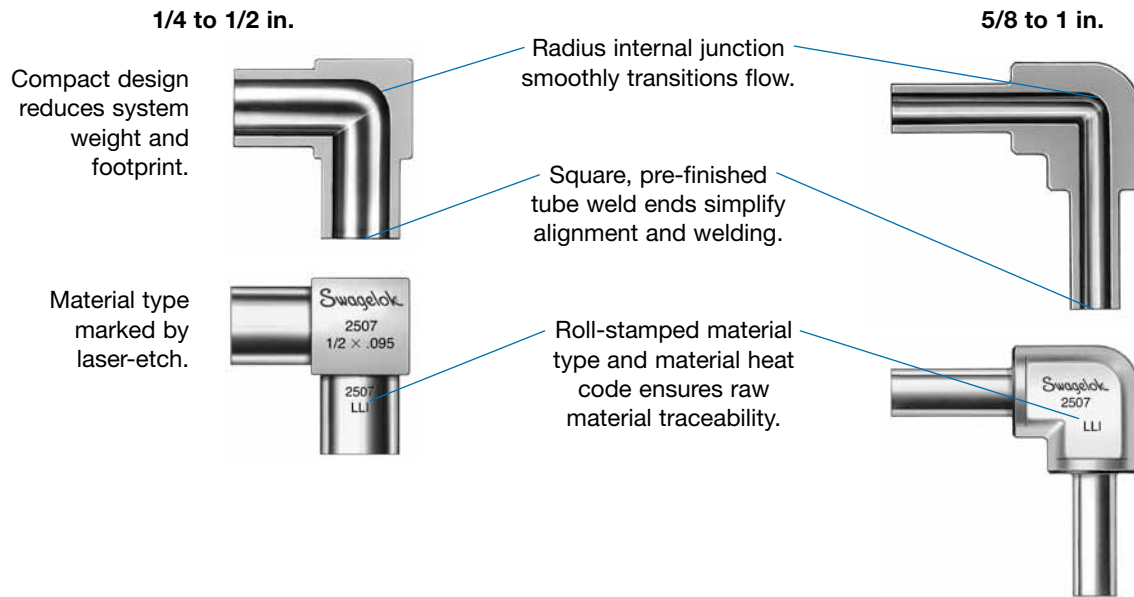


## Alloy 2507 Super Duplex Weld Fittings



- Excellent corrosion resistance in chloride-containing environments
- Compact, high-flow Alloy 2507 tube system connections
- Available in sizes from 1/4 to 1 in.

## Features



Swagelok weld fittings manufactured using Sandvik Alloy 2507 super duplex provide a compact solution for joining Alloy 2507 tube systems. They can be joined to Alloy 2507 components using the Swagelok welding system and flux in the autogenous Alloy 2507 welding process—no filler material or special shielding gases are required.

Available in sizes from 1/4 to 1 in., Swagelok Alloy 2507 weld fittings deliver flow and service ratings that are comparable to larger, heavier Alloy 2507 weld fittings that require filler-type welding. All Swagelok Alloy 2507 weld fittings are manufactured from a special grade of Alloy 2507 material that has a minimum pitting resistance equivalent (PRE) value of 42.5 for maximum durability in chloride-containing environments.

## Pressure Ratings

Pressure ratings for a fluid system are determined by the end connection or system component with the lowest pressure rating.

### Tube Butt Weld End Connections

Pressure ratings are calculated from S values (53 300 psi [367 MPa]), in accordance with ASME B31.3 Chapter IX. Pressure ratings are for metal temperatures from -20 to 100°F (-28 to 37°C). Alloy 2507 tubing, fully annealed, meets ASTM A789 or equivalent.

For lower temperature use, see **Low-Temperature Ratings**.

