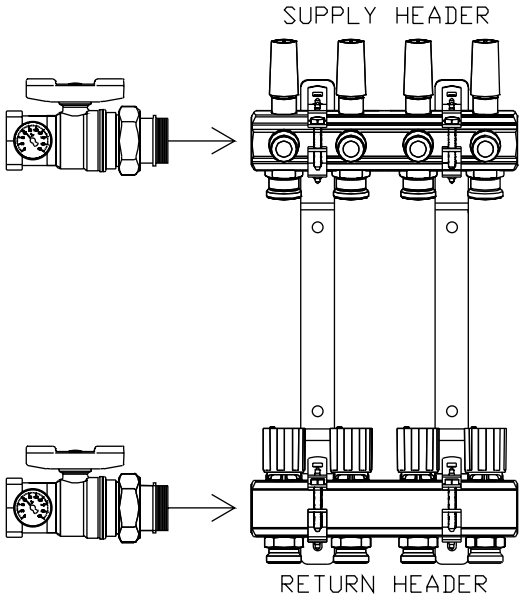
# Preassembled Heating Manifold – QHAF or QHPM
## Installation Instructions

### Assembling the Manifold

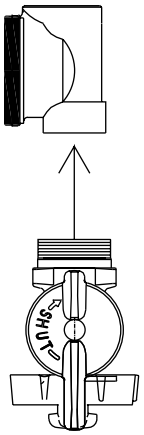
**Step 1:** Attach the 1" supply and return ball valves (QHMBVKIT5) into the appropriate header. The ball valve with the red handle goes on the supply header, and the ball valve with the blue handle goes on the return header.

**If installing a QHPM manifold, skip to Step 5.**

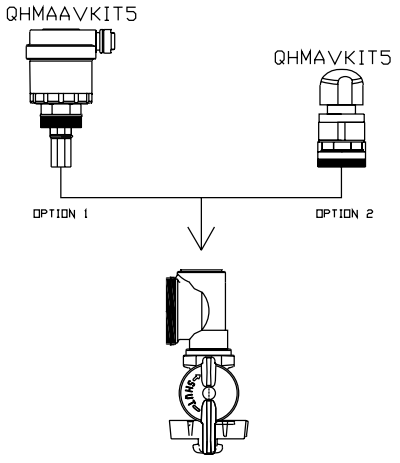



### Assembling the Air Vent (QHMAVKIT5 or QHMAAVKIT5)

**Step 2:** Thread the drain/fill valve into the bottom of the 1/2" FNPT port.



**Step 3:** Depending upon which air vent kit was purchased, thread either the automatic or manual air vent into the top of the 3/8" FNPT port for both the supply and return header connections, or just the supply header if only one air vent was purchased.





