

# General Manifold Installation Guidelines

## For Radiant and Snowmelt Manifolds

### WARNING



Read these instructions and all product labels **BEFORE** installation. Installation must be performed by qualified personnel, in accordance with local codes and standards.

**FAILURE TO COMPLY WITH PROPER INSTALLATION INSTRUCTIONS COULD DAMAGE PIPING, CONNECTIONS, AND ELECTRICAL ELEMENTS WHICH MAY CAUSE WATER DAMAGE AND/OR DAMAGE TO THE PIPING SYSTEM WHICH CAN RESULT IN PROPERTY DAMAGE AND OR PERSONAL INJURY**



## General Overview

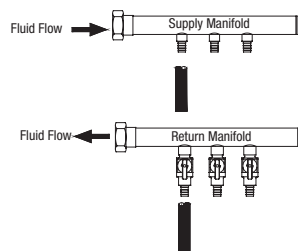
The following guidelines are intended to be used for both Standard Copper and Stainless Steel manifolds. Steps specific to a type of manifold are noted. For additional information on optional accessory items, please refer to the corresponding product engineering sheet(s) and/or main product catalog.

For additional information on manifold theory, such as direct piping versus reverse return, please refer to the corresponding pipe installation and operations manual for further details.

## Manifold Setup

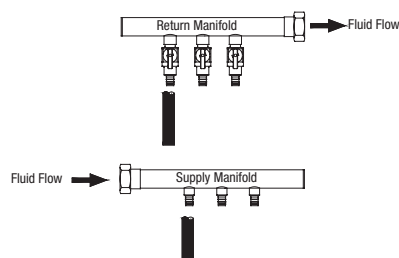
Manifolds can be setup in one of several ways: Direct Piping, Manifold Reverse-Return, Tubing Reverse-Return, and Long Manifold.

### Direct Piping Configuration



Direct Piping is the simplest format to set up. Supply and return lines connect to the same side of the manifold and circuit lengths connect to the manifolds in the same sequence. This method generally requires more post installation balancing.

### Manifold Reverse-Return Configuration



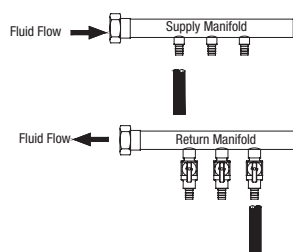
Reverse-return piping uses piping methods to generate a balanced flow condition by equalizing the pressure drop generated through the manifold. A Manifold

### NOTICE

- Manifolds can be mounted in any orientation with the exception of the following conditions
  - Stainless Steel manifolds with actuators must not be installed with the actuator on the bottom (e.g. the circuits pointing upward). This may cause condensation to collection in the actuator resulting in a failure or improper operation.
  - Copper manifolds should be mounted so the air remover (if present) is vertical, with the vent on the top. Custom Copper manifolds may be ordered so the vent orientation is positioned to correspond with installation requirements.

Reverse-Return configuration positions the manifolds in opposite directions, allowing for the supply line to enter on one side and the return line on the other. Individual circuits are then oriented from the first barb on the supply and return manifolds.

### Tubing Reverse-Return Configuration



Tubing Reverse-Return uses the same piping logic as seen with a Manifold Reverse-Return configuration with a few modifications. The base manifold is oriented in the same direction with the supply and return lines connecting on the same side. The reverse-return format is achieved by connecting the circuits to the first available barb on the supply manifold and to the last barb on the return.

## Installation

### General

- Locate the manifold within the given zone. If a manifold is located outside the zone boundary, then twice the distance (supply and return) to the manifold needs to be added to each circuit length. For example, if a zone calls for 180 ft. circuits, and the manifold is moved to a location 10 ft. away, then 20 ft. is added to the circuit. The circuit lengths required for this zone will be 200 ft.
- Manifolds should be mounted horizontally, if possible. This allows for easier circuit connection to the manifold. Also, if a vent/purge assembly (recommended) is installed on the manifold pair, then the manifold pair must be mounted horizontally in order to allow the vents to work properly without leaking.

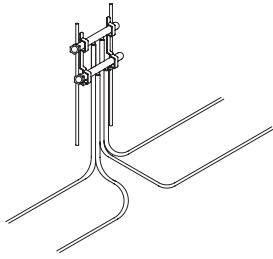
### CAUTION

**BEFORE INSTALLING ANY COMPONENTS THOROUGHLY READ** the corresponding Watts pipe installation manual AVAILABLE AT [WWW.WATTS.COM/RADIANT](http://WWW.WATTS.COM/RADIANT) FOR FURTHER INFORMATION INCLUDING ADDITIONAL PRODUCT SAFETY INFORMATION. This information is not intended to provide full installation guidelines or the experience of a trained product installer. To the extent instructions are not consistent with local building or plumbing codes, the local codes should be followed. **FAILURE TO COMPLY WITH PROPER INSTALLATION INSTRUCTIONS COULD DAMAGE TUBING AND FITTINGS CAUSING WATER DAMAGE AND/OR DAMAGE TO THE PIPING SYSTEM WHICH CAN RESULT IN PROPERTY DAMAGE AND/OR PERSONAL INJURY.**



