

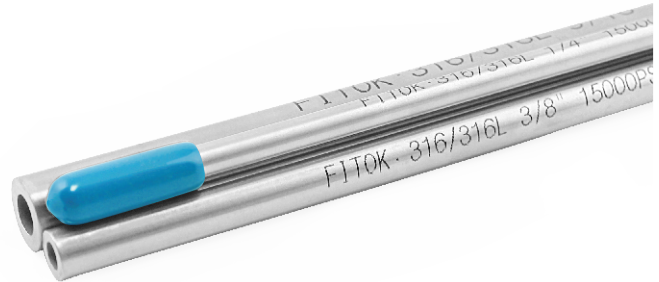
Medium and High Pressure Tubing

T15, T20 and T60 Series

T15 Series

Features

- ⦿ Material: 316/316L
- ⦿ Working pressure up to 15,000 psig (1034 bar)
- ⦿ Working temperature: -325°F to 800°F (-198°C to 427°C)
- ⦿ Annealed seamless or cold-drawn 1/8-hard seamless tubing
- ⦿ For use with FITOK 15D series double-ferrule tube fittings
- ⦿ Marked with brand, material grade, specification, pressure, annealing code and heat number
- ⦿ Standard length: 20 ft and 6 m



Materials

| UNS | Grade | FITOK Designator | Composition % | | | | | | | |
|---------------|----------|------------------|---------------|-------|--------|-------|-------|-------|-------|---------|
| | | | C | Mn | P | S | Si | Cr | Ni | Mo |
| S31600/S31603 | 316/316L | SS | ≤0.035 | ≤2.00 | ≤0.045 | ≤0.03 | ≤1.00 | 16-18 | 10-14 | 2.0-3.0 |

Mechanical Properties

Cold-drawn 1/8-hard Seamless Tubing

| UNS | Grade | Yield Strength ksi | Tensile Strength ksi | Elongation % | Hardness |
|---------------|----------|--------------------|----------------------|--------------|----------|
| S31600/S31603 | 316/316L | 75 to 110 | 105 to 140 | ≥20 | ≤26 HRC |

Annealed Seamless Tubing

| UNS | Grade | Yield Strength ksi | Tensile Strength ksi | Elongation % | Hardness |
|---------------|----------|--------------------|----------------------|--------------|----------|
| S31600/S31603 | 316/316L | ≥30 | ≥75 | ≥30 | ≤90 HRB |

Dimensional Tolerance

| Tube O.D. in. | O.D. Tolerance in. | Wall Thickness Tolerance % |
|---------------|--------------------|----------------------------|
| 1/8 | +/-0.003 | +/-10 |
| 1/4 | +/-0.005 | |
| 3/8 | | |
| 1/2 | | |
| 9/16 | | |
| 3/4 | | |

Working Pressure at Ambient Temperature

Cold-drawn 1/8-hard Seamless Tubing

| Tube O.D. in. | Wall Thickness Tolerance in. | Working Pressure psig (bar) |
|------------------|------------------------------------|--------------------------------|
| 1/4 | 0.065 | 15,000 (1034) |
| 3/8 | 0.083 | |
| 1/2 | 0.109 | |
| 9/16 | 0.125 | |
| 3/4 | 0.165 | |

Annealed Seamless Tubing

| Tube O.D. in. | Wall Thickness Tolerance in. | Working Pressure psig (bar) |
|------------------|------------------------------------|--------------------------------|
| 1/8 | 0.037 | 15,000 (1034) |
| 1/4 | 0.083 | 15,000 (1034) |
| | 0.065 | 10,300 (710) |
| 3/8 | 0.118 | 15,000 (1034) |
| | 0.095 | 10,000 (690) |
| 1/2 | 0.156 | 15,000 (1034) |
| | 0.134 | 11,200 (772) |
| 9/16 | 0.188 | 15,000 (1034) |
| 3/4 | 0.240 | 15,000 (1034) |
| | 0.188 | 10,000 (690) |

Elevated Temperature Factors

| Temperature | | Factor |
|-------------|-----|--------|
| °F | °C | |
| 100 | 38 | 1.00 |
| 200 | 93 | |
| 300 | 149 | |
| 400 | 204 | 0.96 |
| 500 | 260 | 0.89 |
| 600 | 316 | 0.85 |
| 700 | 371 | 0.81 |
| 800 | 427 | 0.79 |

