

S-LOK

Stainless steel

Seamless Tubing

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Catalogue No. S-LOK Jan.2023

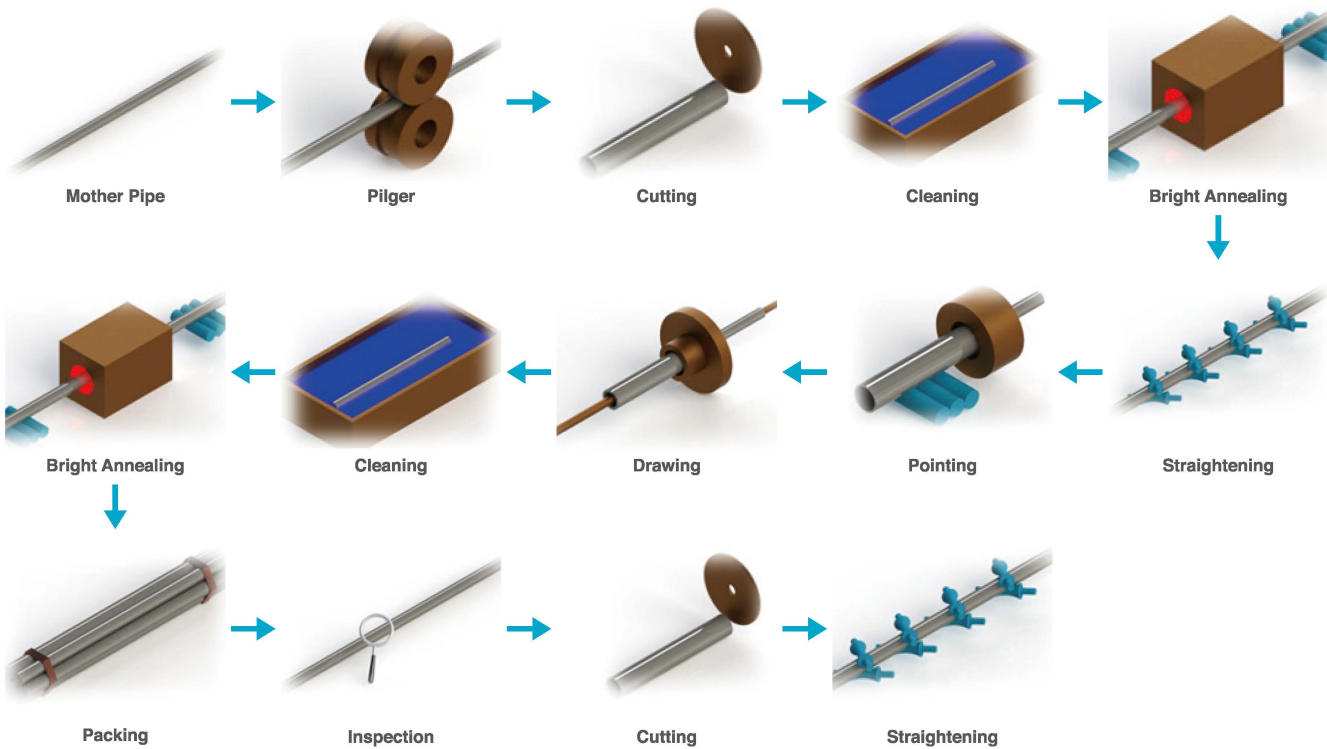
S-LOK Stainless Steel Seamless Tubing

Feature

- 316/316L stainless steel
- 1/8 to 1 inch sizes
- 4 to 20mm sizes
- Tubing is marked with size material, specification, heat no and lot no.



Manufacturing Process



Material Standard

| Seamless Tube | | | | Welded Tube | | | |
|---------------|-------|---------|--------------|-----------------|-------|---------|-------|
| ASTM / ASME | DIN | EN | JIS | ASTM / ASME | DIN | EN | JIS |
| A213 / SA213 | 17458 | 10216-5 | G3463 | A249 / SA249 | 17457 | 10216-7 | G3463 |
| A312 / SA312 | | | | A312 / SA312 | | | |
| A269 / SA269 | | | A269 / SA269 | G3459 | | | |
| A632 | | | A632 | G3459 (Special) | | | |
| A270 | | | A270 | G3447 | | | |

