

INSTRUMENTATION TUBING

CBC/CS-Lok



STAINLESS STEEL INSTRUMENTATION TUBING

- Meets ASTM A213 and ASTM A269
- Grade TP 316/316L (dual certified)
- Seamless, Cold Finished
- 20 foot lengths

| Outside Diameter (in) | Part Number | Wall Thickness (in) |
|-----------------------|-----------------|---------------------|
| 1/4 | 4-T-035-S-316L | 0.035 |
| | 4-T-049-S-316L | 0.049 |
| | 4-T-065-S-316L | 0.065 |
| 3/8 | 6-T-035-S-316L | 0.035 |
| | 6-T-049-S-316L | 0.049 |
| | 6-T-065-S-316L | 0.065 |
| 1/2 | 8-T-035-S-316L | 0.035 |
| | 8-T-049-S-316L | 0.049 |
| | 8-T-065-S-316L | 0.065 |
| | 8-T-083-S-316L | 0.083 |
| 5/8 | 10-T-049-S-316L | 0.049 |
| | 10-T-065-S-316L | 0.065 |
| | 10-T-083-S-316L | 0.083 |
| | 10-T-095-S-316L | 0.095 |
| 3/4 | 12-T-049-S-316L | 0.049 |
| | 12-T-065-S-316L | 0.065 |
| | 12-T-083-S-316L | 0.083 |
| | 12-T-095-S-316L | 0.095 |
| | 12-T-109-S-316L | 0.109 |
| 1 | 16-T-065-S-316L | 0.065 |
| | 16-T-083-S-316L | 0.083 |
| | 16-T-095-S-316L | 0.095 |
| | 16-T-109-S-316L | 0.109 |
| | 16-T-120-S-316L | 0.120 |

Values in the black cells with white text are not recommended for gas services. Maximum suggested working pressures are based on ASME B31.3 equations using the following values:

Stainless Steel Welded Tube De-rating factors:

| | Stress Value (psi) | Fractional Tube Specifications | Metric Tube Specifications |
|-----------------|--------------------|--------------------------------|---|
| Stainless Steel | 20,000 | ASTM A269 | ISO 1127 <small>3 to 12 mm O.D. D4 T4 tolerance 14 mm O.D and larger: D4 T3 tolerance</small> |
| Carbon Steel | 15,700 | ASTM A179 | - |
| Copper | 6,000 | ASTM B75 | - |

| | |
|---------------|------|
| Double-Welded | 0.85 |
| Single-Welded | 0.80 |

FRACTIONAL TUBE (psig)

| Tube Size O.D. | Stainless Steel | | | | | | | | | | | | | | | |
|----------------|------------------------------|------|------|------|-------|------|-------|-------|-------|------|------|------|------|------|------|------|
| | Tube Wall Thickness (inches) | | | | | | | | | | | | | | | |
| | .010 | .012 | .014 | .016 | .020 | .028 | .035 | .049 | .065 | .083 | .095 | .109 | .120 | .134 | .156 | .188 |
| 1/16" | 5600 | 6800 | 8100 | 9400 | 12000 | | | | | | | | | | | |
| 1/8" | | | | | | 8500 | 10900 | | | | | | | | | |
| 3/16" | | | | | | 5400 | 7000 | 10200 | | | | | | | | |
| 1/4" | | | | | | 4000 | 5100 | 7500 | 10200 | | | | | | | |
| 5/16" | | | | | | | 4000 | 5800 | 8000 | | | | | | | |
| 3/8" | | | | | | | 3300 | 4800 | 6500 | | | | | | | |
| 1/2" | | | | | | | 2600 | 3700 | 5100 | 6700 | | | | | | |
| 5/8" | | | | | | | | 2900 | 4000 | 5200 | 6000 | | | | | |
| 3/4" | | | | | | | | 2400 | 3300 | 4200 | 4900 | 5800 | | | | |
| 7/8" | | | | | | | | 2000 | 2800 | 3600 | 4200 | 4800 | | | | |
| 1" | | | | | | | | | 2400 | 3100 | 3600 | 4200 | 4700 | | | |
| 1-1/4" | | | | | | | | | | 2400 | 2800 | 3300 | 3600 | 4100 | 4900 | |
| 1-1/2" | | | | | | | | | | | 2300 | 2700 | 3000 | 3400 | 4000 | 4900 |
| 2" | | | | | | | | | | | | 2000 | 2200 | 2500 | 2900 | 3600 |

