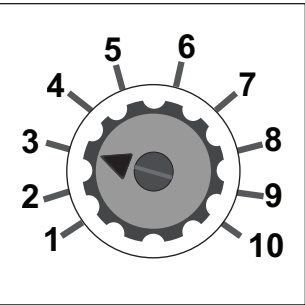
Follow the steps below to adjust the run time:

1. Make sure the SmartPlus power cord is unplugged from electrical outlet.
2. Remove the electrical box cover from the circulator to expose the electronic control board.

3. Adjust the dial from 1 to 10 minutes to change the run time to best fit your system.

NOTE: For the best possible system performance, some adjustment may need to be made to the dial position.

4. Replace the electrical box cover.
5. Plug SmartPlus power cord into electrical outlet. Pump will start and run at the new run time setting.



Other Special Features of the SmartPlus:

- **Vacation Function** - If no water usage is detected for 36 hours, the pump will remain off until hot water usage is detected. Once detected, the pump will resume operation.
- **NOTE:** If pump is set to “Smart” mode, the pump will operate in “Pulse” mode for the first 7 days while recording usage patterns.
- **Exercise Function** - While in vacation mode, the pump will come operate every 7 days for 10 seconds to prevent corrosion or scale buildup.
- **72 Hour Memory Backup** - Should a power outage occur, the SmartPlus (in Smart mode only) will retain its recorded settings and internal timer for 72 hours. When power is restored, the SmartPlus will return to its programmed mode setting, either “Pulse” or “Smart.”
- **LED Indicator Lights** - The SmartPlus is provided with 3 LED’s located on the side of the electrical box.

Green LED	Illuminated: Power on
Yellow LED	Solid: Pump in “Smart” mode.
	Flashing: Pump in “Pulse” mode.
Red LED	Off: Sensor is connected properly.
	Flashes once every 5 seconds: Shorted sensor - Use replacement sensor kit #194-3574.
	Flashes twice every 5 seconds: Open sensor - Check all sensor connections.
	Flashes three times every 5 seconds: Blown fuse - Use replacement fuse kit #26-813RP.



Installing the Hot-Link Valve:

1. Select the hot water faucet furthest from the water heater. If your plumbing system branches in two different directions, another **Hot-Link Valve** may need to be installed at the end of each run.
2. Shut off the hot and cold angle stop valves below the sink.
3. Open the hot and cold faucets to purge water from the

lines.



CAUTION: Do not use pipe dope or Teflon tape on the valve body threads.

4. Disconnect the hot and cold flex hoses from the 1/2" faucet connections beneath the sink and reconnect them to the respective hot and cold inlet ports on the **Hot-Link Valve**. Locate the flow arrows on the side of the valve to verify flow direction.



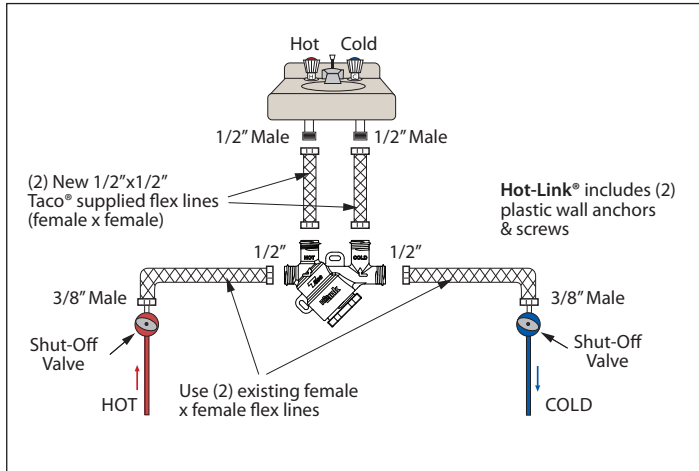
CAUTION: Use caution when attaching flex hoses to the Hot-Link Valve to prevent cross-threading or stripping of the threads.

5. Install the 1/2" x 1/2" flex hoses provided. Connect one hose to the hot outlet of the valve and the hot water connection on the faucet (left side). Connect the second flex hose to the cold outlet of the valve and the cold water connection on the faucet (right side).

6. When all connections are made, open angle stop valves and check for leaks.

7. Attach the **Hot-Link Valve** to the wall using anchor screws provided.

Note: The Hot-Link Valve can be disassembled for service and cleaning. Repeat steps number 2 and 3. Unthread the valve stem from the body and clean internal screen of debris. Reattach valve stem securely to prevent leaks. Open angle stop valves and check for leaks.



Hot-LinkPlus Trouble Shooting

SYMPTOM	POSSIBLE CAUSE	SERVICE TIP
No Hot Water	Clogged filter screen.	<ul style="list-style-type: none">• Close angle stop valves beneath sink.• Open hot and cold faucets to drain line of pressure.• Remove valve stem, thoroughly clean screen, replace, open angle stop valves and check operation.
	Pump installed incorrectly.	<ul style="list-style-type: none">• Check to see if flow arrow on pump casing is in correct direction.
	Pump not running.	<ul style="list-style-type: none">• Check circuit breaker.• Check power supply outlet.• Check to ensure pump sensor is installed correctly• Check to ensure green LED on pump is on
	Hoses connected incorrectly.	<ul style="list-style-type: none">• Check to see if flex hoses are connected to proper Hot/Cold ports on valve.
Abundance of Hot Water in Cold Line Note: It is normal for some warm water to be in cold line during recirculation cycle.	If unable to flush the hot water from the cold line by running the cold faucet, it may indicate that the valve is damaged.	<ul style="list-style-type: none">• Replace valve.
Water is too Hot	Hot-LinkPlus system has improved delivery of hot water.	<ul style="list-style-type: none">• Install mixing valve on water heater outlet. See piping schematic on page 1.

LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any Taco 00 Series circulator or circulator part which is proven defective under normal use within three (3) years from the date of manufacture.

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which has been subject to misuse, misapplication, the addition

tion of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at (401-942-8000).

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY WARRANTY IMPLIED BY LAW INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS IS IN EFFECT ONLY FOR THE DURATION

OF THE EXPRESS WARRANTY SET FORTH IN THE FIRST PARAGRAPH ABOVE.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR STATUTORY, OR ANY OTHER WARRANTY OBLIGATION ON THE PART OF TACO.

TACO WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF ITS PRODUCTS OR ANY INCIDENTAL COSTS OF REMOVING OR REPLACING DEFECTIVE PRODUCTS.

This warranty gives the purchaser specific rights, and the purchaser may have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts or on the exclusion of incidental or consequential damages, so these limitations or exclusions may not apply to you.

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