### Cone-and-Thread End Connections

Cone-and-thread end connections listed in this catalog are manufactured to API-6A "Specification for Wellhead and Christmas Tree Equipment" tolerances, Autoclave Engineers and Butech Pressure Systems catalog dimensions, and are rated to 20 000 psig (1380 bar) for 1/4, 3/8, and 9/16 in. sizes and to 10 000 psig (690 bar) for 3/4 and 1 in. sizes.

| Tube OD in. | Tube Wall Thickness, in.    |                            |                           |                           |                            |              |              |
|-------------|-----------------------------|----------------------------|---------------------------|---------------------------|----------------------------|--------------|--------------|
|             | 0.035                       | 0.049                      | 0.065                     | 0.083                     | 0.095                      | 0.109        | 0.120        |
|             | Pressure Rating, psig (bar) |                            |                           |                           |                            |              |              |
| 1/4         | 12 300 (850)                | 19 000 (1310) <sup>①</sup> | 26 200 (1810)             | —                         | —                          | —            | —            |
| 3/8         | —                           | 12 400 (860) <sup>①</sup>  | 15 800 (1090)             | 21 400 (1480)             | —                          | —            | —            |
| 1/2         | —                           | —                          | 12 400 (860) <sup>①</sup> | 16 200 (1120)             | 19 400 (1340) <sup>①</sup> | —            | —            |
| 5/8         | —                           | —                          | —                         | 12 400 (860) <sup>①</sup> | 15 000 (1040) <sup>①</sup> | —            | —            |
| 3/4         | —                           | —                          | —                         | 10 400 (720) <sup>①</sup> | 12 400 (860) <sup>①</sup>  | 13 900 (960) | —            |
| 1           | —                           | —                          | —                         | —                         | —                          | 10 000 (690) | 11 100 (770) |

<sup>①</sup> Pressure ratings based on special wall thickness tolerance for Swagelok Alloy 2507 tubing

### Elevated Temperature Ratings

Multiply the working pressure from the table above by the appropriate factor to obtain

| Temperature °F (°C) | Factor |
|---------------------|--------|
| 200 (93)            | 0.87   |
| 300 (148)           | 0.81   |
| 400 (204)           | 0.76   |
| 482 (250)           | 0.73   |

working pressure at elevated temperatures.

**Example:** 1/4 in. tubing with 0.035 in. wall at 300°F (148°C):

The working pressure at 100°F (37°C) is 12 300 psig (850 bar).

The temperature factor for 300°F (148°C) is 0.81.

12 300 psig (850 bar) × 0.81 is 9963 psig (689 bar).

The working pressure for 1/4 in. tubing with 0.035 in. wall at 300°F (148°C) is 9963 psig (689 bar).

Use of Alloy 2507 super duplex stainless steel at temperatures above 482°F (250°C) causes microstructural changes that lead to embrittlement and loss of corrosion resistance.

### Low-Temperature Ratings

Fitting pressure ratings are for metal temperatures from -50 to 100°F (-46 to 37°C), based on -50°F (-46°C) impact tests performed on Alloy 2507 bar and forgings. The tubing listed in the table above has a minimum use temperature of -20°F (-28°C) in accordance with ASME B31.3.

However, the NORSOK M-001 Materials Selection standard allows this tubing to be used at a minimum temperature of -50°F (-46°C).

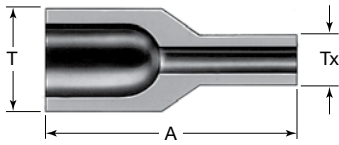
According to the NORSOK M-630 Material Data Sheets for Piping, Alloy 2507 tubing does not have to undergo low-temperature impact testing so long as wall thicknesses are below 0.236 in. (6 mm).

**ASME B31.3 Process Piping requires weld qualification testing for use at temperatures below -20°F (-28°C).**

## Ordering Information and Dimensions

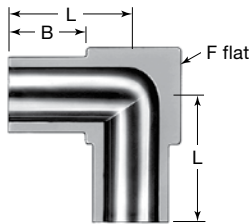
Dimensions are for reference only and are subject to change.