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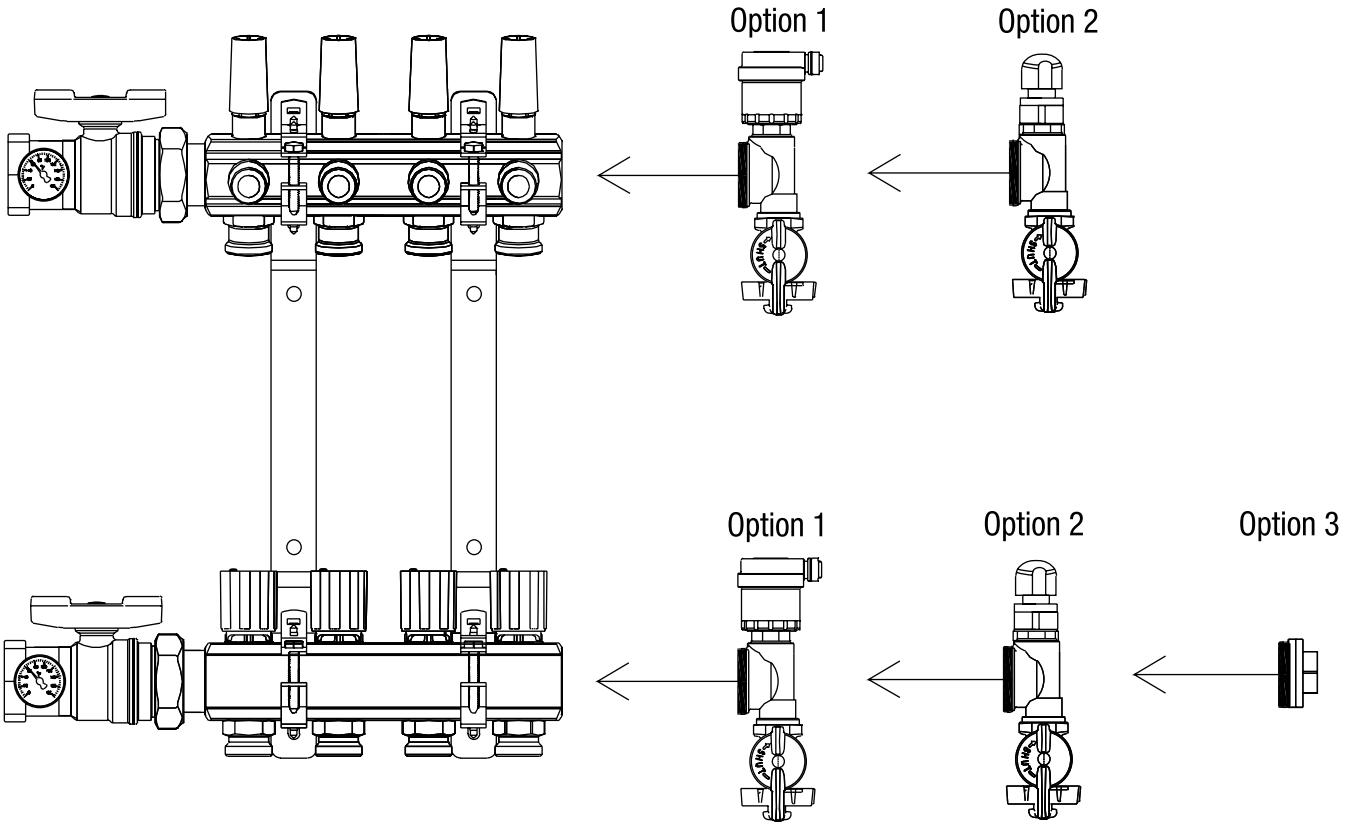
## Assembling the Air Vent (QHMAVKIT5 or QHMAAVKIT5), continued

**Step 4:** Attach the appropriate air vent or plug to the supply and return header. **Note 1:** An automatic air vent and a manual air vent will be displayed for the remainder of the instructions. **Note 2:** Selecting Option 1 or 2 will simplify the filling and purging of the manifold.



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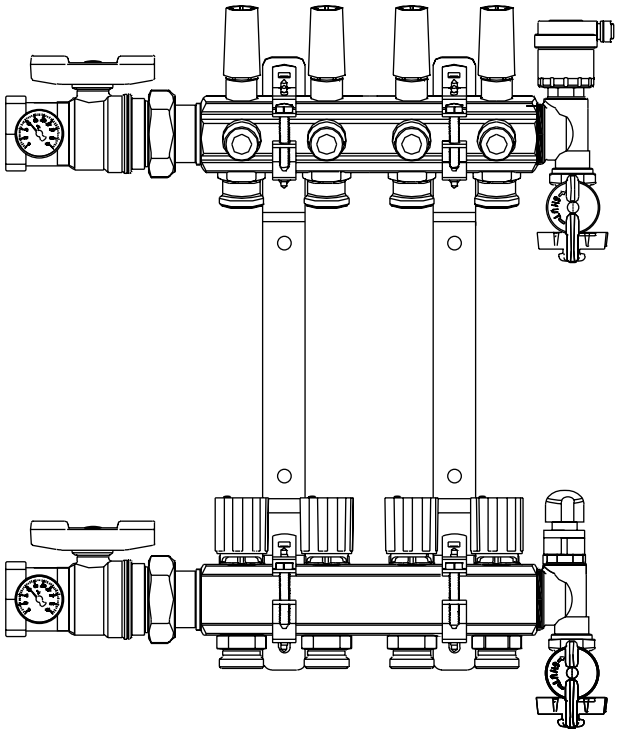
## Attach Manifold to the Wall

