

Installation and Operation Manual


Hot Water Recirculation System Model 500800



⚠ WARNING

This Hot Water Recirculation System does not work with Tankless water heaters.
For Indoor Use Only.
Please understand this is not an anti-scald device. You may have some warm water in your cold water line under the sink where the valve is installed. Once the cold water line is opened, the warm water will dissipate in a very short time.

⚠ WARNING

 Read this Manual **BEFORE** proceeding with installation.
FAILURE TO READ AND FOLLOW ATTACHED INSTRUCTIONS OR OPERATING PARAMETERS MAY LEAD TO THE PRODUCT'S FAILURE AND POSSIBLE DAMAGE TO PROPERTY. REFER TO ENCLOSED WARRANTY FOR OPERATING PARAMETERS TO ENSURE PROPER USE WITH YOUR WATER SUPPLY.
Keep this Manual for future reference.

THINK SAFETY FIRST

Pump and Comfort Valve CS VW

MH26400 65GM



WATER QUALITY
ANSI/NSF 61



Drinking Water System Components

Maximum use temperature: 140°F

Mfg. by Grundfos Pumps

12" Supply Line and Adapters

ANSI/NSF 61
STD. 61
LISTED



Table of Contents	Page
Introduction	2
Before Installation	
Contents of Instant Hot Water Recirculating System	2
Electrical Requirements	2
Operational Parameters	2
Installation	
Pump Installation	2
3/8" Sensor Valve Installation	3
1/2" Sensor Valve Installation	4
Check Sensor Valve Operation	4
Parallel Sensor Valve Installation	4
Operation	
Setting Up The Timer	5
Manual Switch Mode Of Operations	5
Timer Programming	5
Technical and Warranty Information	
Troubleshooting	6
Limited Warranty	8



Introduction

Thank you for your purchase of the Watts Hot Water Recirculation System. This system has been inspected and tested prior to shipment to provide you with long, efficient, trouble-free service when installed, maintained and used in accordance with the instructions in this Manual. Failure to do so could result in personal injury, property damage or damage to the equipment. This Manual should be considered a permanent part of your system and should be kept available for easy reference by any user.

Package Contents:

Examine the components carefully to make sure no damage has occurred to the pump. Care should be taken to ensure the pump is NOT dropped or mishandled; dropping will damage the pump.

- (1) Hot Water Recirculation System with timer
- (1) Sensor Valve
- (2) Valve mounting screws
- (2) 3/8" compression to 1/2" threaded flex hoses (2) Adapters
- (2) Rubber washers
- (1) Installation and Operation Instructions

⚠ ELECTRICAL SAFETY WARNING

Risk of electrical shock - This pump is supplied with a grounding conductor. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded grounding type receptacle. The safe operation of this pump requires that it be grounded in accordance with the National Electrical Code and local governing codes and regulations.

Electrical Requirements

NOTICE

The operating voltage and other electrical data are marked on the motor label. Make sure that the motor is suitable for the electrical supply on which it will be used.

Supply Voltage:	120 VAC, 60Hz
Shortest Switching Interval:	15 Minute Increments
Switch Modes:	"Timer", "ON" Override, "OFF" Override
Protection:	Clear plastic cover for dust and moisture

Operational Parameters

NOTICE

System must be installed, maintained and used in accordance with the instructions in this Manual.

Do not use with water that is microbiologically unsafe or of unknown quality, without adequate disinfection before or after the system.

	Maximum	Minimum
Operating Temperature	140°F (60°C)	N/A

⚠ WATER HEATER CHECKLIST

Electric Water Heater

- Turn off Power to your Water Heater at the breaker box.

Gas Water Heater

- Turn off the Gas to your water heater and insure that the pilot light is not burning.

NOTICE

Before restoring power or gas to the water heater, make sure the system is full of water and all the air has been purged.

STEP 1

Pump Installation: For Indoor Use Only



Picture #1



Picture #2

Step A – Close the supply water valve to the water heater located, in most cases, above the water heater on the cold water inlet to the hot water heater.

Step B – Drain the water from the hot water pipes by opening a hot water faucet in the house. Let the water run until it stops flowing. Then drain remaining water from hot water heater spigot. Leave the faucet in the house open until pump installation is complete. If water does not stop flowing, check to make sure the water to the hot water heater has been completely shut off.

Step C – Disconnect the hot water heater at the hot water discharge. (See Picture #1)

Step D – Install pump onto the water heater discharge, using the 3/4" female fitting and gasket supplied on the pump. The pump should be installed so that the pump is pumping away from the hot water heater, towards the house. Confirm the direction of pumping by observing the flow arrow on the side of the pump housing. (See Picture #2) Be sure that the pump is not touching the exhaust vent piping (chimney) of a gas or oil fired hot water heater.

