Agilent Micro Fluidics 1/16-inch Tube Union Kits

Installation Guide

The four tube assembly kits described provide means of connecting fused silica capillary tubing, including columns, to 1/16-inch metal tubing.

The tube assembly is usually mounted on a nut plate assembly (05890-80660) installed on the oven side wall. Assemble as shown in Figure 1.

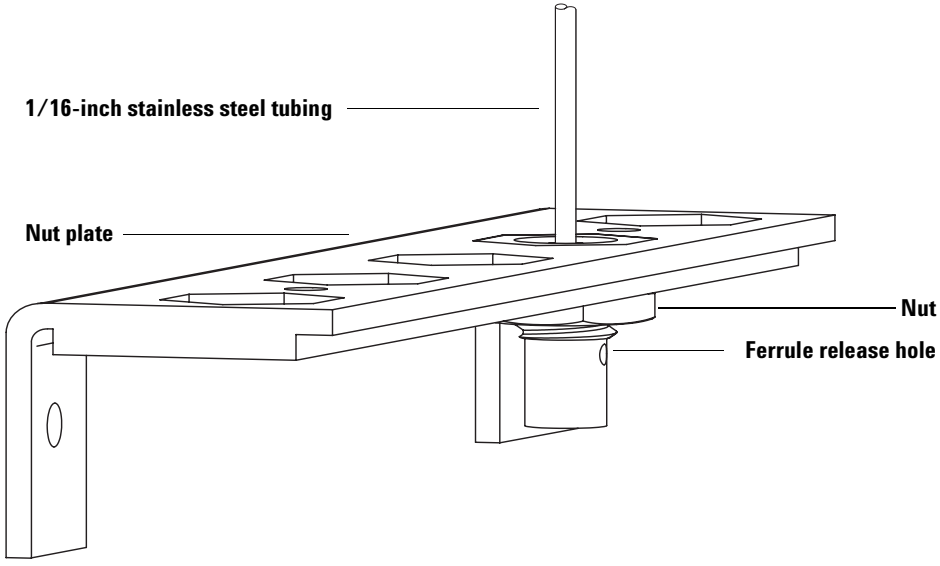

Figure 1 1/16-inch tube assembly installed on 05890-80660 nut plate assembly

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Parts Supplied

Unique parts in the four kits, G1580-61060 , G1580-61061, G1580-61062, and G1580-61063 are shown in Table 1.

Table 1 Unique parts supplied

Part number	Description	Quantity
G1580-60060 (Kit G1580-61060)	1/16-inch Tube assembly, inert (50-cm, 0.010-inch i.d.)	1
G1580-80060 (Kit G1580-61061)	1/16-inch Tube assembly, non-inert (50-cm, 0.010-inch i.d.)	1
G1580-60062 (Kit G1580-61062)	1/16-inch Tube assembly, inert (50-cm, 0.020-inch i.d.)	1
G1580-80062 (Kit G1580-61063)	1/16-inch Tube assembly, non-inert (50-cm, 0.020-inch i.d.)	1

Note that inert tubing is advised for any application where sample is to be passed through the metal tube. Also note that smaller i.d. tubing is best used with small-i.d. fused silica tubing, particularly where sample is to be passed through the metal tube.

Parts common to all four kits are shown in Table 2.

Table 2 Common parts supplied

Part number	Description	Quantity
G1580-90070	Installation Guide (this document)	1
2950-8232	Hex nut, 5/16-inch-20	1
G2855-20530	Internal nut	1

Parts Not Supplied

Nut plate assembly (05890-80660)

SilTite ferrules (see Table 3)

Swaging Nut for SilTite ferrules (G2855-20555)

Tools Required

Two 1/4-inch open-end wrenches

One 7/16-inch open-end wrench

Column cutting tool (5181-8836)

Safety

Hydrogen gas is flammable and potentially explosive when accumulated inside the oven. For this reason, Hydrogen should not be used with these products due to possibility of tube breakage.