Ordering Information

Cold-drawn 1/8-hard Seamless Tubing

| Tube O.D. in. | Wall Thickness in. | Ordering Number ^{①②} | |
|------------------|-----------------------|-------------------------------|------------------|
| 1/4 | 0.065 | SS-T15-4-065-6M | SS-T15-4-065-20 |
| 3/8 | 0.083 | SS-T15-6-083-6M | SS-T15-6-083-20 |
| 1/2 | 0.109 | SS-T15-8-109-6M | SS-T15-8-109-20 |
| 9/16 | 0.125 | SS-T15-9-125-6M | SS-T15-9-125-20 |
| 3/4 | 0.165 | SS-T15-12-165-6M | SS-T15-12-165-20 |

① In the ordering number, "6M" designates tubing length of 6 meters; "20" designates tubing length of 20 feet.

② Custom shorter length available upon request.

Annealed Seamless Tubing

| Tube O.D. in. | Wall Thickness in. | Ordering Number ^{①②} | |
|------------------|-----------------------|-------------------------------|--------------------|
| 1/8 | 0.037 | SS-T15-A-2-037-6M | SS-T15-A-2-037-20 |
| 1/4 | 0.083 | SS-T15-A-4-083-6M | SS-T15-A-4-083-20 |
| | 0.065 | SS-T15-A-4-065-6M | SS-T15-A-4-065-20 |
| 3/8 | 0.118 | SS-T15-A-6-118-6M | SS-T15-A-6-118-20 |
| | 0.095 | SS-T15-A-6-095-6M | SS-T15-A-6-095-20 |
| 1/2 | 0.156 | SS-T15-A-8-156-6M | SS-T15-A-8-156-20 |
| | 0.134 | SS-T15-A-8-134-6M | SS-T15-A-8-134-20 |
| 9/16 | 0.188 | SS-T15-A-9-188-6M | SS-T15-A-9-188-20 |
| 3/4 | 0.240 | SS-T15-A-12-240-6M | SS-T15-A-12-240-20 |
| | 0.188 | SS-T15-A-12-188-6M | SS-T15-A-12-188-20 |

① In the ordering number, "6M" designates tubing length of 6 meters; "20" designates tubing length of 20 feet.

② Custom shorter length available upon request.

T20 Series

Features

- ⦿ Material: 316/316L
- ⦿ Working pressure up to 20,000 psig (1379 bar)
- ⦿ Working temperature: -423°F to 1200°F (-252°C to 649°C)
- ⦿ Cold-drawn seamless tubing
- ⦿ For use with FITOK 20 series medium pressure fittings
- ⦿ Marked with brand, material grade, specification, pressure, and heat number
- ⦿ Supplied in fractional sizes up to 20 ft and metric sizes up to 6 m. Nipples in custom length available



Materials

| UNS | Grade | FITOK Designator | Composition % | | | | | | | |
|---------------|----------|------------------|---------------|-------|--------|-------|-------|-------|-------|---------|
| | | | C | Mn | P | S | Si | Cr | Ni | Mo |
| S31600/S31603 | 316/316L | SS | ≤0.035 | ≤2.00 | ≤0.045 | ≤0.03 | ≤1.00 | 16-18 | 10-14 | 2.0-3.0 |

Dimensional Tolerance

| Tube O.D. in. | O.D. Tolerance in. | Tube I.D. in. | I.D. Tolerance in. |
|---------------|--------------------|---------------|--------------------|
| 1/4 | -0.002/-0.007 | 0.109 | 0/-0.005 |
| 3/8 | | 0.203 | |
| 9/16 | | 0.312 | |
| 3/4 | | 0.438 | +/-0.005 |
| 1 | | 0.562 | |

Pressure–Temperature Ratings

| Working Pressure psig (bar) | | | | |
|--------------------------------|---------------|---------------|---------------|---------------|
| -423 to 100°F (-252 to 37.8°C) | 200°F (93°C) | 400°F (204°C) | 600°F (316°C) | 800°F (427°C) |
| 20,000 (1379) | 20,000 (1379) | 19,250 (1327) | 18,050 (1244) | 16,800 (1158) |

If tubing is used at temperatures above 800°F (427°C) or reused thereafter, working pressures for tubing in the following table shall apply.

| Working Pressure psig (bar) | | | | | |
|------------------------------|---------------|---------------|---------------|----------------|----------------|
| -423 to 200°F (-252 to 93°C) | 400°F (204°C) | 600°F (316°C) | 800°F (427°C) | 1000°F (538°C) | 1200°F (649°C) |
| 8,050 (555) | 7,400 (510) | 6,800 (469) | 6,300 (434) | 6,200 (427) | 2,900 (200) |

