Product Instructions

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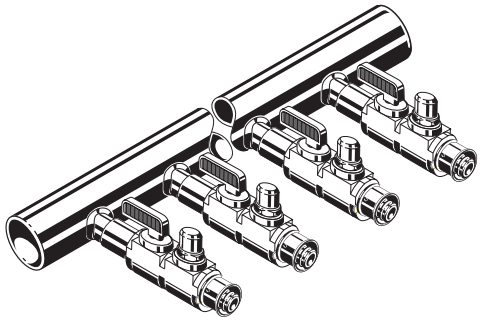
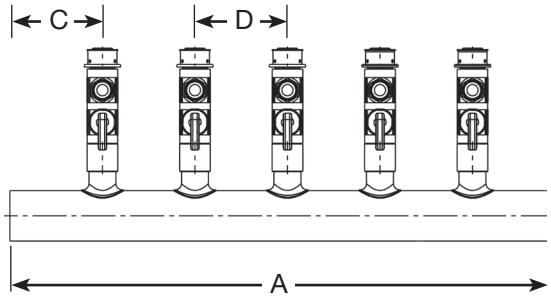
Copper Manifold - Valved

Applications

Commonly used in commercial heating, cooling and snow-ice melting applications, Viega® valved copper manifolds are available in 2" and 1½". They are available with shut-off valves or shut-off balancing valves, and are made out of Type "L" copper. Viega's copper manifolds are copper (male) headers that are designed to utilize Viega's ProPress® fittings on the header inlet and outlet to connect to primary loop (boiler loop).





Features

- ProPress compatible
- PEX Press adapter
- Uses ⅝" and ¾" PEX tubing
- Compact ¼ turn ball valve

Materials

- Ball valves & balancing ball valves
- Brass body
- Plated or coated zinc handles
- Teflon, Viton, EPDM seals

Specifications

Copper Manifolds & Valves

Copper:	Type "L" ASTM B88
Min Temp:	36°F
Max Temp:	250°F
Max Pressure:	200 psi
Maximum Glycol Mix:	50%

Copper Manifold	Maximum Flow in gpm
1"	13
1½"	35
2"	45

Valve Size	Approximate Cv Rating
½"	3.0
⅝"	6.0
¾"	6.0

Copper Manifolds with Shut-Off / Balancing Valves

Part Number	Dimensions	Length with end cap and ball valve	A	B	C	D
17204	2" CM X ⅝" PEX Press - 12	51.25"	39"	5.72"	3.0"	3.0"
17205	2" CM x ¾" PEX Press - 12	51.25"	39"	5.64"	3.0"	3.0"
17223	1-½" CM x ⅝" PEX Press - 12	50.0"	39"	5.48"	3.0"	3.0"
17224	1-½" CM X ¾" PEX Press - 12	50.0"	39"	5.40"	3.0"	3.0"

Copper Manifolds with Shut-Off Valves

Part Number	Dimensions	Length with end cap and ball valve	A	B	C	D
17202	2" CM X ⅝" PEX Press - 12	51.25"	39"	4.70"	3.0"	3.0"
17203	2" CM x ¾" PEX Press - 12	51.25"	39"	4.62"	3.0"	3.0"
17221	1-½" CM x ⅝" PEX Press - 12	50.0"	39"	4.46"	3.0"	3.0"
17222	1-½" CM X ¾" PEX Press - 12	50.0"	39"	4.38"	3.0"	3.0"

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Installation

1. Viega's copper manifolds are copper (male) on the inlet and outlet of the header, which can be connected to the primary loop (boiler loop) with ProPress or soldered connections. The length of the header is in accordance with ProPress insertion depths and ProPress minimum clearance to existing solder connection. Copper manifolds should be installed using isolation (ball valves) valves on the supply and return headers. End caps should also be used on at least the return manifold for ease of pressurizing and purging.
2. Soldering Viega's copper manifolds should be done prior to the connection of ViegaPEX Barrier or FostaPEX. Excessive heat can cause the PEX Press connections and outlet connections to leak.
3. When using ProPress the PEX Press connections can be made at any time during installation.
4. For more information on Viega's ProPress or PEX Press systems see the appropriate product instructions or contact your Viega sales person.

Solder Installation

1. Cut copper tubing cleanly with tube cutter.
2. Ream and debur cut copper tubing.
3. Clean the inside of the copper end cap and copper tubing (fitting brush / emery cloth). The copper should shine.
4. Brush an even layer of flux over the copper tubing and copper end cap.
5. Push the joint together until the copper tube seats full depth. Wipe off excess flux.
6. Heat the joint with a torch, moving the flame back and forth to heat evenly. Hold the solder against the joint on the side opposite the flame until it melts and flows into the joint. Touch the solder 360° around the tubing. The joint should appear full on all sides. The solder hardens as it cools.
7. Avoid overfeeding the joint with solder. The amount of solder required is equivalent to the diameter of copper tubing being soldered.