### Reducing Union



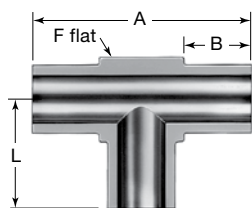
| T, Tube OD in. | Wall Thickness in. | Tx, Tube OD in. | Wall Thickness in. | Ordering Number    | A in. (mm)     |
|----------------|--------------------|-----------------|--------------------|--------------------|----------------|
| 3/8            | 0.049              | 1/4             | 0.035              | 2507-6MW-6-4-10K   | 0.75<br>(19.0) |
|                | 0.083              |                 | 0.065              | 2507-6MW-6-4-20K   |                |
| 1/2            | 0.065              | 1/4             | 0.035              | 2507-8MW-6-4-10K   |                |
|                | 0.095              |                 | 0.065              | 2507-8MW-6-4-20K   |                |
| 1/2            | 0.065              | 3/8             | 0.049              | 2507-8MW-6-6-10K   |                |
|                | 0.095              |                 | 0.083              | 2507-8MW-6-6-20K   |                |
| 5/8            | 0.083              | 1/2             | 0.065              | 2507-10TB-6-8-10K  | 1.60<br>(40.6) |
| 3/4            | 0.083              | 1/4             | 0.035              | 2507-12TB-6-4-10K  |                |
|                |                    | 3/8             | 0.049              | 2507-12TB-6-6-10K  |                |
|                |                    | 1/2             | 0.065              | 2507-12TB-6-8-10K  |                |
| 1              | 0.109              | 1/2             | 0.065              | 2507-16TB-6-8-10K  |                |
|                |                    | 3/4             | 0.083              | 2507-16TB-6-12-10K |                |

### 90° Union Elbow



| Tube OD in. | Wall Thickness in. | Ordering Number | Dimensions, in. (mm) |        |             |
|-------------|--------------------|-----------------|----------------------|--------|-------------|
|             |                    |                 | B                    | F      | L           |
| 1/4         | 0.035              | 2507-4MW-9-035  | 0.25 (6.4)           | 5/16   | 0.41 (10.4) |
|             | 0.065              | 2507-4MW-9-065  |                      |        |             |
| 3/8         | 0.049              | 2507-6MW-9-049  | 0.25 (6.4)           | 7/16   | 0.47 (11.9) |
|             | 0.083              | 2507-6MW-9-083  |                      |        |             |
| 1/2         | 0.065              | 2507-8MW-9-065  | 0.25 (6.4)           | 9/16   | 0.53 (13.5) |
|             | 0.095              | 2507-8MW-9-095  |                      |        |             |
| 5/8         | 0.083              | 2507-10TB-9-083 | 0.80 (20.3)          | 13/16  | 1.42 (36.1) |
| 3/4         | 0.083              | 2507-12TB-9-083 | 0.80 (20.3)          | 13/16  | 1.41 (35.8) |
| 1           | 0.109              | 2507-16TB-9-109 | 0.80 (20.3)          | 1 1/16 | 1.49 (37.8) |

### Union Tee

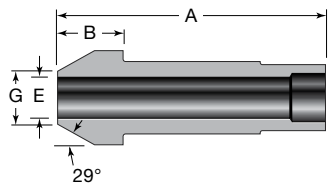


| Tube OD in. | Wall Thickness in. | Ordering Number | Dimensions, in. (mm) |             |        |
|-------------|--------------------|-----------------|----------------------|-------------|--------|
|             |                    |                 | A                    | B           | F      |
| 1/4         | 0.035              | 2507-4MW-3-035  | 0.82 (20.8)          | 0.25 (6.4)  | 5/16   |
|             | 0.065              | 2507-4MW-3-065  |                      |             |        |
| 3/8         | 0.049              | 2507-6MW-3-049  | 0.94 (23.9)          | 0.25 (6.4)  | 7/16   |
|             | 0.083              | 2507-6MW-3-083  |                      |             |        |
| 1/2         | 0.065              | 2507-8MW-3-065  | 1.06 (26.9)          | 0.25 (6.4)  | 9/16   |
|             | 0.095              | 2507-8MW-3-095  |                      |             |        |
| 5/8         | 0.083              | 2507-10TB-3-083 | 2.84 (72.1)          | 0.80 (20.3) | 13/16  |
| 3/4         | 0.083              | 2507-12TB-3-083 | 2.82 (71.6)          | 0.80 (20.3) | 13/16  |
| 1           | 0.109              | 2507-16TB-3-109 | 2.98 (75.7)          | 0.80 (20.3) | 1 1/16 |

### Ordering Information and Dimensions

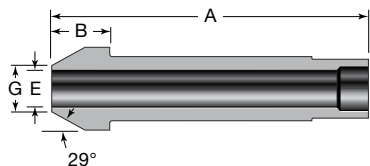
Dimensions are for reference only and are subject to change.