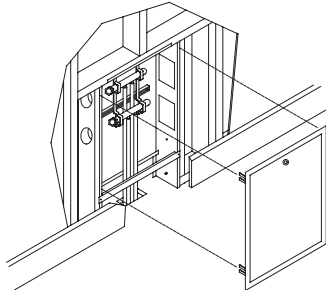
## Slab

1. Locate where the manifolds are to be installed. Drive two pieces of rebar vertically into the ground and secure the manifolds with the use of cable ties or electrical tape. Keep the manifolds high enough to allow for the thickness of the concrete, the interior wall base plate and other structural items that may need to be installed after the pour. The temporary rebar supports may be removed after the slab is poured and ready for framing.
2. Install pipe by pulling one end off the unwinder and attach it to the first barb of one of the manifolds. Install the pipe and connect the other end to the other manifold. Transition sleeves should be used to protect the tubing from concrete trowels and other construction actions as it transitions from the snowmelt or heated area to the manifold location.



## Frame Floor

1. Manifolds should be placed in a location which allows them to remain accessible, but also out of sight. Cabinets, behind doors, and in closets are good locations. These locations allow for the use of a cover plate or a manifold box to keep the assembly hidden from everyday view.
2. Locate the manifold within the given zone. If a manifold is located outside the zone boundary, then twice the distance (supply and return) to the manifold needs to be added to each circuit length. For example, if a zone calls for 180 ft. circuits, and the manifold is moved to a location 10 ft. away, then 20 ft. is added to the circuit. The circuit lengths required for this zone will be 200 ft.
3. Manifolds should be mounted horizontally, if possible. This allows for easier circuit connection to the manifold. Also, if a vent/purge assembly (recommended) is installed on the manifold pair, then the manifold pair must be mounted horizontally in order to allow the vents to work properly without leaking.



**Refer to the corresponding pipe Installation and Operations Manual for further installation details.**

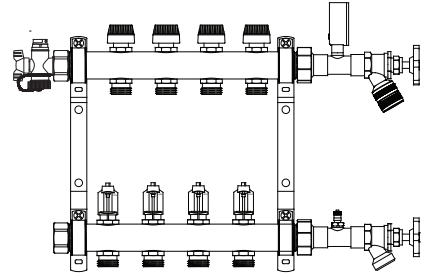
## Connections

Make all connections to the manifold in accordance to the system requirements and guidelines. Refer to corresponding connection installation sheets, installation manual, or related support material for further details.

## Pressure Test

Pressure test the system with 50-100 psi water or air for 24 hours. Do not use water if exterior temperatures are near or below freezing 32°F (0°C) conditions.

Minor pressure fluctuations (10-15 psi) are expected and are due to atmospheric temperature changes as well as potential mass thermal changes (slab curing).



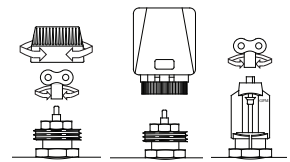
## Balancing - Stainless Steel Manifolds

Once the system is up and running it may be necessary to balance flow between the circuits, especially if thermal actuators are used.

- Remove the blue cap on the return manifold. Using the key turn the valve clock-wise to close the internal valve. Change in flow can be read on the flow meter on the supply manifold.

- Install thermal actuators after balancing is complete.

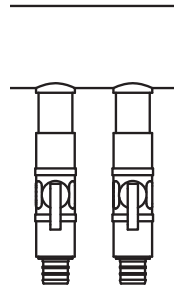
If a circuit needs to be isolated remove the blue cap or actuator on the return manifold and use the key to turn the valve clock-wise until it stops. Do the same for the valve on the flow meter.



## Balancing - Copper Manifolds

Copper manifolds are available with standard isolation ball valves installed on the return header or with isolation valves on the supply and balance valves on the return.

When balancing, the use of a thermal imaging device or surface mounted temperature indicators is ideal to monitor temperature drops across each circuit. Open or close the corresponding valve until the desired temperature drop is established.



**Limited Warranty:** Watts (the "Company") warrants each manifold (product) to be free from defects in material and workmanship under normal usage for a period of two years from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

**THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY 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.**

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

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: (800) 276-2419 • F: (417) 864-8161 • Watts.com

**Canada:** T: (905) 332-4090 • F: (905) 332-7068 • Wattd.ca

**Latin America:** T: +52 55 4122 0138 • F: (52) 81-8000-7091 • Watts.com