**When installing a QHPM manifold, start here.**

**Step 5:** Attach the manifold to the wall or cabinet using the supplied brackets and fasteners (by others). Manifold should be a sufficient distance from the floor or ceiling to provide easy installation of the tubing.



## Attach Tubing to the Manifold

**Step 6:** Determine the appropriate manifold connector (QHMMC_) to be used. (QHMMC2-3/8" Nom. Tubing, QHMMC3-1/2" Nom. Tubing, QHMMCJ-5/8" Nom. Tubing, QHMMC4-3/4" Nom. Tubing.) If using Alumicor® Tubing, use manifold connector (QHPAPMMC-_). (QHPAPMMC2-3/8" Alumicor® Tubing, QHPAPMMC3-1/2" Alumicor® Tubing, QHPAPMMCJ-5/8" Alumicor® Tubing, QHPAPMMC4-3/4" Alumicor® Tubing.)

**Step 7:** Cut the tubing to the appropriate length.

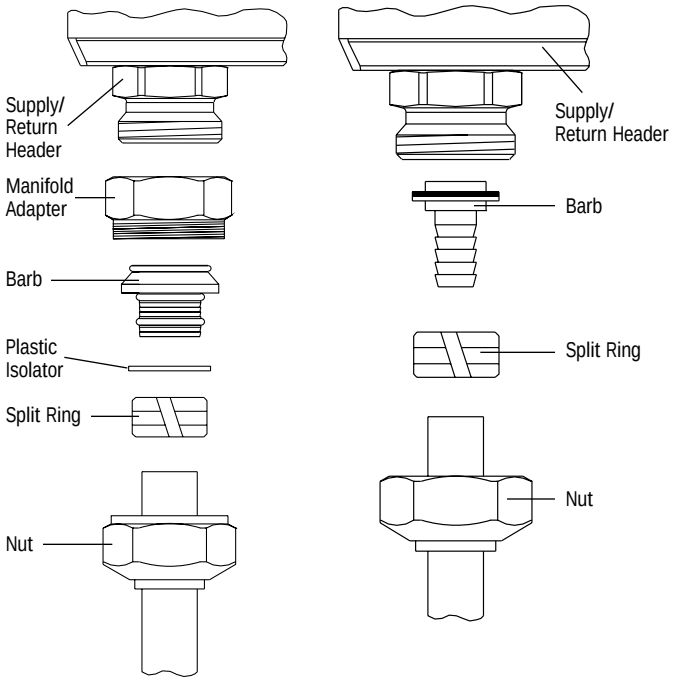
**Step 8:** Slide the nut (with the threads toward the manifold) onto the tubing

**Step 9:** Slide the split ring over the tubing.

**Step 10:** Insert the barb into the tubing. The QHPAPMMC requires the plastic isolator to be put on the barbed fitting before inserting into the tubing. It also requires the manifold adapter to be threaded onto the header.

**Step 11:** Attach tubing to the appropriate header and circuit. Tighten the nut.

**Step 12:** Repeat procedure for all remaining loops.



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## Installing Air Test Kit

**Step 13:** Assemble the Air Pressure Test Kit (QHAIRT) as shown, using Teflon® tape (not included) on all the threads. Then attach the Air Pressure Test Kit (QHAIRT) to the 1" supply header ball valve.

