



Swagelok® 1 inch Medium-Pressure Tube Fittings

Installation Instructions

These instructions apply to Swagelok FK series medium-pressure tube fittings as follows:

- Material: 316 stainless steel
- Arbor color: red
- Size: 1 in.

Tools Required

- Multihead hydraulic swaging unit (MHSU) for 16FK
- Swagelok 16FK medium-pressure gap inspection gauge
- Wrench
- Non-chloride permanent marker
- Optional: Silver Goop™ high-temperature lubricant. For temperatures above 400°F (204°C), apply to fitting nut threads.

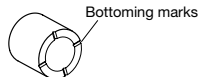
⚠ NOTICE: Use of MHSU for 16FK is required. Failure to use the specified MHSU may result in damage to parts or insufficient pull-up of fitting and system leakage.

316 SS Connections Preswaged with the MHSU (1 in. Size)

1. Preswage the ferrules onto the tube using the Swagelok multihead hydraulic swaging unit (MHSU) specially designed for this connection and the appropriate medium-pressure tooling.

See the *Multihead Hydraulic Swaging Unit (MHSU) – 16FK Series Operating Instructions*, MS-CRD-250.

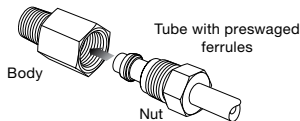
2. Inspect the tube end for **bottoming marks**. These radial indentations indicate the tubing was properly bottomed in the MHSU. If there are **not four** visible indentations, the preswaged assembly should not be used.



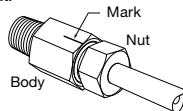
⚠ CAUTION: Use of unbottomed tubing may result in insufficient pull-up of fitting and system leakage.

The MHSU should be used **one time only** to preswage a set of ferrules. If the ferrules were insufficiently preswaged, they should be discarded and the process started again with a new set of ferrules.

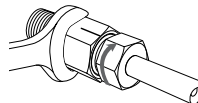
3. Insert the **tube with preswaged ferrules** into the fitting body until the front ferrule seats against the fitting body; rotate the nut finger-tight.



4. Place a mark on the fitting **body** in line with one of the hex points of the nut.



5. Hold the fitting body steady and tighten the nut one-third turn or two hex points from the scribed mark.



Alternately, hold the fitting body steady and tighten the nut to the specified torque.

Tube OD	Required Torque	
	ft-lb	N-m
1 in.	350	475

6. Use the Swagelok 16FK medium-pressure gap inspection gauge to ensure that the fitting has been tightened sufficiently. See **Gaugeability** on reverse side.

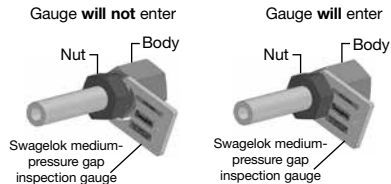
Swagelok

Gaugeability

On initial installation, the **Swagelok 1 in. medium-pressure gap inspection gauge** assures the installer or inspector that a fitting has been sufficiently tightened.

Position the **Swagelok 1 in. medium-pressure gap inspection gauge** next to the gap between the **nut** and **body**.

- If the gauge **will not** enter the gap, the fitting is sufficiently tightened.
- If the gauge **will** enter the gap, additional tightening is required.



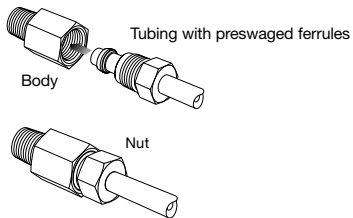
NOTICE: The gap inspection gauge can be used as an important diagnostic tool for reassembled tube fittings. Rechecking the nut-to-body gap upon reassembly can prevent under-tightened conditions.

WARNING: Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.

Reassembly Instructions

You may disassemble and reassemble Swagelok medium-pressure tube fitting many times.

1. Insert the **tubing with preswaged ferrules** into the fitting **body** until the front ferrule seats; rotate the nut finger-tight.



2. Rotate the **nut** with a wrench to the previously pulled-up position. At this point, you will feel a significant increase in resistance. Tighten the nut slightly with a wrench. Alternately, hold the fitting body steady and tighten the nut to the specified torque.

Tube OD	Required Torque	
	ft-lb	N·m
1 in.	350	475

Cap Installation Instructions

See instructions for 1 in. medium-pressure tube fittings on the reverse side of this card.

Plug Installation Instructions

Hold the **body** steady and tighten the **plug** one-quarter turn from the finger tight position.

Port Connectors Installation

For installation of the machined ferrule end of the port connector, see **Plug Installation** (above).

For installation of the pre-swaged ferrule end of the port connector, see **Tube Adapters and Reducers Installation** (below).

Tube Adapters and Reducers Installation Instructions

For initial installation, insert the tube with preswaged ferrules into the body; rotate the nut finger-tight. Hold the fitting body steady and tighten the nut one-third turn.

Alternatively, hold the fitting body steady and tighten the nut to the specified torque.

Tube OD	Required Torque	
	ft-lb	N·m
1 in.	350	475

Swagelok, Silver Goop—TM Swagelok Company
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