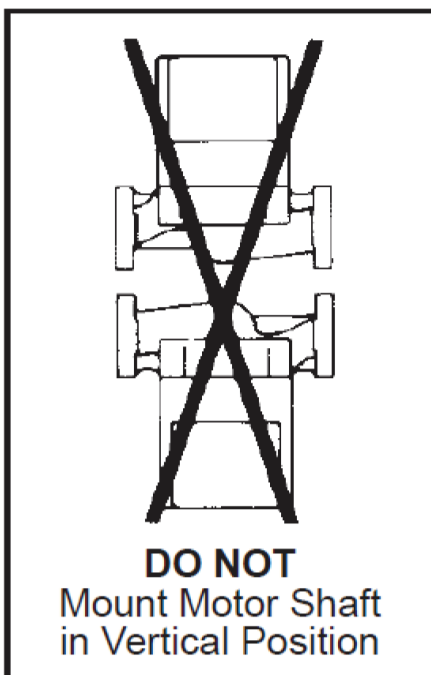
Step E – Connect the hot water line to the 3/4" NPT discharge of the pump. When connecting to a 3/4 female NPT connection, use pipe dope or Teflon tape to seal the threads. If a gasketed, flexible copper water heater connector is used, pipe dope or Teflon tape is not required.

Step F – Reopen the supply valve to the hot water heater and allow the water to run until all the air has been purged from the piping.

Step G – Close faucet inside the house.

NOTICE

Do not mount the motor shaft in a vertical position.



Picture #3

STEP 2

Sensor Valve Installation

Disconnect Hot & Cold Supply Line



Close Both Hot & Cold Supply

Picture #4

For the greatest effect, the valve should be located at a faucet with the greatest piping distance from the hot water heater. This can be determined by locating the sink faucet with the longest wait time for hot water. If your home has a branched hot water line, more than one Sensor Valve may be necessary. Additional Sensor Valve kits can be found at some retail locations as well as the Watts website www.PremierH2O.com or by calling us toll free at 1-800-752-5582.

NOTICE

Do not use Teflon tape or pipe dope on the Sensor Valve threads.

3/8" Stop Valve Installation

Step A – Close both the hot and cold water stop valves below the sink. (See Picture #4).

Step B – Place supplied rubber washers in female end of adapters. Attach adapters to both “Cold Water Out” and “Hot Water Out” ports of Sensor Valve. **Finger tight plus a quarter turn with wrench.**

Step C – Disconnect existing supply line connection from both hot and cold stop valves. (See Picture #4). Take disconnected end and attach to the adapter installed on the “Hot Water Out” and “Cold Water Out” connections respectively.

Step D – Connect the 3/8" side of the new flex hose to the hot water stop valve and the 1/2" side to the “Hot Water In” port of the Sensor Valve. Repeat for the remaining flex hose to the cold water stop valve. (See Picture #5).

Step E – Open the hot water stop valve and proceed to **Step B of Step 2.1 Check Sensor Valve Operation** (See Page 4).

NOTICE

If desired, Sensor Valve can be mounted to the wall with the mounting screws. (See Picture #6).

OR

1/2" Stop Valve Installation

- Step A** – Close both the hot and cold water stop valves below the sink.
- Step B** – Place supplied rubber washers in female end of adapters. Attach adapters to both “Cold Water In” and “Hot Water In” ports of Sensor Valve. Finger tight plus a quarter turn with wrench.
- Step C** – Disconnect existing supply line connection from both hot and cold stop valves. Take disconnected end and attach to the “Hot Water Out” and “Cold Water Out” connections respectively.
- Step D** – Connect the 1/2" side of the new flex hose to the hot water stop valve and the 3/8" side to the adapter installed on “Hot Water In” port of the Sensor Valve. Repeat for the remaining flex hose to the cold water stop valve. (See Picture #5).
- Step E** – Open the hot water stop valve and proceed to Step B of Step 2.1 Check Sensor Valve Operation.

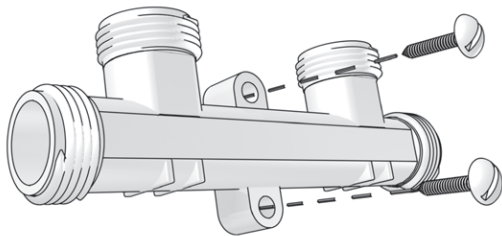
NOTICE

If desired, Sensor Valve can be mounted to the wall with the mounting screws. (See Picture #6).