#### Cone-and-Thread Male Adapter



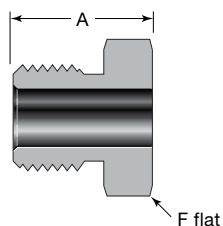
| Medium-Pressure Tube Size in. | Tube OD in. | Wall Thickness in. | Ordering Number       | Dimensions in. (mm) |             |             |             |
|-------------------------------|-------------|--------------------|-----------------------|---------------------|-------------|-------------|-------------|
|                               |             |                    |                       | A                   | B           | E           | G           |
| 1/4                           | 0.25 (6.4)  | 0.035              | 2507-4-MP-3-4TB-035   | 1.85 (47.0)         | 0.34 (8.6)  | 0.11 (2.8)  | 0.14 (3.6)  |
|                               |             | 0.065              | 2507-4-MP-3-4TB-065   |                     |             |             |             |
| 3/8                           | 0.37 (9.4)  | 0.049              | 2507-6-MP-3-6TB-049   | 2.00 (50.8)         | 0.44 (11.2) | 0.21 (5.3)  | 0.25 (6.4)  |
|                               |             | 0.083              | 2507-6-MP-3-6TB-083   |                     |             |             |             |
| 9/16                          | 0.50 (12.7) | 0.065              | 2507-9-MP-3-8TB-065   | 2.25 (57.2)         | 0.50 (12.7) | 0.31 (7.9)  | 0.41 (10.4) |
|                               |             | 0.095              | 2507-9-MP-3-8TB-095   |                     |             |             |             |
| 3/4                           | 0.62 (15.7) | 0.083              | 2507-12-MP-3-10TB-083 | 2.70 (68.6)         | 0.63 (16.0) | 0.46 (11.7) | 0.56 (14.2) |
|                               | 0.74 (18.8) |                    | 2507-12-MP-3-12TB-083 |                     |             |             |             |
| 1                             | 0.99 (25.1) | 0.109              | 2507-16-MP-3-16TB-109 | 3.20 (86.3)         | 0.78 (19.8) | 0.56 (14.2) | 0.72 (18.3) |

#### Long Cone-and-Thread Male Adapter



| Medium-Pressure Tube Size in. | Tube OD in. | Wall Thickness in. | Ordering Number        | Dimensions in. (mm) |             |             |             |
|-------------------------------|-------------|--------------------|------------------------|---------------------|-------------|-------------|-------------|
|                               |             |                    |                        | A                   | B           | E           | G           |
| 1/4                           | 0.25 (6.4)  | 0.035              | 2507-4-MP-3L-4TB-035   | 2.65 (67.3)         | 0.34 (8.6)  | 0.11 (2.8)  | 0.14 (3.6)  |
|                               |             | 0.065              | 2507-4-MP-3L-4TB-065   |                     |             |             |             |
| 3/8                           | 0.37 (9.4)  | 0.049              | 2507-6-MP-3L-6TB-049   | 2.85 (72.4)         | 0.44 (11.2) | 0.21 (5.3)  | 0.25 (6.4)  |
|                               |             | 0.083              | 2507-6-MP-3L-6TB-083   |                     |             |             |             |
| 9/16                          | 0.50 (12.7) | 0.065              | 2507-9-MP-3L-8TB-065   | 3.10 (78.7)         | 0.50 (12.7) | 0.31 (7.9)  | 0.41 (10.4) |
|                               |             | 0.095              | 2507-9-MP-3L-8TB-095   |                     |             |             |             |
| 3/4                           | 0.62 (15.7) | 0.083              | 2507-12-MP-3L-10TB-083 | 3.65 (92.7)         | 0.63 (16.0) | 0.46 (11.7) | 0.56 (14.2) |
|                               | 0.74 (18.8) |                    | 2507-12-MP-3L-12TB-083 |                     |             |             |             |
| 1                             | 0.99 (25.1) | 0.109              | 2507-16-MP-3L-16TB-109 | 4.15 (105)          | 0.78 (19.8) | 0.56 (14.2) | 0.72 (18.3) |

