VICI Valco Instruments Co. Inc.

Installing a Microvolume Capillary Loop

20 µl or less

Normally installing a loop presents no special problems beyond typical fitting installation. Tubing is flexible and most loops, particularly those with coils, are easy to bend wherever they need to go. However, loops of extremely small volume have little or no extra length to make things easier, and the difficulty is compounded by the increased rigidity of the thick-walled tubing. There is no shape to which we can pre-bend a loop that will not require some straightening and re-bending during installation, but once the nuts and ferrules are properly made up, other considerations are purely cosmetic.

Installation Instructions

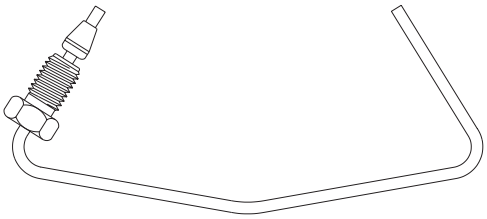

Figure 1: Nut and ferrule on loop

1. "Open" the loop by bending it in the middle until it looks like the loop in **Figure 1**.
2. Slide a nut and ferrule onto one end of the tubing as shown in **Figure 1**.
3. Insert this assembly into one of the valve fitting details, screwing the nut in 2 or 3 turns by hand.
4. Push the tubing all the way into the detail so that it seats firmly. This is essential for a proper Zero Dead Volume connection.
5. Manually turn the nut into the detail until it is finger tight.
6. While making sure that the tubing stays pushed all the way in, use an open end wrench to turn the nut 1/4 turn (90°) past finger tight.
7. Remove the fitting and inspect it. When made up properly, the ferrule may be free to spin axially on the tubing, but should have no lateral movement along the tubing. If the ferrule moves laterally, reinstall the fitting into the detail and tighten it another 1/8 turn past finger tight.
8. Remove, reinspect, and repeat, if necessary. Once this end of the tubing is made up correctly, remove the loop from the valve and repeat Steps 1-7 with the other end.
9. Screw one end of the loop into one of the valve fittings where it will actually be installed. Leave it loose enough to allow the tubing to rotate in the nut. (On a 6 port the loop typically goes from port 3 to port 6. With other valves it varies according to the application.)
10. Let the loop rotate in the fitting so that the main length of the loop leans toward the preload assembly as in **Figure 2**. Grasp the top of the nut at the free end of the tubing and pull it into position in line with the port in which it belongs. This is easy in many 8 and 10 port applications but more difficult in the standard 6 port application, in which the loop connects ports which are exactly opposite each other.

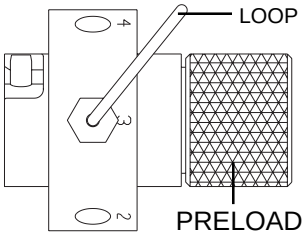

Figure 2: Rotate loop toward preload assembly

11. When the tubing is aligned with the axis of the fitting detail, push the ferrule and tubing into the fitting detail and screw the nut in a couple of turns by hand.

12. Tighten both fittings with the open end wrench. Usually 1/8 to 1/4 turn past finger tight is sufficient.

NOTE: Since all Valco fitting details are identical, the loop may be installed backwards or even in another Valco valve without risk of dead volume or leaks.

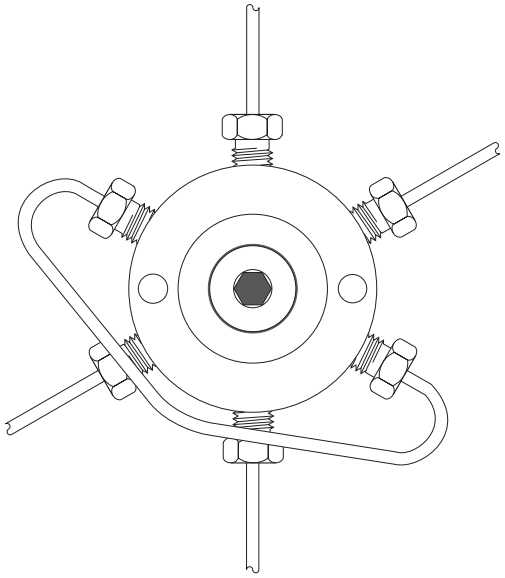

Figure 3: Loop installed on a C6W

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