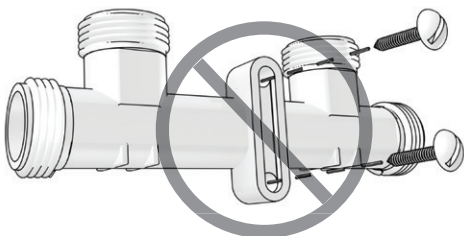


Picture #5

Correct Installation



Incorrect Installation



Picture #6

STEP 2.1

Check Sensor Valve Operation

After installing the pump and the sensor valve, verify the valve is functioning properly by following the steps below: Step 2.1

- Step A** - Close the cold water stop valve below the sink.
- Step B** - Open the cold water faucet.
- Step C** - Water should flow slowly from the faucet until hot water reaches the valve. The flow should gradually decrease until no water is coming from the faucet, at which time the sensor valve is closed.
- Step D** - Close the cold water faucet and open the hot water faucet to verify that hot water begins to flow quickly from the spout.
- Step E** - After verifying the Sensor valve is operating correctly, open the cold water stop valve below the sink and check for leaks over the next 24 hours.

STEP 2.2

(Optional) Parallel Sensor Valve Installation

If you have uninsulated piping or long runs of pipe on a concrete foundation it may require adding an additional Sensor Valve or installing valves in parallel to increase the flow and reduce temperature drop. Follow the steps below for parallel Sensor Valve Installation:

- Step A** - Follow steps A and B of the 3/8" or 1/2" stop valve installation, depending on your stop valve connection size.
- Step B** - Disconnect faucet supply line connection from the “Hot Water Out” and “Cold Water Out” of the previously installed Sensor Valve. Take the disconnected end and attach to the “Hot Water Out” and “Cold Water Out” of the new Sensor Valve.
- Step C - 3/8" Installation** – Connect the 3/8" side of the new flex hoses to the adapters installed on the previously installed Sensor Valve and the 1/2" side to the “Hot Water In” and “Cold Water In” of the new Sensor Valve respectively.
- 1/2" Installation** – Connect the 3/8" side of the new flex hoses to the adapters installed on the new Sensor Valve and the 1/2" side to the “Hot Water Out” and “Cold Water Out” of the old Sensor Valve respectively.
- Step D** - Open the hot and cold water stop valves below the sink.

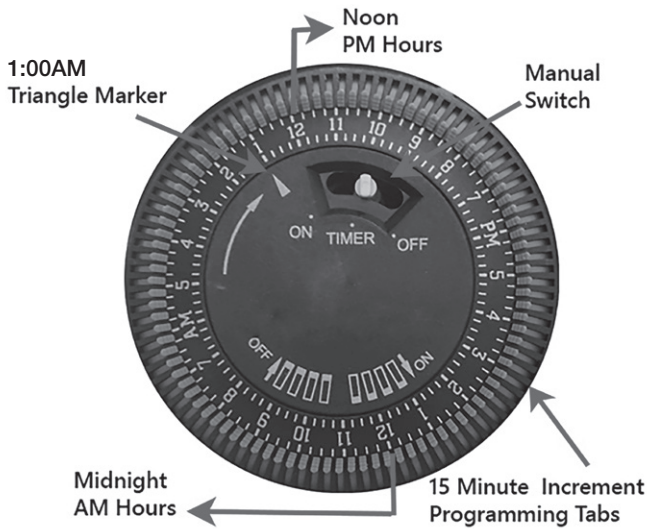
Setting Up The Timer

NOTICE

Before the circulator is started, the water system must be filled with water and vented.

STEP 3

Timer Operation



When setting the programming tabs of the timer, set the pump to operate around your peak use times. (I.e. 30 minutes before the first shower until 15 minutes after last shower).

Step A - Turn programming ring clockwise until the current time of day is aligned with the triangle marker. Example for 1:00 AM: Turn the programming ring until 1:00 AM is aligned with the triangle on the inner dial.

Step B - Plug the line cord from the pump into a properly grounded 115V outlet. Be sure to route the power cord so that it does not touch the exhaust vent piping of a gas or oil fired hot water heater.

STEP 3.1

Manual Switch - Modes of Operation

The timer has three modes of operation controlled by a manual switch.

Mode 1 - OFF Position: Circulator off. So long as the pump is plugged in, the timer will still keep the time of day.

