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
- CE compliant
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 assembly.

Technical Data

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

<table>
<thead>
<tr>
<th>Tube Size in.</th>
<th>Heating Temperature °C (°F)</th>
<th>Heating 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>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
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</tbody>
</table>

Specifications

Power requirements: 115 or 230 V (ac), 50/60 Hz

Heat source: Radial conduction

Dimensions: 14 W by 16.9 L by 10.5 H in. (356 by 430 by 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

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

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

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

See the Swagelok *Plastic Tube Flaring System User’s Manual, MS-13-171*, for operating instructions. Create ready-to-install flared tube ends with the electronically controlled Swagelok FTF 1000 tube flaring system.

**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 assembly 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 assembly and performance.
Ultrahigh-Purity Fluoropolymer Products

The Swagelok family of UHP fluoropolymer products includes pneumatically actuated and quarter-turn manual radial diaphragm-sealed shutoff valves, O-ring–free check valves, fine thread flare fittings, and tubing.

See these Swagelok catalogs for more information:
- Ultrahigh-Purity Fluoropolymer Diaphragm Valves—DRP Series, MS-02-171
- Ultrahigh-Purity Fluoropolymer O-Ring–Free Poppet Check Valves—CHP Series, MS-02-320
- High-Purity PFA Fine Thread Flare Fittings, MS-02-195
- Ultrahigh-Purity Fluoropolymer Tubing, MS-02-196

Ordering Information

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 geographic region.

<table>
<thead>
<tr>
<th>Geographic Region</th>
<th>Voltage</th>
<th>Ordering Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>115 V (ac) 50/60 Hz</td>
<td>MS-FT-1-1</td>
</tr>
<tr>
<td></td>
<td>230 V (ac) 50/60 Hz</td>
<td>MS-FT-2-2</td>
</tr>
<tr>
<td>Japan, Taiwan</td>
<td>115 V (ac) 50/60 Hz</td>
<td>MS-FT-1-1</td>
</tr>
<tr>
<td></td>
<td>230 V (ac) 50/60 Hz</td>
<td>MS-FT-2-4</td>
</tr>
<tr>
<td>United Kingdom, Singapore</td>
<td>230 V (ac) 50/60 Hz</td>
<td>MS-FT-2-6</td>
</tr>
<tr>
<td>Continental Europe, Korea</td>
<td>230 V (ac) 50/60 Hz</td>
<td>MS-FT-2-7</td>
</tr>
<tr>
<td>Australia, China, New Zealand</td>
<td>230 V (ac) 50/60 Hz</td>
<td>MS-FT-2-8</td>
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</tbody>
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Accessories

Tube Cutter
A tube cutter for plastic tubing up to 1 in. outside diameter is available. Ordering number: MS-HC-SC-1A
Replacement blade ordering number: MS-HC-SC-1A-BLD

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.

Warranty Information

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