Technical Data

Inspection item

| Items | AP | BA | EP |
|-----------------------|------------|------------|------------|
| Chemical Composition | Mill Sheet | Mill Sheet | Mill Sheet |
| Mechanical Properties | Mill Sheet | Mill Sheet | Mill Sheet |
| Measure Tolerance | O | O | O |
| Roughness | O | O | O |
| Welding Test | * | * | * |
| Surface Microscope | * | * | * |
| Particle Test | | * | * |
| Oil Content | | * | * |
| Eluant Ion check | | | * |
| SEM Test | | | * |
| Moisture Test | | | * |

* marked are optional tests - Optional tests are available upon request.

Chemical Composition

| Element | Composition, wt. % | |
|---------|--------------------|------------|
| | 316 / 316L | 304 / 304L |
| C | ≤ 0.035 | ≤ 0.035 |
| Si | ≤ 1.0 | ≤ 1.0 |
| Mn | ≤ 2.00 | ≤ 2.00 |
| P | ≤ 0.045 | ≤ 0.045 |
| S | ≤ 0.03 | ≤ 0.03 |
| Ni | 10 ~ 15 | 8 ~ 12 |
| Cr | 16 ~ 18 | 18 ~ 20 |
| Mo | 2 ~ 3 | - |

Inner Surface Roughness

| Level | Ry |
|-------|-----------|
| AP | ≤ 2.0 μm |
| BA | ≤ 0.38 μm |
| EP | ≤ 0.25 μm |

Ordering Information



1 - Product

M-T : Tube

2 - Manufacturing method

S : Seamless
W : Welding

3 - Type of Product

S : Straight Type
C : Coil Type

4 - Tube O.D

01 : 1/16" 2M : 2mm
02 : 1/8" 3M : 3mm
03 : 3/16" 4M : 4mm
04 : 1/4" 6M : 6mm
05 : 5/16" 8M : 8mm
06 : 3/8" 10M : 10mm
08 : 1/2" 12M : 12mm
10 : 5/8" 16M : 16mm
12 : 3/4" 20M : 20mm
14 : 7/8" 22M : 22mm
16 : 1" 25M : 25mm
20 : 1-1/4" 28M : 28mm
24 : 1-1/2" 32M : 32mm
32 : 2" 38M : 38mm

5 - Wall Thickness

028 : 0.028" 080 : 0.8mm
035 : 0.035" 100 : 1.0mm
049 : 0.049" 12T : 1.2mm
065 : 0.065" 150 : 1.5mm
083 : 0.083" 180 : 1.8mm
095 : 0.095" 200 : 2.0mm
109 : 0.109" 220 : 2.2mm
120 : 0.120" 250 : 2.5mm
134 : 0.134" 280 : 2.8mm
156 : 0.156" 300 : 3.0mm

