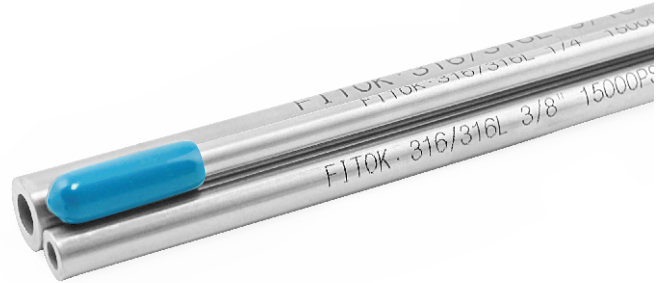


# Medium and High Pressure Tubing

## T15A Series

### Features

- ⦿ Materials: 316/316L, enhanced-316/316L
- ⦿ Working pressures: up to 15,000 psig (1034 bar)
- ⦿ Working temperature: -325°F to 1000°F (-198°C to 537°C)
- ⦿ Supply conditions: annealed seamless tubing
- ⦿ For use with FITOK 20D series tube fittings
- ⦿ Marked with brand, material grade, specification, pressure, annealing designator and heat number
- ⦿ Standard length: 40 in, 80 in, 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m  
Customized length as per customer requirement is also 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
Enhanced-S31600/S31603	Enhanced-316/316L <sup>①</sup>	SH	≤0.03					17-18	12-14	2.6-3.0

① Enhanced-316/316L complying with GB50516-2021 Technical Code for Hydrogen Fuelling Station is available, in which Ni<sub>eq</sub> is not less than 28.5%. Contact FITOK Group for more information.

### Mechanical Properties

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

### 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		
3/4		
1		

## Working Pressure at Ambient Temperature

Working pressures are calculated in accordance with ASME B31.3.

Tube O.D. in.	Wall Thickness in.	Working Pressure psig (bar)
1/8	0.037	15,000 (1,034)
1/4	0.083	15,000 (1,034)
	0.065	10,300 (710)
3/8	0.118	15,000 (1,034)
	0.095	10,000 (690)
1/2	0.156	15,000 (1,034)
	0.134	11,200 (772)
3/4	0.240	15,000 (1,034)
	0.188	10,000 (690)
1	0.220	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
1000	537	0.76

## Ordering Information

Tube O.D. in.	Wall Thickness in.	Ordering Number <sup>①②</sup>	
1/8	0.037	□□-T15A-2-037-6M	□□-T15A-2-037-20F
1/4	0.083	□□-T15A-4-083-6M	□□-T15A-4-083-20F
	0.065	□□-T15A-4-065-6M	□□-T15A-4-065-20F
3/8	0.118	□□-T15A-6-118-6M	□□-T15A-6-118-20F
	0.095	□□-T15A-6-095-6M	□□-T15A-6-095-20F
1/2	0.156	□□-T15A-8-156-6M	□□-T15A-8-156-20F
	0.134	□□-T15A-8-134-6M	□□-T15A-8-134-20F
3/4	0.240	□□-T15A-12-240-6M	□□-T15A-12-240-20F
	0.188	□□-T15A-12-188-6M	□□-T15A-12-188-20F
1	0.220	□□-T15A-16-220-6M	□□-T15A-16-220-20F

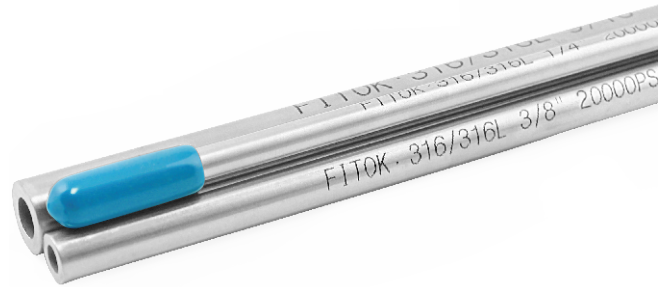
① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.

## T20D Series

### Features

- ⦿ Materials: 316/316L, enhanced-316/316L
- ⦿ Working pressures: up to 20,000 psig (1379 bar)
- ⦿ Working temperature: -325°F to 800°F (-198°C to 427°C)
- ⦿ Supply conditions: cold-drawn 1/8-hard seamless tubing
- ⦿ For use with FITOK 20D series tube fittings
- ⦿ Marked with brand, material grade, specification, pressure and heat number
- ⦿ Standard length: 40 in, 80 in, 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m  
Customized length as per customer requirement is also 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
Enhanced-S31600/S31603	Enhanced- <sup>①</sup> 316/316L	SH	≤0.03					17-18	12-14	2.6-3.0

① Enhanced-316/316L complying with GB50516-2021 Technical Code for Hydrogen Fuelling Station is available, in which Ni<sub>eq</sub> is not less than 28.5%. Contact FITOK Group for more information.

