Plastic Tube Flaring System

Model FTF 1000

- Precision tube flaring system for use with fine thread flare connections
- Accommodates tubing sizes of 1/4, 3/8, 1/2, 3/4, and 1 in.
- Electronic controls ensure uniform tube heating and repeatable flared ends
- Complete flaring cycle in approximately one minute
- Easy to learn and operate
Features

The Swagelok® Model FTF 1000 is a complete, easy-to-operate tool for precision flaring of 1/4, 3/8, 1/2, 3/4, and 1 in. plastic tubing. The self-contained fixtures align and support the tubing during the flaring process, while the electronic controls ensure accurate, uniform tubing flares. With a cycle time of approximately one minute, the plastic tube flaring system reduces installation time.

- Ready-to-install flared tube end is complete in three easy steps: heat, clamp, and flare
- Five mandrel sizes are built into the fixture—no loose mandrels to misplace or damage
- Flared end is “cool to the touch” at the end of the cycle—no additional cool down time is required
- Flaring process takes about a minute; flared tube can be used immediately or stored for later use
- Controlled process minimizes post-forming shrinkage to ensure accurate, repeatable results
- Finished tube flare matches the nose geometry of the fitting promoting excellent sealing performance at make-up

Technical Data

<table>
<thead>
<tr>
<th>Tube Size in.</th>
<th>Heat Temperature °C (°F)</th>
<th>Heat Time seconds</th>
<th>Cooling Time seconds</th>
<th>PFA Tubing Wall Thickness in.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>220 (428)</td>
<td>20</td>
<td>30</td>
<td>0.047</td>
</tr>
<tr>
<td>3/8</td>
<td>295 (563)</td>
<td>40</td>
<td>30</td>
<td>0.063</td>
</tr>
<tr>
<td>1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td></td>
<td></td>
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</tbody>
</table>

Note: Values are based on DuPont® 450 PFA UHP tubing. Adjustments may be needed due to material type and material variation.

Specifications

- Power requirements: 110 V (ac), 60 Hz
- Heat source: Radial conduction
- Dimensions: 14 W × 16.9 L × 10.5 H in. (356 × 430 × 267 mm)
- Programmable Electronic Control Ranges:
  - Temperature: 100 to 300°C (212 to 572°F)
  - Heat time: 10 to 100 seconds
  - Cooling time: 10 to 100 seconds

Programmable electronic controls ensure a precise, repeatable flaring process with:

- Digital readout of time and temperature
- Automatic timing of heating and forming cycles
- Visual and audible alarm to indicate end of cycle.

Clamp arm actsuates the clamping fixture to hold the tube end in place.

Ram arm actsuates the ram which pushes the mandrel into the heated tube end.

Clamping fixture holds the tube end on the mandrel during the forming cycle.

Mandrels, in five different tube sizes, are designed for precision forming of the tube flare.

Heater block accommodates five different tube sizes and provides quick, uniform heating of the tube end.
**Operation**

See the *Swagelok Plastic Tube Flaring System User’s Manual* for operating instructions.

Create ready-to-install flared tube ends with the electronically controlled Swagelok FTF 1000 tube flaring system.

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**Flare Comparison**

- Conventional room-temperature and heat-flaring processes are operator dependent which can produce inconsistent results.
- The tube end is stretched from the *inside* only, and does not conform fully to the fitting nose.
- Considerable post-forming shrinkage can affect connection make-up and performance.

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**Conventional flared tube end**

**Swagelok FTF 1000 flared tube end**

- The Swagelok FTF 1000 tube flaring system is an electronically controlled process ensuring accurate and repeatable results.
- The tube end is formed from both *inside* and *outside* of the tube. The finished flare conforms more precisely to the fitting nose.
- Minimal post-forming shrinkage promotes excellent connection make-up and performance.
How To Order
The Swagelok FTF 1000 Plastic Tube Flaring System is shipped fully assembled in a heavy-duty, custom case for ease of storage and transport. Power cord and instruction manual are included.

To order a Swagelok Plastic Tube Flaring System, select the ordering number based on the geographical region.

<table>
<thead>
<tr>
<th>Geographic Region</th>
<th>Plastic Tube Flaring System Ordering Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>MS-FT-1-1</td>
</tr>
<tr>
<td>Japan</td>
<td>MS-FT-1-3</td>
</tr>
</tbody>
</table>

Ultrahigh-Purity Fluoropolymer Products
The Swagelok family of UHP fluoropolymer products includes:

- Ultrahigh-Purity Fluoropolymer Diaphragm Valves—DRP Series
- High-Purity PFA Fine Thread Flare Fittings
- Ultrahigh-Purity Fluoropolymer Tubing

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.