Also, many areas and parts of the GC operate at temperatures high enough to cause serious burns. These include, but are not limited to:

- Inside the oven, and components exposed within the oven:
  - The inlet
  - The detectors
  - Any nut attaching a column to an inlet, to a detector, or to a tube fitting or nut plate assembly

Cool these areas to room temperature before working on or around them.

The inlet and detector cool faster if you set their temperatures off and set oven temperature to room temperature (which keeps the oven fan and exhaust flaps in operation). Turn the oven off when room temperature is attained.

Also, be careful when working behind the instrument. During oven cooldown, the GC emits hot air exhaust which can cause burns.

If you must perform maintenance on hot parts, use a wrench and wear suitable gloves to avoid skin contact.

Fused Silica Tubing Preparation

Before fused silica tubing may be installed into the SilTite fitting located on the oven nut plate assembly (see Figure 1), you must swage the proper SilTite ferrule onto the fused silica tube and properly prepare its end.

Materials are available to make connections to 0.1- to 0.25-mm, 0.32-mm, and 0.53-mm id columns and tubing.

1 Obtain the appropriate metal ferrule (not included) from those listed in Table 3.

Table 3 Available SilTite metal ferrule packages

Part number	SilTite Ferrule description
5188-5361	For 0.2- to 0.25-mm columns
5188-5362	For 0.32-mm columns
5188-5363	For 0.53-mm columns

2 Pass the tubing end through the internal nut and SilTite ferrule leaving approximately 1 cm of fused silica tubing

protruding beyond the ferrule. Thread the swaging nut onto the internal nut with the tube protruding (see Figure 2).

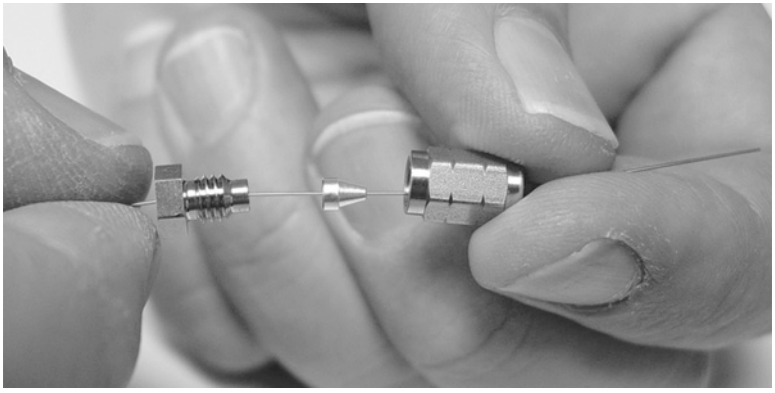

Figure 2 Thread the internal nut and ferrule into the swaging nut

3 Using two wrenches against each other, tighten the two nuts together a little at a time, occasionally checking to see if the ferrule is gripping the tube (see Figure 3). When the ferrule just starts to grip, notice position of the nuts and then tighten one of the nuts by turning 45 to 60 degrees of rotation, but no more than 60 degrees (one flat).