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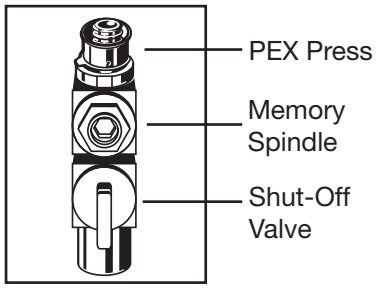
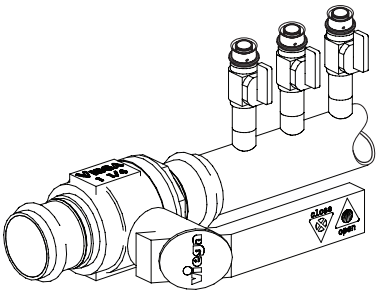
Purging and Pressurization

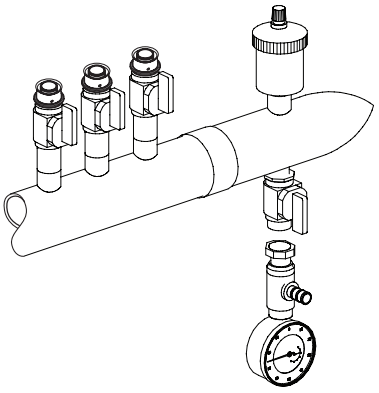
1. Open the supply and return isolation valve (ball valve) and all supply and return circuits to fill the copper manifold from the heat source (n/a for valveless manifolds).
2. Connect drain hose (i.e. washing machine hose) to hose thread on the return manifold copper end cap purge valve (draw-off).
3. Open purge valve (draw-off)
4. Close supply isolation valve and leave the return isolation valve open. Purge the return line.
5. Close return isolation valve and open the supply isolation valve. Purge the supply.
6. Close supply and return shut-off / balancing valves on manifold, leaving the memory spindle on the balancing valves fully open.
7. Open the supply manifold circuit and return manifold circuit that is furthest from the draw-off; push air through the entire circuit and out the draw-off eliminating air from that circuit.
8. Once the air has been purged, close the supply and return circuits.
9. Move onto the next circuit; watch the pressure gauge on the heat source; do this for each circuit: open, purge, close.
10. Once purging is complete, close draw-off and disconnect hose; open circuits and balance if necessary.
11. Open the return isolation valve.





Shut-Off Ball Valve

Automatic Vent



Purge Valve (draw-off)

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Balancing Circuits

It is important to balance the circuits on the manifolds to ensure even distribution of the radiant heating. The fluid (water and glycol mix) flows in the path of least resistance. Longer circuit lengths causes higher pressure drops (resistance). The shut-off / balancing valves can equalize the pressure drop (resistance) in every circuit. For proper balancing see calculations and diagrams below.

Example: 4 Circuit Manifold

Circuit	Circuit Length	Number of Turns Open to Set Memory Spindle
1	250'	250/250 x 10 = 10 turns (fully open)
2	200'	200/250 x 10 = 8 turns
3	150'	150/250 x 10 = 6 turns
4	100'	100/250 x 10 = 4 turns

$$\frac{\text{Circuit Length (ft)}}{\text{Longest Circuit (ft)}} \times 10 = \text{\# of Turns for Balancing*}$$

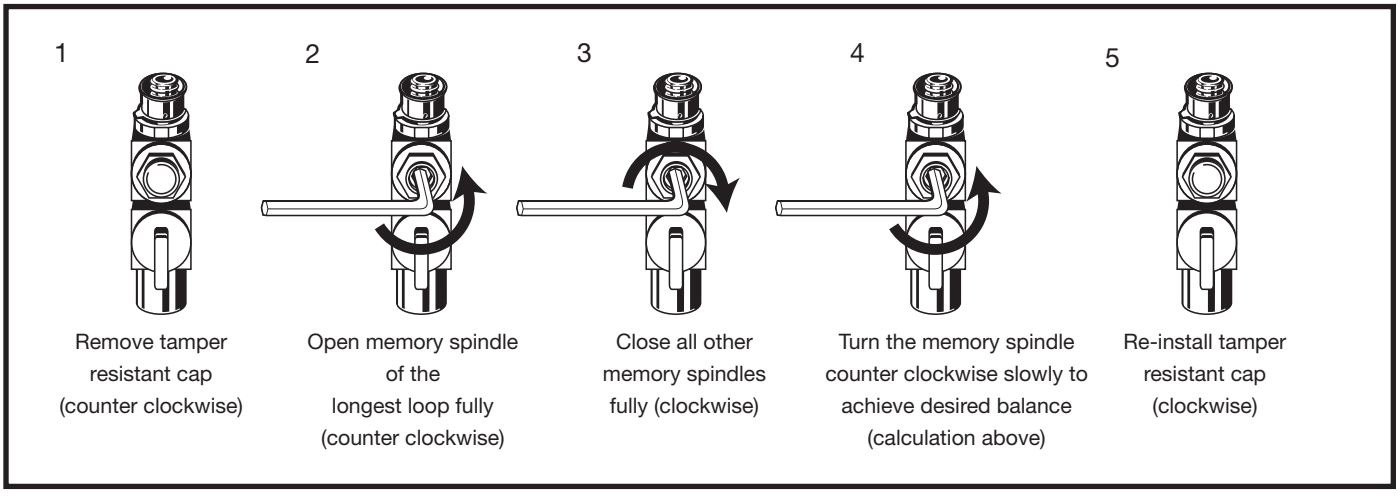
* The number of full 360° turns open from a fully closed position

Circuit 1 is the longest at 250', so it is fully open (counter clockwise). Circuit 2 is 200', so divide 200' by 250', which equals 0.8. Then multiply 0.8 by 10, and the answer is 8. This represents the number of 360° turns open needed for proper balancing (counter clockwise).

Note: Each 360° turn of the memory spindle restricts approximately 10% of flow.

Balancing

For balancing of manifolds follow steps and diagrams below:



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