| Tube Size O.D. | Carbon Steel | | | | | | | |
|----------------|------------------------------|-------|------|------|------|------|------|------|
| | Tube Wall Thickness (inches) | | | | | | | |
| | .028 | .035 | .049 | .065 | .083 | .095 | .109 | .120 |
| 1/8" | 8000 | 10200 | | | | | | |
| 3/16" | 5100 | 6600 | 9600 | | | | | |
| 1/4" | 3700 | 4800 | 7000 | 9600 | | | | |
| 5/16" | | 3700 | 5500 | 7500 | | | | |
| 3/8" | | 3100 | 4500 | 6200 | | | | |
| 1/2" | | 2300 | 3200 | 4500 | 5900 | | | |
| 5/8" | | | 2600 | 3500 | 4600 | 5300 | | |
| 3/4" | | | 2100 | 2900 | 3700 | 4300 | 5100 | |
| 7/8" | | | 1800 | 2400 | 3200 | 3700 | 4300 | |
| 1" | | | 1500 | 2100 | 2700 | 3200 | 3700 | 4100 |

| Tube Size O.D. | Copper | | | | | | | |
|----------------|------------------------------|------|------|------|------|------|------|------|
| | Tube Wall Thickness (inches) | | | | | | | |
| | .028 | .035 | .049 | .065 | .083 | .095 | .109 | .120 |
| 1/8" | 2700 | 3600 | | | | | | |
| 3/16" | 1800 | 2300 | 3400 | | | | | |
| 1/4" | 1300 | 1600 | 2500 | 3500 | | | | |
| 5/16" | | 1300 | 1900 | 2700 | | | | |
| 3/8" | | 1000 | 1600 | 2200 | | | | |
| 1/2" | | 800 | 1100 | 1600 | 2100 | | | |
| 5/8" | | | 900 | 1200 | 1600 | 1900 | | |
| 3/4" | | | 700 | 1000 | 1300 | 1500 | 1800 | |
| 7/8" | | | 600 | 800 | 1100 | 1300 | 1500 | |
| 1" | | | 500 | 700 | 900 | 1100 | 1300 | 1500 |

METRIC TUBE (bar)

| Tube Size O.D. | Stainless Steel | | | | | | | | | |
|----------------|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Tube Wall Thickness (mm) | | | | | | | | | |
| | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.0 |
| 3 | 670 | | | | | | | | | |
| 6 | 310 | 420 | 540 | 710 | | | | | | |
| 8 | | 310 | 390 | 520 | | | | | | |
| 10 | | 240 | 300 | 400 | 510 | 580 | | | | |
| 12 | | 200 | 250 | 330 | 410 | 470 | | | | |
| 14 | | 160 | 200 | 270 | 340 | 380 | 430 | | | |
| 15 | | 150 | 190 | 250 | 310 | 360 | 400 | | | |
| 16 | | | 170 | 230 | 290 | 330 | 370 | | | |
| 18 | | | 150 | 200 | 260 | 290 | 320 | 370 | | |
| 20 | | | 140 | 180 | 230 | 260 | 290 | 330 | 380 | |
| 22 | | | 120 | 160 | 200 | 230 | 260 | 300 | 340 | |
| 25 | | | | | 180 | 200 | 230 | 260 | 290 | 320 |

TUBE PRESSURE DE-RATING FACTORS ELEVATED TEMPERATURES

| Temperatures | | Tubing Material | | | |
|--------------|-----|-----------------|--------|--------|--------|
| °F | °C | Carbon | 304 SS | 316 SS | Copper |
| 100 | 38 | | | | 1.00 |
| 150 | 66 | | | | 0.85 |
| 200 | 93 | 0.95 | 1.00 | 1.00 | 0.80 |
| 250 | 121 | | | | 0.80 |
| 300 | 149 | 0.90 | 1.00 | 1.00 | 0.78 |
| 350 | 177 | | | | 0.66 |
| 400 | 204 | 0.87* | 0.93 | 0.96 | 0.50 |
| 500 | 260 | | 0.87 | 0.89 | |
| 600 | 316 | | 0.82 | 0.85 | |
| 700 | 371 | | 0.8 | 0.81 | |
| 800 | 427 | | 0.76 | 0.79 | |
| 900 | 482 | | 0.73 | 0.77 | |
| 1000 | 538 | | 0.69 | 0.76 | |

* Based on 375°F (190°C) max