### Mechanical Properties

UNS	Grade	Yield Strength ksi	Tensile Strength ksi	Elongation %	Hardness
S31600/S31603	316/316L	75 to 110	105 to 140	≥25	≤26 HRC
Enhanced-S31600/S31603	Enhanced-316/316L				

### Dimensional Tolerance

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

## Working Pressure at Ambient Temperature

Working pressures are calculated in accordance with ASME B31.3 Chapter IX High Pressure Piping.

Tube O.D. in.	Wall Thickness in.	Working Pressure psig (bar)
1/4	0.065	20,000 (1,379)
3/8	0.083	
1/2	0.109	
3/4	0.165	
1	0.172	17,800 (1,220)

## 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

Tube O.D. in.	Wall Thickness in.	Ordering Number <sup>①②③</sup>	
1/4	0.065	□□-T20D-4-065-6M	□□-T20D-4-065-20F
3/8	0.083	□□-T20D-6-083-6M	□□-T20D-6-083-20F
1/2	0.109	□□-T20D-8-109-6M	□□-T20D-8-109-20F
3/4	0.165	□□-T20D-12-165-6M	□□-T20D-12-165-20F
1	0.172	□□-T20D-16-172-6M	□□-T20D-16-172-20F

① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.

③ Cold-drawn 1/8-hard seamless tubing is not used with 15S series single-ferrule tube fittings.

## T20M Series

### Features

- Materials: 316/316L, enhanced-316/316L
- Working pressure up to 20,000 psig (1379 bar)
- Working temperature: -325°F to 800°F (-198°C to 427°C)
- Cold-drawn seamless tubing
- For use with FITOK 20M series medium pressure fittings
- Marked with brand, material grade, specification, pressure, and heat number
- Standard length: 40 in, 80 in, 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m, straight-length tubing and coned and threaded nipples in custom length are also 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
Enhanced-S31600/S31603	Enhanced-316/316L <sup>①</sup>	SH	≤0.03					17-18	12-14	2.6-3.0

① Enhanced-316/316L complying with GB50516-2021 Technical Code for Hydrogen Fuelling Station is available, in which Ni<sub>eq</sub> is not less than 28.5%. Contact FITOK Group for more information.

### 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)

## Ordering Information

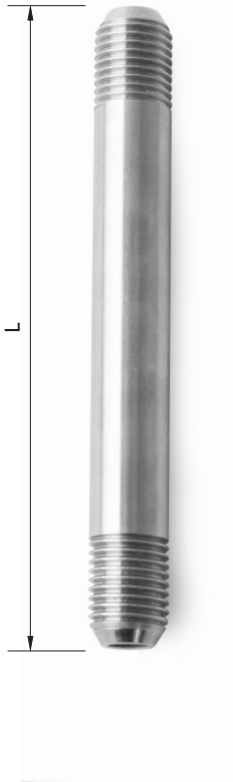
### Cold-Drawn Seamless Tubing

Tube O.D. in.	Tube I.D. in.	Ordering Number <sup>①②</sup>	
1/4	0.109	□□-T20M-4-6M	□□-T20M-4-20F
3/8	0.203	□□-T20M-6-6M	□□-T20M-6-20F
9/16	0.312	□□-T20M-9-6M	□□-T20M-9-20F
3/4	0.438	□□-T20M-12-6M	□□-T20M-12-20F
1	0.562	□□-T20M-16-6M	□□-T20M-16-20F

① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length. Nipples in custom length available upon request.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.

