

Jacketed Tube Connector (JTC)



- For use with 1/4, 3/8, and 1/2 in. jacketed tubing with up to 1/16 in. nominal jacket thickness
- Available in all standard tube fitting configurations
- Provides a leak-tight seal on the tubing jacket preventing environmental ingress
- Easy and rapid assembly
- Designed for repeated disassembly and reassembly

Features

The Swagelok® jacketed tube connector (JTC) is a fitting designed to provide a leak-tight connection on the end of single-jacketed tubing, eliminating the need for sleeves and sealing tape.

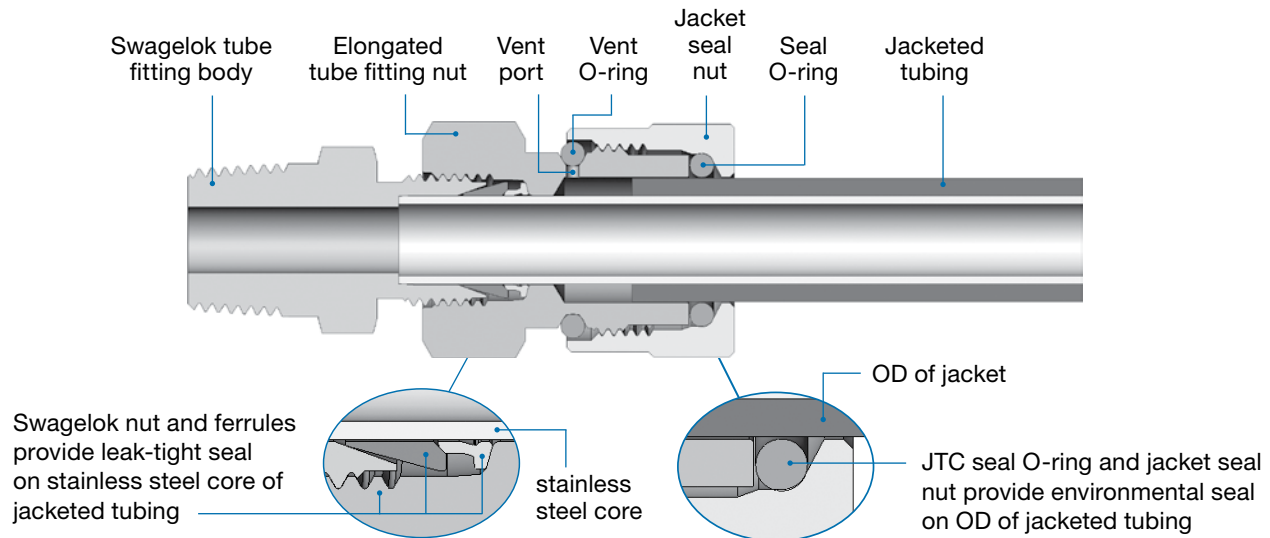
The jacketed tube connector is a patent-pending design that combines Swagelok's proven tube fitting technology with an innovative environmental seal on the tubing jacket. This integral connector consists of:

- a Swagelok tube fitting which provides a leak-tight seal on the stainless steel core of the jacketed tubing and
- the JTC seal O-ring and jacket seal nut which provide a water-tight seal on the OD of the jacketed tubing.

Additional features of the Swagelok jacketed tube connector include:

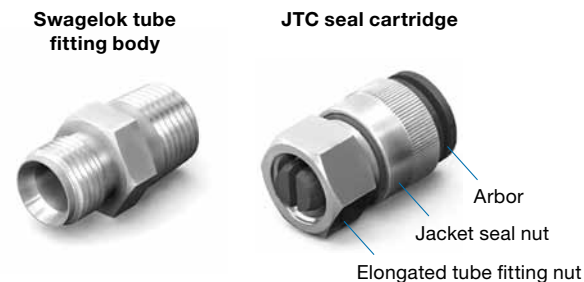
- Ease of assembly—knurled jacket seal nut allows for easy, hand-tight assembly
- Repeated reassembly—seal performance is maintained through repeated reassemblies of the connector.
- Visual confirmation—jacket seal nut covers vent O-ring when leak-tight assembly is achieved.
- Vent port—prevents accidental pressurization of jacket cavity.

⚠ **Conditions which restrict the movement of the vent O-ring may prevent proper vent port performance.**



Components

The jacketed tube connector consists of two components—a standard tube fitting body and the JTC seal cartridge. The JTC seal cartridge is a preassembled cartridge that includes an elongated tube fitting nut containing front and back ferrules, and a jacket seal nut with jacket and vent O-rings, all on a disposable plastic arbor.