#### Cone-and-Thread Male Nut

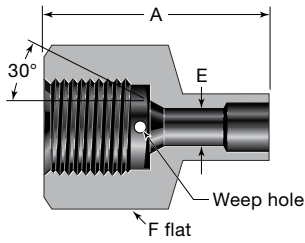


| Medium-Pressure Tube Size in. | Ordering Number | Thread Size    | Dimensions in. (mm) |       |
|-------------------------------|-----------------|----------------|---------------------|-------|
|                               |                 |                | A                   | F     |
| 1/4                           | 2507-4-MP-4     | 7/16-20 UNF-2  | 0.58 (14.7)         | 9/16  |
| 3/8                           | 2507-6-MP-4     | 9/16-18 UNF-2  | 0.72 (18.3)         | 5/8   |
| 9/16                          | 2507-9-MP-4     | 13/16-16 UN-2  | 0.80 (20.3)         | 7/8   |
| 3/4                           | 2507-12-MP-4    | 3/4-14 NPSM-2  | 0.94 (23.9)         | 1 1/8 |
| 1                             | 2507-16-MP-4    | 1 3/8-12 UNF-2 | 1.35 (34.3)         | 1 3/8 |

## Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

### Cone-and-Thread Female Connector



| Medium-Pressure Tube Size in. | Tube OD in. | Wall Thickness in. | Ordering Number      | Dimensions in. (mm) |               |        | Thread Size      |
|-------------------------------|-------------|--------------------|----------------------|---------------------|---------------|--------|------------------|
|                               |             |                    |                      | A                   | E             | F      |                  |
| 1/4                           | 1/4         | 0.035              | 2507-4-MP-3A-4TB-035 | 1.47<br>(37.3)      | 0.11<br>(2.8) | 11/16  | 7/16-20<br>UNF-2 |
|                               |             | 0.065              | 2507-4-MP-3A-4TB-065 |                     |               |        |                  |
| 3/8                           | 3/8         | 0.049              | 2507-6-MP-3A-6TB-049 | 1.57<br>(39.9)      | 0.21<br>(5.3) | 7/8    | 9/16-18<br>UNF-2 |
|                               |             | 0.083              | 2507-6-MP-3A-6TB-083 |                     |               |        |                  |
| 9/16                          | 1/2         | 0.065              | 2507-9-MP-3A-8TB-065 | 2.05<br>(52.1)      | 0.37<br>(9.4) | 1 1/16 | 13/16-16<br>UN-2 |
|                               |             | 0.095              | 2507-9-MP-3A-8TB-095 |                     | 0.31<br>(7.9) |        |                  |

## Cleaning and Packaging

Weld fitting components are cleaned to remove machine oil, grease, and loose particles. For more information, see Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

## Alloy 2507 Tubing



Swagelok offers Alloy 2507 tubing in sizes of 1/4 to 1 in. outside diameter. See the Swagelok *Alloy 2507 Seamless Super Duplex Tubing—Fractional Sizes* catalog, MS-02-151, for more information.

## Alloy 2507 Tube Fittings

See the Swagelok *Alloy 2507 Super Duplex Tube Fittings* catalog, MS-01-174, for more information.



## Tools for Use with Alloy 2507 Weld Fittings



### Swagelok Welding System

The Swagelok welding system is a powerful (up to 200 A) gas-tungsten arc orbital welding system. Compared to manual or filler-based welding methods for Alloy 2507 material, this autogenous orbital welding system can reduce weld cycle time, improve weld consistency and quality, and help manage the total welding process. The Swagelok welding system is supported by a comprehensive package of equipment, training, accessories, and technical service.

For more information, see the *Swagelok Welding System—M200 Power Supply* catalog, MS-02-342.

### Welding Flux

Swagelok welding flux is required in the autogenous Alloy 2507 welding process developed for use with the Swagelok welding system. The flux helps to ensure that proper austenite/ferrite phase balance, nitrogen content, and weld penetration are achieved in welded Alloy 2507 connections.



Ordering number:  
**SWS-FLUX-1**



### Tube Facing Tools

Swagelok TF series tube facing tools machine the smooth, square, burr-free tube ends needed for maximum reliability and performance in orbitally welded and mechanical fitting connections.

For more information, see the *Swagelok Tube Facing Tools* catalog, MS-02-426.

**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](http://swagelok.com) or contact your authorized Swagelok representative.