6 - Length

03 : 3m
04 : 4m
06 : 6m
50 : 50m
60 : 60m

7 - Product Grade

AP : AP Grade
BA : BA Grade
EP : EP Grade

8 - Material

S6 : 316/316L
Stainless Steel
S4 : 304/304L
Stainless Steel
CU : Copper

Ordering Information and Dimensions

Fractional Stainless Steel Seamless Tubing

| Tube O.D inch | Tube Wall Thickness inch (mm) | Ordering Number | Length, m | Grade |
|------------------|----------------------------------|-----------------------|-----------|-------|
| 1/16 | 0.012 (0.30) | M-TSS-01-012-04-BA-S6 | 4 | BA |
| 1/8 | 0.028 (0.71) | M-TSS-02-028-06-BA-S6 | 6 | BA |
| 3/16 | 0.035 (0.89) | M-TSS-03-035-06-BA-S6 | 6 | BA |
| 1/4 | 0.035 (0.89) | M-TSS-04-035-06-BA-S6 | 6 | BA |
| | 0.039 (1.00) | M-TSS-04-100-04-BA-S6 | 4 | BA |
| | 0.039 (1.00) | M-TSS-04-100-04-EP-S6 | 4 | EP |
| | 0.049 (1.24) | M-TSS-04-049-06-BA-S6 | 6 | BA |
| 3/8 | 0.065 (1.65) | M-TSS-04-065-06-BA-S6 | 6 | BA |
| | 0.035 (0.89) | M-TSS-06-035-06-BA-S6 | 6 | BA |
| | 0.039 (1.00) | M-TSS-06-100-04-BA-S6 | 4 | BA |
| | 0.039 (1.00) | M-TSS-06-100-04-EP-S6 | 4 | EP |
| | 0.049 (1.24) | M-TSS-06-049-06-BA-S6 | 6 | BA |
| 1/2 | 0.065 (1.65) | M-TSS-06-065-06-BA-S6 | 6 | BA |
| | 0.035 (0.89) | M-TSS-08-035-06-BA-S6 | 6 | BA |
| | 0.039 (1.00) | M-TSS-08-100-04-BA-S6 | 4 | BA |
| | 0.039 (1.00) | M-TSS-08-100-04-EP-S6 | 4 | EP |
| 5/8 | 0.049 (1.24) | M-TSS-08-049-06-BA-S6 | 6 | BA |
| | 0.049 (1.24) | M-TSS-08-065-06-BA-S6 | 6 | BA |
| | 0.035 (0.89) | M-TSS-10-035-06-BA-S6 | 6 | BA |
| | 0.049 (1.24) | M-TSS-10-049-06-BA-S6 | 6 | BA |
| 3/4 | 0.035 (0.89) | M-TSS-12-035-06-BA-S6 | 6 | BA |
| | 0.049 (1.24) | M-TSS-12-049-04-BA-S6 | 4 | BA |
| | 0.049 (1.24) | M-TSS-12-049-04-EP-S6 | 4 | EP |
| | 0.049 (1.24) | M-TSS-12-049-06-BA-S6 | 6 | BA |
| | 0.065 (1.65) | M-TSS-12-065-06-BA-S6 | 6 | BA |
| 7/8 | 0.065 (1.65) | M-TSS-14-150-06-BA-S6 | 6 | BA |
| | 0.049 (1.24) | M-TSS-16-049-06-BA-S6 | 6 | BA |
| 1 | 0.065 (1.65) | M-TSS-16-065-04-BA-S6 | 4 | BA |
| | 0.065 (1.65) | M-TSS-16-065-04-EP-S6 | 4 | EP |
| | 0.065 (1.65) | M-TSS-16-065-06-BA-S6 | 6 | BA |
| | 0.083 (2.11) | M-TSS-16-083-06-BA-S6 | 6 | BA |
| 1-1/4 | 0.049 (1.24) | M-TSS-20-049-06-BA-S6 | 6 | BA |
| | 0.065 (1.65) | M-TSS-20-065-06-BA-S6 | 6 | BA |
| | 0.083 (2.11) | M-TSS-20-083-06-BA-S6 | 6 | BA |
| 1-1/2 | 0.065 (1.65) | M-TSS-24-065-06-BA-S6 | 6 | BA |
| | 0.083 (2.11) | M-TSS-24-083-06-BA-S6 | 6 | BA |
| 2 | 0.083 (2.11) | M-TSS-32-083-06-BA-S6 | 6 | BA |

Metric Stainless Steel Seamless Tubing

| Tube O.D mm | Thickness mm Tube Wall | Ordering Number | Length, m | Grade |
|----------------|---------------------------|------------------------|-----------|-------|
| 4 | 1.0 | M-TSS-04M-100-06-BA-S6 | 6 | BA |
| 6 | 1.0 | M-TSS-06M-100-06-BA-S6 | 6 | BA |
| 8 | 1.0 | M-TSS-08M-100-06-BA-S6 | 6 | BA |
| | 1.5 | M-TSS-08M-150-06-BA-S6 | 6 | BA |
| 10 | 1.0 | M-TSS-10M-100-06-BA-S6 | 6 | BA |
| | 1.5 | M-TSS-10M-150-06-BA-S6 | 6 | BA |
| 12 | 1.0 | M-TSS-12M-100-06-BA-S6 | 6 | BA |
| | 1.5 | M-TSS-12M-150-06-BA-S6 | 6 | BA |
| 15 | 1.5 | M-TSS-15M-150-06-BA-S6 | 6 | BA |
| 16 | 1.5 | M-TSS-16M-150-06-BA-S6 | 6 | BA |
| 20 | 1.5 | M-TSS-20M-150-06-BA-S6 | 6 | BA |