**Step 14:** Close the 1" return header ball valve.

**Step 15:** Close and cap the fill/drain valves on the supply and return headers.

**Step 16:** Close both air vents.

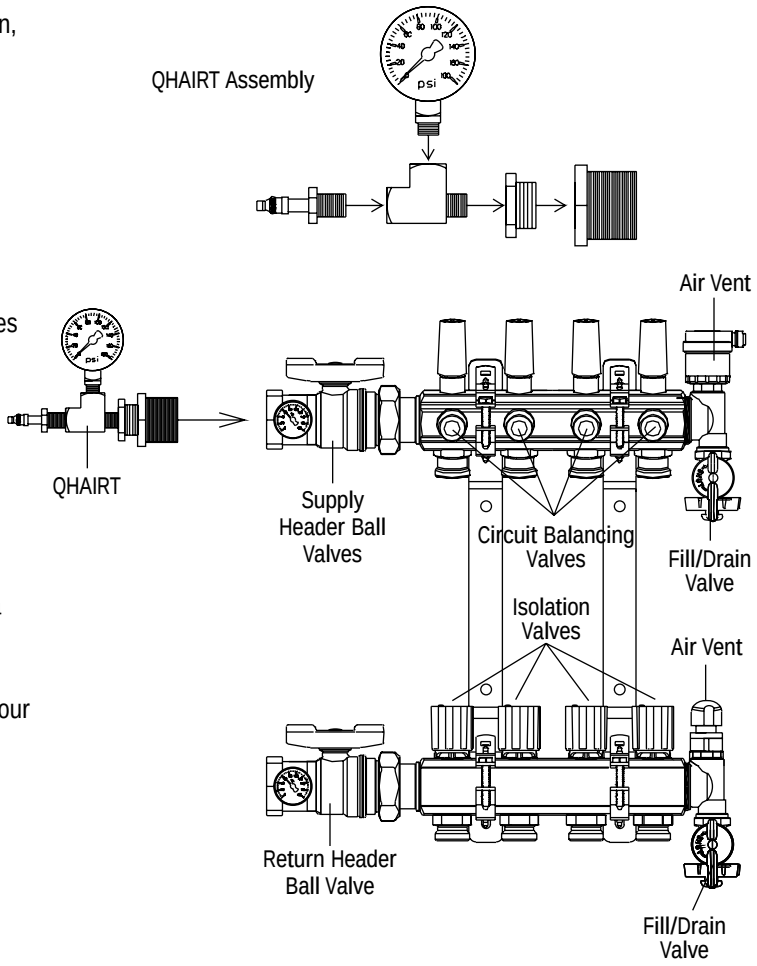
**Step 17:** Fully open (counterclockwise) all white isolation valves on the return header.

**Step 18:** Fully open all circuit balancing valves on the supply header by turning the Allen screws located under the red caps counterclockwise.

**Step 19:** Open the 1" supply manifold ball valve and fill the system with air not to exceed 100 PSI.

**Step 20:** Check the system for leaks using an ultra sonic leak detector or with a solution of 2 ounces of green Ultra Palmolive® Original scent concentrated dishwasher liquid in one gallon of potable water.

**Step 21:** Reduce the pressure to 50 PSI during the concrete pour and monitor the pressure during the pour.



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## Filling/Purging the Loops

**(From Pressurized Fluid Entering Through the Supply Header Ball Valve)**

**Note:** If filling/purging the loops with pressurized fluid entering through the drain valve on the supply header, go to Step 34.

**Step 22:** Close the white loop isolation valves (clockwise) on each loop of the return header. Fully open (counterclockwise) each circuit balancing valve on the supply header. **Note:** If using a plug (Option 3) on the return header, fully close (clockwise) each circuit balancing valve on the supply header.

**Step 23:** Close and cap the fill/drain valve on the supply header.

**Step 24:** Close the 1" ball valve on the return header.

**Step 25:** Attach a hose to the fill/drain valve on the return header and place the other end in a bucket. **Note:** If using a plug (Option 3) on the return header, the installer will need to remove each loop from the return header and place the end of each loop into the bucket.