Ordering Information

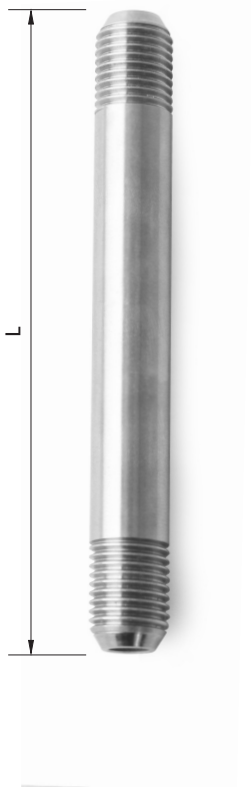
Cold-drawn Seamless Tubing

| Tube O.D. in. | Tube I.D. in. | Ordering Number ^{①②} | |
|------------------|------------------|-------------------------------|--------------|
| 1/4 | 0.109 | SS-T20-4-6M | SS-T20-4-20 |
| 3/8 | 0.203 | SS-T20-6-6M | SS-T20-6-20 |
| 9/16 | 0.312 | SS-T20-9-6M | SS-T20-9-20 |
| 3/4 | 0.438 | SS-T20-12-6M | SS-T20-12-20 |
| 1 | 0.562 | SS-T20-16-6M | SS-T20-16-20 |

① In the ordering number, "6M" designates tubing length of 6 meters; "20" designates tubing length of 20 feet.

② Custom shorter length available upon request.

Coned and Threaded Nipples



| Tube O.D. in. | Tube I.D. in. | Length L ^① in. (mm) | Ordering Number |
|------------------|------------------|-----------------------------------|-----------------|
| 1/4 | 0.109 | 3.00 (76.2) | SS-T20-4CT-3 |
| | | 4.00 (101.6) | SS-T20-4CT-4 |
| | | 6.00 (152.4) | SS-T20-4CT-6 |
| | | 8.00 (203.2) | SS-T20-4CT-8 |
| | | 10.0 (254.0) | SS-T20-4CT-10 |
| | | 12.0 (304.8) | SS-T20-4CT-12 |
| 3/8 | 0.203 | 3.00 (76.2) | SS-T20-6CT-3 |
| | | 4.00 (101.6) | SS-T20-6CT-4 |
| | | 6.00 (152.4) | SS-T20-6CT-6 |
| | | 8.00 (203.2) | SS-T20-6CT-8 |
| | | 10.0 (254.0) | SS-T20-6CT-10 |
| | | 12.0 (304.8) | SS-T20-6CT-12 |
| 9/16 | 0.312 | 4.00 (101.6) | SS-T20-9CT-4 |
| | | 6.00 (152.4) | SS-T20-9CT-6 |
| | | 8.00 (203.2) | SS-T20-9CT-8 |
| | | 10.0 (254.0) | SS-T20-9CT-10 |
| | | 12.00 (304.8) | SS-T20-9CT-12 |
| 3/4 | 0.438 | 4.00 (101.6) | SS-T20-12CT-4 |
| | | 6.00 (152.4) | SS-T20-12CT-6 |
| | | 8.00 (203.2) | SS-T20-12CT-8 |
| | | 10.0 (254.0) | SS-T20-12CT-10 |
| | | 12.0 (304.8) | SS-T20-12CT-12 |
| 1 | 0.562 | 6.00 (152.4) | SS-T20-16CT-6 |
| | | 8.00 (203.2) | SS-T20-16CT-8 |
| | | 10.0 (254.0) | SS-T20-16CT-10 |
| | | 12.0 (304.8) | SS-T20-16CT-12 |

① Nipples in custom length available upon request.

T60 Series

Features

- ⦿ Material: 316/316L
- ⦿ Working pressure up to 60,000 psig (4137 bar)
- ⦿ Working temperature: -423°F to 1200°F
(-252°C to 649°C)
- ⦿ Cold-drawn seamless tubing
- ⦿ For use with FITOK 60 series high pressure fittings
- ⦿ Marked with brand, material grade, specification, pressure, and heat number
- ⦿ Supplied in fractional sizes up to 20 ft and metric sizes up to 6 m. Nipples in custom length available



Materials

| UNS | Grade | FITOK Designator | Composition % | | | | | | | |
|---------------|----------|------------------|---------------|-------|--------|-------|-------|-------|-------|---------|
| | | | C | Mn | P | S | Si | Cr | Ni | Mo |
| S31600/S31603 | 316/316L | SS | ≤0.035 | ≤2.00 | ≤0.045 | ≤0.03 | ≤1.00 | 16-18 | 10-14 | 2.0-3.0 |