Mode 2 - TIMER Position: Circulator controlled by the programming tab settings

Mode 3 - ON Position: Circulator in continuous operation – not controlled by the programming tab settings.

STEP 3.2

Timer Programming

24-Hour (Timer Manual Switch Position)

The 24-Hour dial has quarter-hour division tabs plus AM/PM indications. Set the required "ON/OFF" times on the programming ring by pushing the tabs away from or towards the center of the ring. Tabs pushed away from the center ring indicate circulator "ON" while tabs pushed towards the center ring indicate circulator is switched "OFF".

The circulator will now start/stop according to the settings of the programming tabs.

NOTICE

In case of power outage the timer will not keep time. Repeat 'Step A of Step 3 Setting Up The Timer', when power is restored.

Timer Technical Application

The timer control is designed only for use with the specified WATTS INSTANT HOT WATER RECIRCULATING SYSTEM. System should be installed indoors on hot water service systems.

The timer control is designed to turn the circulator on and off at pre-set times, allowing the user to select operation of the circulator during high use periods of the day.

Timer Technical Data

Supply Voltage:	120 VAC, 60Hz
Temp Range:	-40°F to 180°F
Shortest Switching Interval:	15 Minute Increments
Switch Modes:	"Timer", "ON" Override, "OFF" Override
Protection:	Clear plastic cover for dust and moisture

Troubleshooting

PROBLEM	CAUSE	SOLUTION
1. Long wait times for hot water? Troubleshooting Pump related issues	Pump does not have power	Check the power supply to the pump as well as the timer settings. If there was a power outage, the timer does not reset and will require you to manually reset the timer.
	Pump direction flow	Check to ensure the pumps directional flow is correct.
	Water supply angle stops	Verify the water supply angle stops are on and connected correctly to the Sensor valve.
	Long Water Piping Network	Install a second Sensor Valve near or parallel the first one. (See Page 4)
2. Long wait times for hot water? Troubleshooting Timer related issues	Timer Settings	Check to make sure the Timer Ring is set to the current time of day.
	Manual Switch Setting Make sure the	Manual Switch is not set to the "OFF" position
	Programming Tabs	Make sure there are not too many Programming Tabs pushed towards the center of the timer ring. This will indicated the timer is turned off.
	AM/PM Settings	The timer is on a 24-Hour clock. Make sure the Timer is set for the correct 12 hour period "AM/PM"
3. Long wait times for hot water? Troubleshooting Bypass related issues	Hot water does not reach a temperature above 96°F (36°C)	Check the insulation on your hot water supply for damage. If insulation is undamaged and sufficient, increasing the temperature of your heater/ boiler may be required.
	Not enough time may have passed for the system to stabilize	This depends on a few different factors. 1. Piping Network Size 2. Hot water Tank 3. Water Usage You can set your Hot Water Recirculating Pump to start 15 to 30 minutes earlier to compensate if necessary. The length of time will depend on the length of time you are having to wait.
	Bypass Valve has failed	Follow these instructions to test the operation of your By-Pass Valve. 1. Verify that the pump is operational. 2. Check the Timer Switch and settings. 3. Go to the sink where the Sensor Valve is installed. Close the cold water supply Angle Stop. 4. Open the cold water faucet. 5. Wait for the water to slow down to a drip or no flow. This will take approximately 1 minute. 6. If water does not slow to a drip or completely off, carefully check the temperature of the water. The temperature should be around around 90°F (32°C) ± 4° 7. If the water temperature is more than 100°F, replace the valve.
	No water flow	Verify the Sensor Valve is installed correctly. (See Page 4) The sensor valve can be installed vertically or horizontally, however, it must be installed facing the correct direction.
	Hot water on one end of the hose but not the other	Verify that the sensor valve is installed at the faucet with the greatest piping distance from the hot water heater. Uninstall the sensor valve and reinstall at the sink that is taking longer than normal. If this does not resolve the issue, you may also have a branched line in your home which will require a second valve to be installed on the other end of the home.
	Uninsulated piping or long runs of piping on concrete foundation.	You may require adding an additional valve or installing valves in parallel to increase the flow rate and reduce temperature drop. (See Page 4)