**Step 26:** Open the 1" ball valve for the supply header.

**Step 27:** Start the pressurized fluid.

**Step 28:** Open one of the white loop isolation valves (counter-clockwise) on the return header. **Note:** If using a plug (Option 3) on the return header, open one of the circuit balancing valves on the supply header instead.

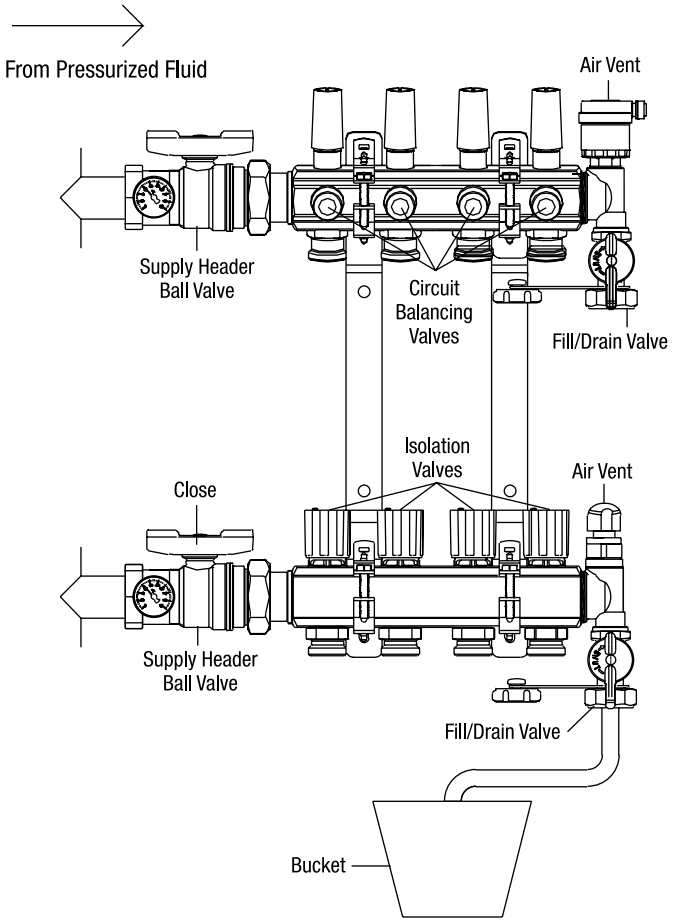
**Step 29:** Allow fluid to flow until no more air is seen in the bucket.

**Step 30:** Close the white loop isolation valve. **Note:** If using a plug (Option 3), close the circuit balancing valve instead and reattach the end of the purged loop to the return header.

**Step 31:** Repeat Steps 28-30 for all remaining loops.

**Step 32:** Stop the pressurized fluid. Shut off the drain/fill valve on the return header, remove the hose and cap the valve. **Note:** If using a plug (Option 3), only stop the pressurized fluid.

**Step 33:** Open the 1" ball valve for the return header and proceed to Step 46.



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## Filling/Purging the Loops, continued

**(From Pressurized Fluid Entering Through the Drain Valve on the Supply Header)**

**Step 34:** Close the 1" ball valves on the supply and return headers. Close the white loop isolation valves (clockwise) on each loop of the return header. Fully open (counterclockwise) each circuit balancing valve on the supply header. **Note:** If using a plug (Option 3) on the return header, fully close (clockwise) each circuit balancing valve on the supply header.

**Step 35:** Confirm that the fill/drain valve on the supply manifold is closed and attach the pressurized fluid hose to the fill/drain valve on the supply header.

**Step 36:** Attach a hose to the fill/drain valve on the return header and place the other end into a bucket. **Note:** If using a plug (Option 3) on the return header, the installer will need to remove each loop from the return header and place the end of each loop into the bucket.

**Step 37:** Open the valve on the supply fill/drain valve.

**Step 38:** Start the pressurized fluid.

**Step 39:** Open the fill/drain valve on the return header.

**Step 40:** Open one of the white loop isolation valves (counter-clockwise) on the return header. **Note:** If using a plug (Option 3) on the return header, open one of the circuit balancing valves on the supply header instead.

