

Rheodyne Tech Tip 8: How to Properly Install Sample Loops

Stainless Steel

Stainless steel sample loops are supplied with fittings that are unswaged onto the tube. It is important that the loop be completely bottomed in the injector port before the ferrule is swaged onto the tube. The depth of the tubing holes may vary slightly from port to port and from valve to valve. A fitting made up in one port may leave a small cavity in another port. The cavity causes high dispersion and peak distortion such as fronting, tailing, or broadening. It is good practice to label loop ends so they will be replaced in the same, respective ports that were used in swaging the ferrules. Hint: swaging ferrules separately on each side, into each respective valve port, makes loop installation easier.

To install the sample loop:

- a) Take one end of the loop and place the nut (1) and ferrule (2) onto the tubing (3) with the threaded portion of the nut and tapered portion of the ferrule toward the end. See [Figure 1A](#).
- b) Insert the tubing into port (4). Confirm that the tubing is bottomed in the valve port as shown in [Figure 1A](#).
- c) While firmly pressing down on the tubing, hand-tighten the nut as tight as possible.
- d) With the [Rheodyne® Wrench](#), designed especially for fittings, tighten 1/4 turn past fingertight. Remove the loop to confirm that the ferrule is swaged onto the tube.
- e) Repeat steps a-d with the other end of the loop while the swaged end remains outside the valve port. See [Figure 1B](#).
- f) Reinstall each end of the loop to their respective ports. See [Figure 1C](#).

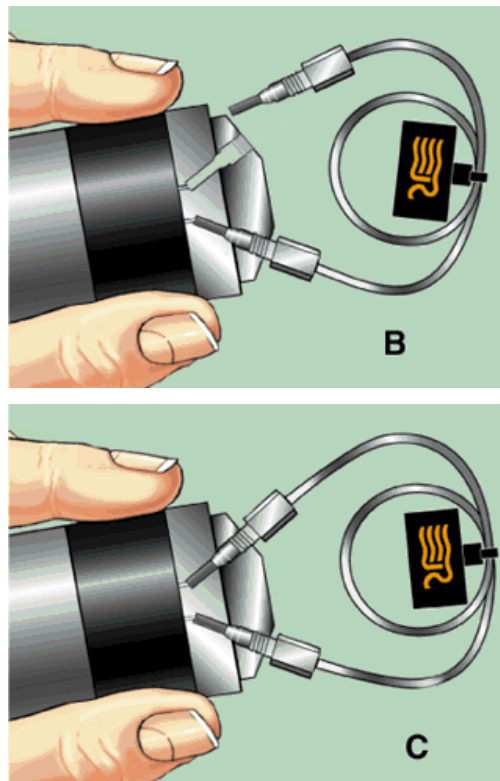


Figure 1. Cut-away views (A, B, and C) of stainless steel sample loop installation.

RheFlex® PEEK Fittings and PEEK Tubing

PEEK loop installation requires steps a–c in the stainless steel section above. Fingertightening of PEEK fittings is adequate to make a leak-free connection. The slotted backside of the ferrule (1) is squeezed down onto the tube (2) by the mating conical surface in the nut (3). See [Figure 2](#). The nut and ferrule can both be reused many times. Unlike ordinary fittings, the unique RheFlex PEEK design, specifically the angles and surface contacts between the ferrule and nut, prevents the nut from gripping the ferrule and twisting both the ferrule and the tube during tightening. Otherwise, such twisting stresses the PEEK tubing and lowers the pressure rating of the tubing.

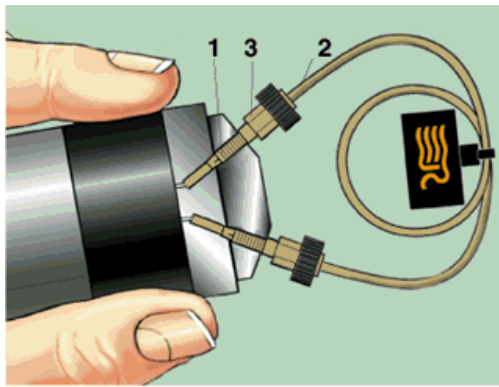


Figure 2. Cut-away view of PEEK sample loop installation.

The ferrule can slide and reposition itself along the tube when the fitting is reinserted into a port. It is important that the PEEK tubing is completely bottomed in the injector port before the fittings are tightened to avoid leaving an undesired cavity. Both stainless steel and PEEK sample loops are listed in [Sample Loops](#) section.