Dimensional Tolerance

| Tube O.D. in. | O.D. Tolerance in. | Tube I.D. in. | I.D. Tolerance in. |
|---------------|--------------------|---------------|--------------------|
| 1/4 | -0.002/-0.007 | 0.083 | 0/-0.005 |
| 3/8 | -0.005/-0.01 | 0.125 | |
| 9/16 | | 0.188 | |

Pressure-Temperature Ratings

| Working Pressure psig (bar) | | | | |
|-----------------------------------|---------------|---------------|---------------|---------------|
| -423 to 100°F (-252 to 37.8°C) | 200°F (93°C) | 400°F (204°C) | 600°F (316°C) | 800°F (427°C) |
| 60,000 (4137) | 60,000 (4137) | 57,750 (3982) | 54,250 (3740) | 50,700 (3496) |

If tubing is used at temperatures above 800°F (427°C) or reused thereafter, working pressures for tubing in the following table shall apply.

| Working Pressure psig (bar) | | | | | |
|---------------------------------|---------------|---------------|---------------|----------------|----------------|
| -423 to 200°F (-252 to 93°C) | 400°F (204°C) | 600°F (316°C) | 800°F (427°C) | 1000°F (538°C) | 1200°F (649°C) |
| 24,200 (1669) | 22,200 (1531) | 20,500 (1413) | 18,850 (1300) | 18,600 (1282) | 8,750 (603) |

Ordering Information

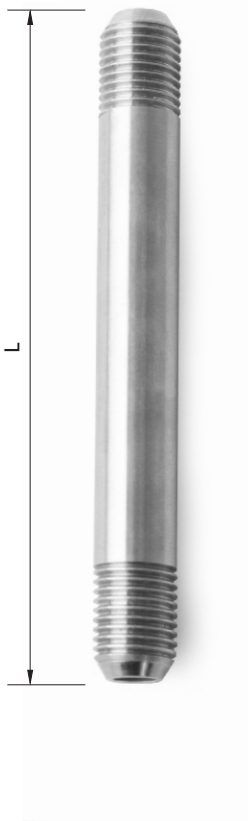
Cold-drawn Seamless Tubing

| Tube O.D. in. | Tube I.D. in. | Ordering Number ^{①②} | |
|------------------|------------------|-------------------------------|-------------|
| 1/4 | 0.083 | SS-T60-4-6M | SS-T60-4-20 |
| 3/8 | 0.125 | SS-T60-6-6M | SS-T60-6-20 |
| 9/16 | 0.188 | SS-T60-9-6M | SS-T60-9-20 |

① In the ordering number, "6M" designates tubing length of 6 meters; "20" designates tubing length of 20 feet.

② Custom shorter length available upon request.

Coned and Threaded Nipples



| Tube O.D. in. | Tube I.D. in. | Length L ^① in. (mm) | Ordering Number |
|------------------|------------------|-----------------------------------|-----------------|
| 1/4 | 0.083 | 2.75 (69.9) | SS-T60-4CT-2.75 |
| | | 3.00 (76.2) | SS-T60-4CT-3 |
| | | 4.00 (101.6) | SS-T60-4CT-4 |
| | | 6.00 (152.4) | SS-T60-4CT-6 |
| | | 8.00 (203.2) | SS-T60-4CT-8 |
| | | 10.0 (254.0) | SS-T60-4CT-10 |
| | | 12.0 (304.8) | SS-T60-4CT-12 |
| 3/8 | 0.125 | 3.00 (76.2) | SS-T60-6CT-3 |
| | | 4.00 (101.6) | SS-T60-6CT-4 |
| | | 6.00 (152.4) | SS-T60-6CT-6 |
| | | 8.00 (203.2) | SS-T60-6CT-8 |
| | | 10.0 (254.0) | SS-T60-6CT-10 |
| | | 12.0 (304.8) | SS-T60-6CT-12 |
| 9/16 | 0.188 | 4.00 (101.6) | SS-T60-9CT-4 |
| | | 6.00 (152.4) | SS-T60-9CT-6 |
| | | 8.00 (203.2) | SS-T60-9CT-8 |
| | | 10.0 (254.0) | SS-T60-9CT-10 |
| | | 12.0 (304.8) | SS-T60-9CT-12 |

① Nipples in custom length available upon request.