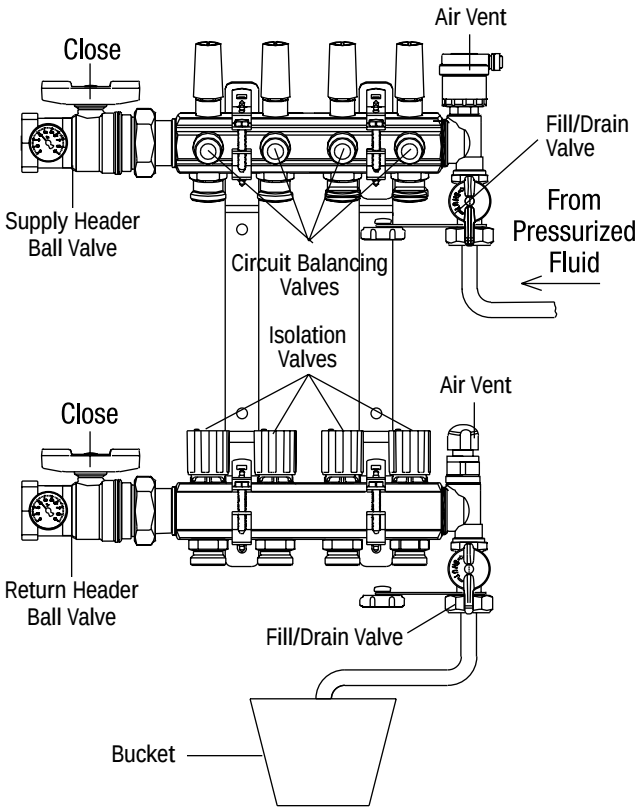
**Step 41:** Allow fluid to flow until no more air is seen in the bucket.

**Step 42:** Close the white loop isolation valve. **Note:** If using a plug (Option 3), close the circuit balancing valve instead and reattach the end of the purged loop to the return header.

**Step 43:** Repeat Steps 40-42 for all remaining loops.

**Step 44:** Stop the pressurized fluid, shut off the drain/fill valves on the supply and return headers. Remove the hoses and cap the valves. **Note:** If using a plug (Option 3), stop the pressurized fluid, shut off the supply drain/fill valve, remove the hose, and cap the valve.

**Step 45:** If not already done, finish piping the manifold to the system.



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## Circuit Balancing

**Note:** The manifold and system piping must be purged and ready for operation before proceeding with the circuit balancing.

**Step 46:** Determine the flow rate required for each circuit.

**Step 47:** Remove the red plastic cap on each circuit.

**Step 48:** Fully open (counterclockwise) the mechanical memories on all of the circuits on the supply header using the blade end of the adjustment key supplied with the manifold.

**Step 49:** Fully open (counterclockwise) the loop balancing valves on all of the circuits on the supply header using the hex end of the adjustment key supplied with the manifold.

**Step 50:** Fully open (counterclockwise) all of the white circuit isolation valves on the return header.

**Step 51:** Confirm that the manifold header ball valves and all other valves in the path of flow are open. Turn on the circulator pump for the manifold.

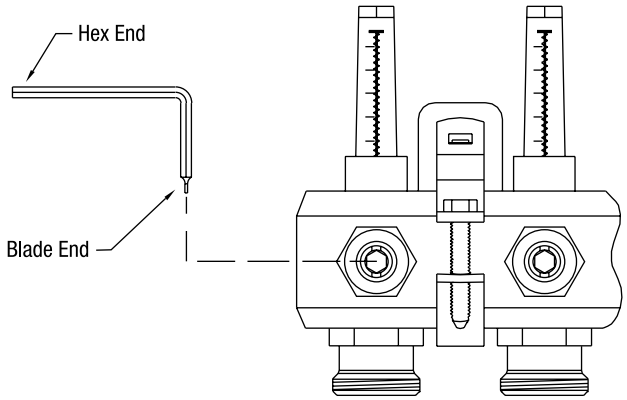
**Step 52:** Using the hex end of the adjustment key, supplied with the manifold, slowly close (clockwise) the loop balancing valve of the desired circuit until the required flow rate is obtained on the flow meter.