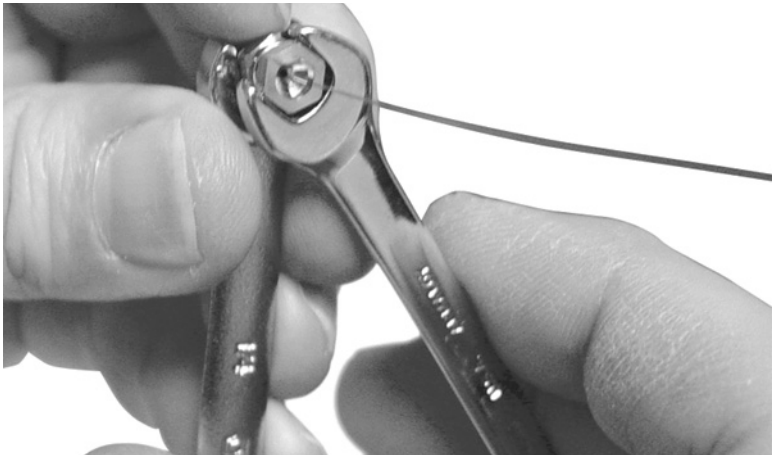

Figure 3 Tightening the swaging nut

4 Remove the swaging nut (Figure 4).

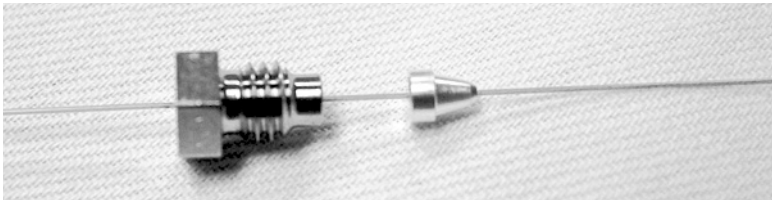

Figure 4 Removed swaging nut

5 Using a column cutter, trim the tubing at the small end of the ferrule leaving approximately 0.3 mm of tubing extending beyond the ferrule (Figure 5).

Check the end of the tube with a magnifier. The end of the tube need not be perfectly square, but should not have cracks which extend under the ferrule.

NOTE **It is important that the tube end does not extend beyond 0.5 mm from the end of the ferrule.**

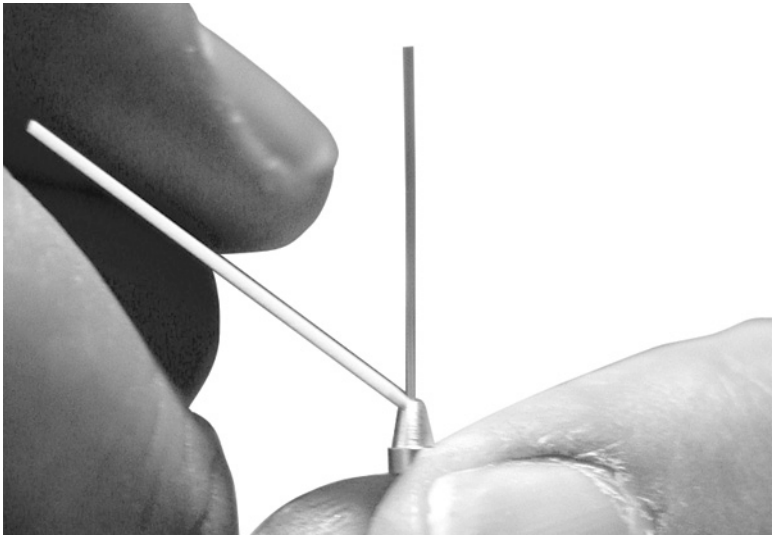

Figure 5 Ceramic column cutter and ferrule

Figure 6 shows a completed tube end.

Figure 6 Tube end with internal nut and swaged SilTite ferrule

Connecting Fused Silica Tubing

At the installed SilTite fitting on the nut plate assembly (see Figure 1), connect the fused silica tubing using the pre-swaged internal nut and SilTite ferrule (see Figure 6). Tighten with a wrench by only 15 to 20 degrees of rotation.

Disconnecting Fused Silica Tubing

Loosen and remove the internal nut. If tubing and ferrule do not come free, insert a pointed object (pen, paper clip) into the ferrule release hole (see Figure 1) and press firmly. You will hear a click as the ferrule releases.

You should expect the SilTite ferrule to remain leak-free for at least a few disconnections and reconnections.

G1580-90070

First edition, April 2006
Second edition, November 2006

Printed in USA

Agilent Technologies, Inc.
2850 Centerville Road
Wilmington, DE 19808-1610 USA