Troubleshooting

PROBLEM	CAUSE	SOLUTION
4. Hot water in the cold water supply line	Timer's Manual Switch	Timer Manual Switch is set to "ON" which will cause it to run 24/7. Adjust the Programming tabs for the desired run times.
	Programming Tabs	Make sure there are not too many Programming Tabs pushed towards the "ON" position. This will cause the pump to run more often. To best address this reduce the number of Programming Tabs in the On position Modulating the Pump On and Off may help. (i.e. 30 minutes before the first shower until 15 minutes after last shower).
	Bypass Valve has failed	Follow these instructions to test the operation of your By-Pass Valve. 1. Verify that the pump is operational. 2. Check the Timer Switch and settings. 3. Go to the sink where the Sensor Valve is installed. Close the cold water supply angle stop. 4. Open the cold water faucet. 5. Wait for the water to slow down to a drip or no flow. This will take approximately 1 minute. 6. If water does not slow to a drip or completely off, carefully check the temperature of the water. The temperature should be around around 90°F (32°C) ± 4° 7. If the water temperature is more than 100°F, replace the valve.
	Incorrect Sensor Valve Installation	(See page 4).
	Water temperature from water heater/boiler	If the water is not hot enough it will not shut off the By-Pass to the cold water line. Increase the temperature in your hot water tank/ boiler.
5. Cracking, corrosion and/or leaking on the outside casing of the Hot Water Recirculating Pump	O-Ring failure inside the pump	The connections use a standard 3/4" hose gasket and should be periodically replaced. We also recommend using new flex lines as gaskets are usually supplied with them. Keep in mind there may be a need for Dielectric unions when using dissimilar metals as this can lead to premature corrosion if not properly installed.

NOTICE

If this system or any of its parts becomes damaged or needs repair, turn off the water supply, stop using the system and contact an experienced service individual immediately.

If this Manual are misplaced, damaged or illegible, or if you require additional copies, please contact Watts for these items at no charge.

If you are ever uncertain about a particular task or the proper method of operating this system, consult this Manual or contact a Premier Technical Support Representative at 1-800-752-5582.

Limited Warranty

WHAT YOUR WARRANTY COVERS:

Watts Regulator Co. ("WATTS") warrants its WATTS HOT WATER RECIRCULATING SYSTEM is defective in workmanship, return unit after obtaining a return authorization (see below), within 12 months from original retail purchase. WATTS will repair or, at WATTS option, replace the unit.

HOW TO OBTAIN WARRANTY SERVICE:

For warranty service, call 1-800-752-5582 for documentation and a return authorization number. Once the return authorization number has been created, ship your HOT WATER RECIRCULATING SYSTEM to our factory, freight and insurance prepaid, with proof of date of original purchase. Include a note stating the problem experienced and include your name, address and your return authorization number. No returns will be accepted without the proper return authorization number. Watts will repair it or, at Watt's option, replace and ship it back to you prepaid.

WHAT THIS WARRANTY DOES NOT COVER:

This warranty does not cover defects resulting from improper installation, (contrary to Watts's printed instructions), from abuse, misuse, misapplication, improper maintenance, neglect, alteration, accidents, casualties, fire, flood, freezing, environmental factors, water pressure spikes or other such acts of God.

This warranty will be void if defects occur due to failure to observe the following conditions:

1. The WATTS HOT WATER RECIRCULATING SYSTEM must be hooked up to a potable municipal or well cold water supply. This warranty does not cover any equipment that is relocated from the site of its original installation. This warranty does not cover any charges incurred due to professional installation. This warranty does not cover any equipment that is installed or used outside the United States of America and Canada.

OTHER CONDITIONS:

If Watts chooses to replace the equipment, may replace it with reconditioned equipment. Parts used in repairing or replacing the equipment will be warranted for 90 days from the date the equipment is returned to you or for the remainder of the original warranty period, whichever is longer. This warranty is not assignable or transferable.

LIMITATIONS AND EXCLUSIONS:

THE WARRANTY DESCRIBED ABOVE IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY WATTS WITH RESPECT TO THE EQUIPMENT. WATTS MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED AND HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. WATTS WILL NOT BE RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING TRAVEL EXPENSE, TELEPHONE CHARGES, LOSS OF REVENUE, LABOR CHARGES, DAMAGE CAUSED BY ADVERSE WATER CONDITIONS, LOSS OF TIME, INCONVENIENCE, LOSS OF USE OF THE EQUIPMENT, AND DAMAGE CAUSED BY THIS EQUIPMENT AND ITS FAILURE TO FUNCTION PROPERLY. THIS WARRANTY SETS FORTH ALL OF WATTS'S RESPONSIBILITIES REGARDING THIS EQUIPMENT. YOUR RIGHTS UNDER STATE LAW:

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.



USA: T: (978) 689-6066 • F: (978) 975-8350 • Watts.com
Canada: T: (905) 332-4090 • F: (905) 332-7068 • Watts.ca
Latin America: T: (52) 81-1001-8600 • Watts.com