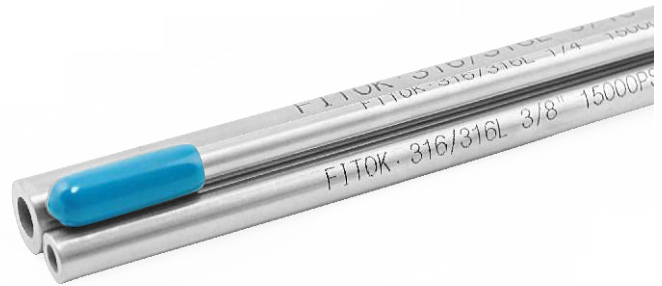


Medium and High Pressure Tubing

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 ^①	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_{eq} 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 ^{①②}	
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

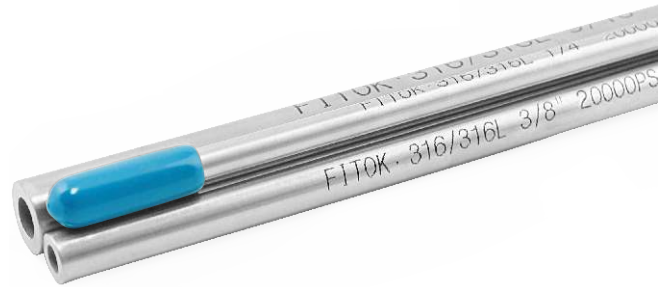
① In the ordering number, "6M" designator refers to 6 m tubing length and "20F" designator refers to 20 ft tubing length.

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- ^① 316/316L	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_{eq} 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	15,000 (1,034)

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 ^{①②③}	
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: -423°F to 800°F (-252°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- ^① 316/316L	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_{eq} 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	-0.005/-0.01	0.203	
9/16		0.312	
3/4		0.438	+/-0.005
1		0.562	
1 1/2		0.937	

Working Pressure at Ambient Temperature

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

Tube O.D. in.	Tube I.D. in.	Working Pressure psig (bar)
1/4	0.109	20,000 (1,379)
3/8	0.203	
9/16	0.312	
3/4	0.438	
1	0.562	
1 1/2	0.937	15,000 (1,034)

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)	19,000 (1310)	18,000 (1241)	16,800 (1158)
15,000 (1034)	15,000 (1034)	14,200 (979)	13,500 (931)	12,600 (869)

Ordering Information

Cold-Drawn Seamless Tubing

Tube O.D. in.	Tube I.D. in.	Ordering Number ^{①②}	
1/4	0.109	<input type="checkbox"/> <input type="checkbox"/> -T20M-4-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-4-20F
3/8	0.203	<input type="checkbox"/> <input type="checkbox"/> -T20M-6-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-6-20F
9/16	0.312	<input type="checkbox"/> <input type="checkbox"/> -T20M-9-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-9-20F
3/4	0.438	<input type="checkbox"/> <input type="checkbox"/> -T20M-12-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-12-20F
1	0.562	<input type="checkbox"/> <input type="checkbox"/> -T20M-16-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-16-20F
1 1/2	0.937	<input type="checkbox"/> <input type="checkbox"/> -T20M-24-6M	<input type="checkbox"/> <input type="checkbox"/> -T20M-24-20F

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.

Cold-Drawn Seamless Coiled Tubing

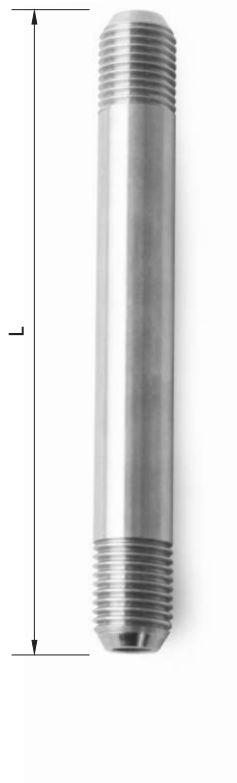
Tube O.D. in.	Tube I.D. in.	Ordering Number ^{①②③}	
1/4	0.109	<input type="checkbox"/> <input type="checkbox"/> -T20MC-4-CL11M	<input type="checkbox"/> <input type="checkbox"/> -T20MC-4-CL11F

① Random-length coiled tubing applies only to Grades CL11M/CL11F and is available in lengths ranging from 354 ft to 456 ft (108 m to 139 m).

② Cut-to-length service is available for lengths up to a maximum of 120 m.

③ 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 ^① in. (mm)	Ordering Number ^②
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 1/2	0.937	6.00 (152.4)	□□-T20M-24CT-6N
		8.00 (203.2)	□□-T20M-24CT-8N
		10.0 (254.0)	□□-T20M-24CT-10N
		12.0 (304.8)	□□-T20M-24CT-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

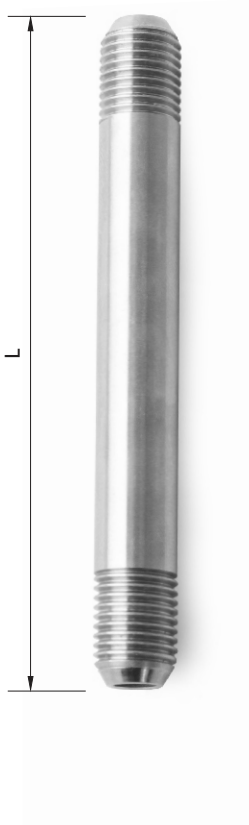
Cold-Drawn Seamless Tubing

Tube O.D. in.	Tube I.D. in.	Ordering Number ^{①②}	
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 ^① in. (mm)	Ordering Number ^②
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.