The preassembled JTC seal cartridge assures installers of the correct ferrule orientation and proper installation into the fitting body. Components are released only after the tube fitting nut is threaded finger-tight onto the tube fitting body.

How It Works

During installation, the tube fitting body is threaded into the elongated tube fitting nut on the JTC seal cartridge, releasing the arbor. Next, the jacket on the tubing is trimmed back a set length to expose the stainless steel core, which is then inserted into the JTC seal cartridge. The tube fitting nut is tightened creating a leak-tight seal on the stainless steel core of the tubing. The jacket seal nut is hand-tightened, creating an environmental seal on the jacket of the tubing.

Pressure Rating

Swagelok jacketed tube connector's (JTC) tube fitting is rated to the working pressure of tubing as listed in Swagelok *Tubing Data*, MS-01-107.

Temperature Rating

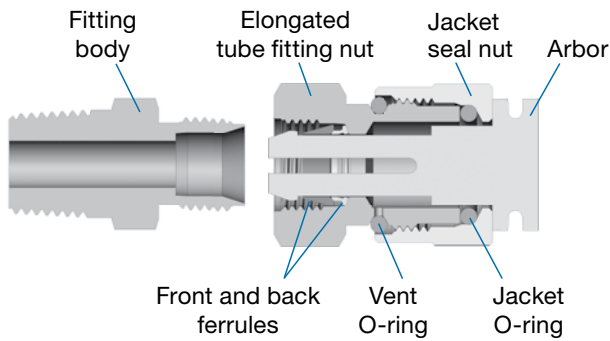
Operating range: -67 to 180°F (-55 to 82°C)

Cleaning and Packaging

All Swagelok jacketed tube connectors (JTC) are cleaned in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

All Swagelok jacketed tube connectors (JTC) are provided as a tube fitting body with a preassembled cartridge for each Swagelok tube fitting end.

Materials of Construction



Component	Material/ASTM Specification
<i>Fitting body</i>	<i>Barstock: 316 SS/A276, ASME SA479, EN 1.4401 Forging: 316 SS/A182, ASME SA182, EN 1.4401</i>
<i>Front ferrule</i>	<i>316 SS/A276, A479</i>
<i>Back ferrule</i>	<i>316 SS/A276, A479</i>
<i>Elongated tube fitting nut</i>	<i>316 SS/A276, A479</i>
<i>Jacket seal nut</i>	<i>Powdered 300 series SS/B783</i>
<i>O-rings</i>	<i>Silicone</i>
<i>Arbor</i>	<i>Nylon</i>

Wetted components listed in *italics*.

Ordering Information

Jacketed Tube Connector (JTC)

To order a Swagelok jacketed tube connector (JTC), select the desired Swagelok tube fitting ordering number from the Swagelok *Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-01-140, and add **-JTC** as shown in the table below.



Example of Typical Ordering Number	Nominal Size in.	Description	Number of JTC Cartridges
SS-600-9- JTC	3/8	90° union elbow	2
SS-600-1-6- JTC	3/8	Straight male connector	1
SS-810-6- JTC	1/2	Straight union	2
SS-400-3- JTC	1/4	Tee union	3

JTC Seal Cartridge

Each seal cartridge contains an elongated tube fitting nut with front and back ferrules, a jacket seal nut with jacket and vent O-rings preassembled on a disposable arbor. To order, select the ordering number from the table.

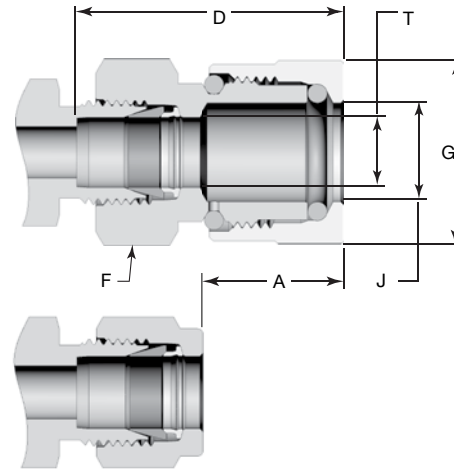
Tube OD in.	Ordering Number
1/4	SS-4JTC-NFSET
3/8	SS-6JTC-NFSET
1/2	SS-8JTC-NFSET



Dimensions

Dimensions are for reference only and are subject to change. Dimensions shown with Swagelok nuts and JTC jacket seal nuts finger-tight.