## Coned and Threaded Nipples



Tube O.D. in.	Tube I.D. in.	Length L <sup>①</sup> in. (mm)	Ordering Number <sup>②</sup>
1/4	0.109	3.00 (76.2)	□□-T20M-4CT-3N
		4.00 (101.6)	□□-T20M-4CT-4N
		6.00 (152.4)	□□-T20M-4CT-6N
		8.00 (203.2)	□□-T20M-4CT-8N
		10.0 (254.0)	□□-T20M-4CT-10N
		12.0 (304.8)	□□-T20M-4CT-12N
3/8	0.203	3.00 (76.2)	□□-T20M-6CT-3N
		4.00 (101.6)	□□-T20M-6CT-4N
		6.00 (152.4)	□□-T20M-6CT-6N
		8.00 (203.2)	□□-T20M-6CT-8N
		10.0 (254.0)	□□-T20M-6CT-10N
		12.0 (304.8)	□□-T20M-6CT-12N
9/16	0.312	4.00 (101.6)	□□-T20M-9CT-4N
		6.00 (152.4)	□□-T20M-9CT-6N
		8.00 (203.2)	□□-T20M-9CT-8N
		10.0 (254.0)	□□-T20M-9CT-10N
		12.00 (304.8)	□□-T20M-9CT-12N
3/4	0.438	4.00 (101.6)	□□-T20M-12CT-4N
		6.00 (152.4)	□□-T20M-12CT-6N
		8.00 (203.2)	□□-T20M-12CT-8N
		10.0 (254.0)	□□-T20M-12CT-10N
		12.0 (304.8)	□□-T20M-12CT-12N
1	0.562	6.00 (152.4)	□□-T20M-16CT-6N
		8.00 (203.2)	□□-T20M-16CT-8N
		10.0 (254.0)	□□-T20M-16CT-10N
		12.0 (304.8)	□□-T20M-16CT-12N

① Nipples in customized length available upon request.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.

## T60H Series

### Features

- ⦿ Materials: 316/316L, enhanced-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 60H series high pressure fittings
- ⦿ Marked with brand, material grade, specification, pressure, and heat number
- ⦿ Standard length: 40 in, 80 in, 10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m, straight-length tubing and coned and threaded nipples in custom length are also 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
Enhanced-S31600/S31603	Enhanced-316/316L	SH	≤0.03					17-18	12-14	2.6-3.0

### 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

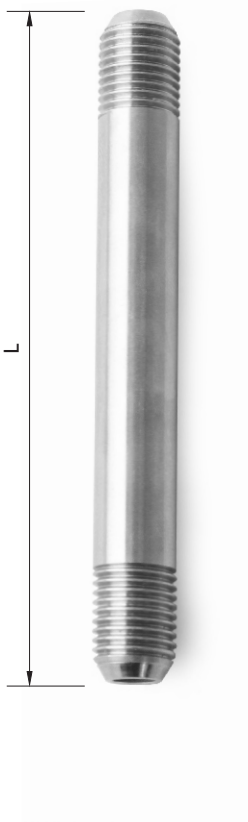
### Cold-Drawn Seamless Tubing

Tube O.D. in.	Tube I.D. in.	Ordering Number <sup>①②</sup>	
1/4	0.083	□□-T60H-4-6M	□□-T60H-4-20F
3/8	0.125	□□-T60H-6-6M	□□-T60H-6-20F
9/16	0.188	□□-T60H-9-6M	□□-T60H-9-20F

① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length. Nipples in custom length available upon request.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.

### Coned and Threaded Nipples



Tube O.D. in.	Tube I.D. in.	Length L <sup>①</sup> in. (mm)	Ordering Number <sup>②</sup>
1/4	0.083	2.75 (69.9)	□□-T60H-4CT-2.75N
		3.00 (76.2)	□□-T60H-4CT-3N
		4.00 (101.6)	□□-T60H-4CT-4N
		6.00 (152.4)	□□-T60H-4CT-6N
		8.00 (203.2)	□□-T60H-4CT-8N
		10.0 (254.0)	□□-T60H-4CT-10N
		12.0 (304.8)	□□-T60H-4CT-12N
3/8	0.125	3.00 (76.2)	□□-T60H-6CT-3N
		4.00 (101.6)	□□-T60H-6CT-4N
		6.00 (152.4)	□□-T60H-6CT-6N
		8.00 (203.2)	□□-T60H-6CT-8N
		10.0 (254.0)	□□-T60H-6CT-10N
		12.0 (304.8)	□□-T60H-6CT-12N
9/16	0.188	4.00 (101.6)	□□-T60H-9CT-4N
		6.00 (152.4)	□□-T60H-9CT-6N
		8.00 (203.2)	□□-T60H-9CT-8N
		10.0 (254.0)	□□-T60H-9CT-10N
		12.0 (304.8)	□□-T60H-9CT-12N

① Nipples in custom length available upon request.

② To order, add the material designator as prefix: SS for 316/316L and SH for enhanced-316/316L.