↗ Suggested Allowable Working Pressure for Stainless Steel Tubing

Fully annealed 304 or 316 high quality seamless steel tube to ASTM A269 or equivalent.
 Hardness : HRB80 or less

| Tube O.D (inch) | Tube Wall Thickness (inch) | | | | | | | | | | | | | | | |
|-----------------|----------------------------|-------|-------|-------|--------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|
| | 0.010 | 0.012 | 0.014 | 0.016 | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.120 | 0.134 | 0.156 | 0.188 |
| 1/16 | 5,600 | 6,800 | 8,100 | 9,400 | 12,000 | | | | | | | | | | | |
| 1/8 | | | | | | 8,500 | 10,900 | | | | | | | | | |
| 3/16 | | | | | | 5,400 | 7,000 | 10,200 | | | | | | | | |
| 1/4 | | | | | | 4,000 | 5,100 | 7,500 | 10,200 | | | | | | | |
| 5/16 | | | | | | | 4,000 | 5,800 | 8,000 | | | | | | | |
| 3/8 | | | | | | | 3,300 | 4,800 | 6,500 | 7,500 | | | | | | |
| 1/2 | | | | | | | 2,600 | 3,700 | 5,100 | 6,700 | | | | | | |
| 5/8 | | | | | | | | 2,900 | 4,000 | 5,200 | 6,000 | | | | | |
| 3/4 | | | | | | | | 2,400 | 3,300 | 4,200 | 4,900 | 5,800 | | | | |
| 7/8 | | | | | | | | 2,000 | 2,800 | 3,600 | 4,200 | 4,800 | | | | |
| 1 | | | | | | | | | 2,400 | 3,100 | 3,600 | 4,200 | 4,700 | | | |
| 1-1/4 | | | | | | | | | | 2,400 | 2,800 | 3,300 | 3,600 | 4,100 | 4,900 | |
| 1-1/2 | | | | | | | | | | | 2,300 | 2,700 | 3,000 | 3,400 | 4,000 | 4,900 |
| 2 | | | | | | | | | | | | 2,000 | 2,200 | 2,500 | 2,900 | 3,600 |

| Tube O.D (mm) | Tube Wall Thickness (mm) | | | | | | | | | | | | | | |
|---------------|--------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 0.3 | 0.8 | 1.0 | 1.2 | 1.5 | 1.8 | 2.0 | 2.2 | 2.5 | 2.8 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| 2 | 210 | 660 | | | | | | | | | | | | | |
| 3 | | 670 | | | | | | | | | | | | | |
| 4 | | 500 | 660 | | | | | | | | | | | | |
| 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 | 210 | 360 | 400 | | | | | | | |
| 16 | | | | 170 | 230 | 290 | 330 | 370 | 400 | | | | | | |
| 18 | | | | 150 | 200 | 260 | 290 | 320 | 370 | | | | | | |
| 20 | | | | 140 | 180 | 230 | 260 | 290 | 330 | 380 | | | | | |
| 22 | | | | 140 | 180 | 200 | 230 | 260 | 300 | 340 | | | | | |
| 25 | | | | | | 180 | 200 | 230 | 260 | 290 | 320 | | | | |
| 28 | | | | | | | 180 | 200 | 230 | 260 | 280 | 330 | | | |
| 30 | | | | | | | 170 | 180 | 210 | 240 | 260 | 310 | | | |
| 32 | | | | | | | 160 | 170 | 200 | 220 | 240 | 290 | 330 | | |
| 38 | | | | | | | | 140 | 160 | 190 | 200 | 240 | 270 | 310 | |
| 50 | | | | | | | | | | | 150 | 180 | 210 | 240 | 270 |

- Allowable working pressures are calculated from as S value of 20,000 psi (137.8 MPa) for ASTM A269 tubing at -20 to 100°C (-28 to 37°C), as listed in ASME B 31.3 and ASME B31.1.
- Pressure calculations are based on maximum O.D and minimum wall thickness without allowance for corrosion and erosion.
- To determine bar, multiply psig by 0.0689 / To determine psig, multiply bar by 14.51. / To determine kPa, multiply psig by 6.89.
- For welded tubing, the following derating rate to be applied to weld integrity.
 - for single seam welded tubing, multiply by 0.80
 - for double seam welded tubing, multiply by 0.85

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