JTC Assembly

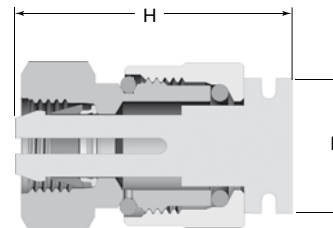


Standard Swagelok tube fitting end

T Nominal Tube OD in.	J Nominal Jacket OD in.	Dimensions, in. (mm)					
		A ^①	D	F Flat	G	J Min	J Max
1/4	3/8	0.73 (18.5)	1.33 (33.8)	3/4	0.85 (21.6)	0.31 (7.9)	0.40 (10.2)
3/8	1/2	0.78 (19.8)	1.44 (36.6)	7/8	0.99 (25.1)	0.44 (11.0)	0.53 (13.3)
1/2	5/8	0.78 (19.8)	1.68 (42.7)	1	1.10 (27.9)	0.56 (14.2)	0.65 (16.5)

① Difference in length between the JTC end and the standard Swagelok tube fitting end.

JTC Seal Cartridge



Nominal Tube OD	Dimensions in. (mm)	
	B	H
1/4	0.69 (17.5)	1.55 (39.4)
3/8	0.81 (20.6)	1.67 (42.4)
1/2	1.00 (25.4)	1.83 (46.4)

Related Products

Jacketed Tubing

See the Swagelok *Multijacketed Tubing, Single-Jacketed Tubing, and Insulated Tubing* catalog, MS-02-188.

Jacket Removal Tool

The jacket removal tool is designed to prepare a section of single-jacketed tubing for assembly to a Swagelok jacketed tube connector (JTC). See the Swagelok *Jacket Removal Tool User Instruction*, MS-CRD-0208, for more information.

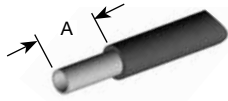


Installation Instructions

1. Cut the jacketed tubing to the desired length.



2. Cut and remove the jacket from the tubing to the proper length for insertion into the jacketed tube connector. Refer to table below for proper jacket cut lengths.



Caution
Insufficient cut length can result in tube fitting failure.

Notice
Excessive cut length can affect the environmental seal.

Tube OD in.	Jacket Cut Length A in. (mm)	Jacket Cut Tolerance in. (mm)
1/4	7/8 (22.2)	± 1/8 (3.2)
3/8	1 (25.4)	
1/2	1 1/8 (28.6)	

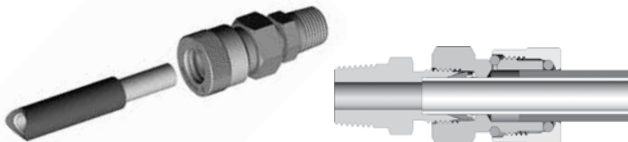
3. Install the JTC seal cartridge onto the tube fitting body finger-tight.



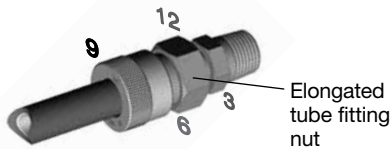
4. Remove the arbor from the jacket seal nut.



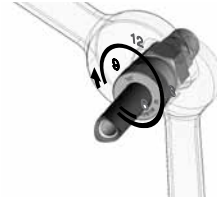
5. Fully insert the tube into the fitting until it rests against the shoulder. Verify the tube fitting nut is finger-tight.



6. Mark the elongated tube fitting nut at the 6 o'clock position.



7. While holding the fitting body steady, tighten the elongated tube fitting nut one and one-quarter turns to the 9 o'clock position.



Gaugeability

On initial installation, the Swagelok gap inspection gauge assures the installer or inspector that a fitting has been sufficiently tightened.

Position the Swagelok gap inspection gauge next to the gap between the nut and the 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.

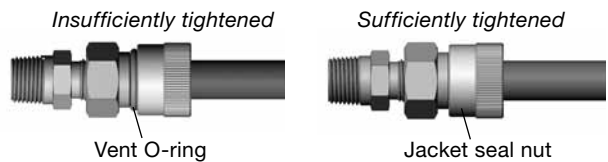


Leak Testing and Final Assembly

1. If performing a *pressure decay* leak test, proceed to step 2; if performing a *leak test with liquid leak detector*, remove the jacket seal nut from the elongated tube fitting nut and perform the test. Replace the jacket seal nut.



2. Tighten the jacket seal nut hand-tight. The jacket seal nut will cover the vent O-ring when it is sufficiently tightened. If desired, perform a *pressure decay* leak test.



Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.

Caution: Do not mix or interchange parts with those of other manufacturers.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.