**Step 53:** Repeat Step 52 for each circuit on the manifold.

**Step 54:** After balancing all circuits, recheck the flow rate of the other circuits and adjust the flow if necessary. Repeat as needed.

**Step 55** Using the blade end of the adjustment key, tighten (clockwise) the mechanical memories of each loop on the supply header.

**Step 56:** Reinstall the red plastic cap on each circuit.

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| **1/4 Turn Opening** | **Cv = 0.14** |
| **1/2 Turn** | **Cv = 0.30** |
| **3/4 Turn** | **Cv = 0.46** |
| **1 Turn** | **Cv = 0.56** |
| **1-1/4 Turns** | **Cv = 0.65** |
| **1-1/2 Turns** | **Cv = 0.73** |
| **1-3/4 Turns** | **Cv = 0.81** |
| **2 Turns** | **Cv = 0.96** |
| **Fully Open** | **Cv = 1.01** |



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# Preassembled Heating Manifold – QHAF or QHPM
Installation Instructions

## Attach Actuators (Optional) (QHMBMVDS)

**Step 57:** Fully open (counterclockwise) the white loop isolation valve.

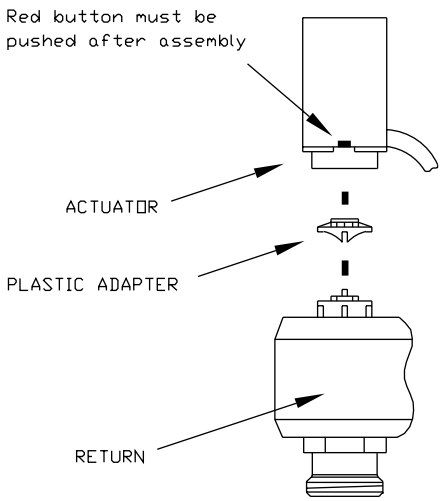
**Step 58:** With a flat blade screwdriver, pry the white isolation valve knob off using the header as a fulcrum.

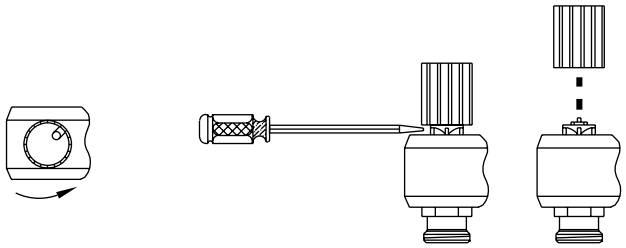
**Step 59:** Snap the small plastic adapter (supplied with actuator) onto the return header by aligning the notch in the adapter with the tab on the header.

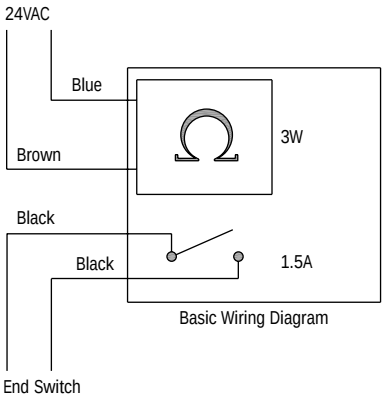
**Step 60:** Place actuator onto plastic adapter. Push down on actuator and turn approximately 15° until it locks into place.

**Step 61:** Push red button. **Warning: Actuator will not operate if red button is not pushed in.**

**Step 62:** Connect wires per diagram. Repeat the procedure to install the rest of the actuators onto the return header.





Basic Wiring Diagram

**Note 1:** Actuator may take up to ten minutes to open on initial start-up.

**Note 2:** Use black wires only when the end switch is needed.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