BESTOK

— WE ARE YOUR BETTER CHOICE —

Instrumentation

Tubing And Pipes

Bestok Instrumentation Tubing And Pipes

Internal Surface Condition:MP, BA And EP

T,P And TC Series





Instrumentation Tubing

MP Series

Features

- Materials: stainless steel, duplex stainless steel or nickel-based alloy
- Sizes:1/16" to 2" and 2 mm to 50 mm
- Working temperature: -325°F to 1000°F(-198°C to 537°C)
- Pickled, or bright annealed or precision cold worked followedby bright annealing, machined finished external surface
- For use with BESTOK tube fittings, 4:1 safety factor for the tubing and connection part of fitting and tubing
- Marked with brand, material grade, standard, specification and heat number
- Standard length:40,80,10 ft, 20 ft, 1 m, 2 m, 3 m and 6 m
  Customized length as per customer requirement is also available



Materials

UNS	Grade	ASTM Stand-ard	BESTOK Designator	Composition %					Mechanical Properties			
				C	Cr	Ni	Mo	Others	Yield Strength MPa	Tensile Strength MPa	Elong-ation %	Hardness
S31600/ S31603①	316/316L	A269	SS	⩽0.035②	16-18	10-14	2.0-3.0	-	⩾205	⩾515	⩾35	⩽80 HRB
S30400/ S30403①	304/304L		4S	⩽0.035②	18-20	8-11	-					
S31254	6Mo	A269	S12	⩽0.02	19.5-20.5	17.5-18.5	6.0-6.5		⩾310	⩾675	⩾35	⩽96 HRB
S31803	2205	A789	D5	⩽0.03	21-23	4.5-6.5	2.5-3.5		⩾450	⩾620	⩾25	⩽30 HRC
S32750①	2507	A789	D7	⩽0.03	24-26	6-8	3.0-5.0	Cu,N	⩾550	⩾800	⩾15	⩽32 HRC
N04400①	Alloy 400	B165	M	⩽0.30	-	⩾63	-	Cu 28-34	⩾195	⩾480	⩾35	⩽75 HRB
N08020	Alloy 20	B729	A20	⩽0.07	19-21	32-38	2.0-3.0	Cu,Nb,Ta	⩾240	⩾550	⩾30	⩽95 HRB
N06600	Alloy 600	B167	INC	⩽0.15	14-17	⩾72	-	Cu	⩾205	⩾550	⩾35	⩽92 HRB
N06625	Alloy 625	B444	A65	⩽0.10	20-23	⩾58	8.0-10.0	Cb,Ta	⩾414	⩾827	⩾30	⩽25 HRC
N08825	Alloy 825	B163	A85	⩽0.05	19.5-23.5	38-46	2.5-3.5	Cu,Ti	⩾241	⩾586	⩾30	⩽201 HV
N10276①	Alloy C-276	B622	HC	⩽0.01	14.5-16.5	BAL	15.0-17.0	W	⩾283	⩾690	⩾40	⩽100 HRB

① Materials are compliant with NACE MR0175 by default. For additional requirements, please contact BESTOK.
② The carbon content of tubing with outside diameter smaller than 1/2" or wall thickness smaller than 0.049" is allowed up to 0.04%.

Dimensional Tolerance

Materials	Tube O.D. (D) in. (mm)	O.D. Tolerance in. (mm)	Wall Thickness Tolerance %
316/316L 304/304L 6Mo	D<2.38 (3/32)	+0.05 (0.002)/-0	+/-10
	2.38 (3/32)≤ D<4.76 (3/16)	+0.08 (0.003)/-0	
	4.76 (3/16)≤ D≤ 25.4 (1)	+/-0.10 (0.004)	
	25.4 (1)<D≤ 38.1 (1 1/2)	+/-0.13 (0.005)	
	38.1 (1 1/2)<D<50.8 (2)	+/-0.2 (0.008)	
	D≥ 50.8 (2)	+/-0.25 (0.010)	
2205 2507	D<12.7 (1/2)	+/-0.13 (0.005)	+/-15
	12.7 (1/2)≤ D≤ 19.05 (3/4)		+/-10
Alloy 400 Alloy 20	D<16 (5/8)	+/-0.13 (0.005)	+/-15
	16 (5/8)≤ D<25 (1)		+/-10
Alloy 600	D<16 (5/8)	+/-0.13 (0.005)	+/-12.5
Alloy 625	4.8 (3/16)≤ D<12.7 (1/2)	+0.10 (0.004)/-0	+/-10
	D≥ 12.7 (1/2)	+0.13 (0.005)/-0	
Alloy 825	D≤ 12.7 (1/2)	+0.13 (0.005)/-0	+/-12.5
Alloy C-276		+/-0.13 (0.005)	

Working Pressure at Ambient Temperature

Working pressures in the table below apply only to 316/316L, enhanced-316/316L and 304/304L. For working pressures of other materials, please contact BESTOK Group or our authorized distributors.
For seamless tubing, working pressures are calculated in accordance with ASME B31.3: for single butt weld tubing, multiply the pressure rating by 0.8.

Metric

Tube O.D. mm	Wall Thickness mm													
	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
	Working Pressure bar													
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	400						
18			150	200	260	290	320	370						
20			140	180	230	260	290	330	380					
22			140	160	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

Fractional

Tube O.D. in.	Wall Thickness in.															
	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
	Working Pressure psig															
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	7500						
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

Note: For gas service, select a tube thickness outside of the shaded area when the tube is used with BESTOK tube fittings.

Elevated Temperature Factors

Temperature		Factor	
°F	°C	316/316L	304/304L
200	93	1.00	1.00
400	204	0.96	0.93
600	315	0.85	0.82
800	426	0.79	0.76
1000	537	0.76	0.69

High Purity Tubing

BA Series



Features

- Material: 316L
- Standards: ASTM A269/A632
- Sizes: 1/8"-2 1/2"
- Process: internal surface cold worked followed by bright annealing to roughness of Ra20 μin (0.51 μm)
- Marking: tubing is marked with brand, material grade, specification and heat number
- Standard length: 20 ft, 2 m, 3 m, 4 m and 6 m

Materials

Grade	Standard	BESTOK Designator	Composition %							
			C	Mn	P	S	Si	Ni	Cr	Mo
316L	ASTM	6L	≤0.035①	≤2.00	≤0.045	≤0.03	≤1.00	10.0-15.0	16.0-18.0	2.0-3.0

① The carbon content of tubing with outside diameter smaller than 1/2" or wall thickness smaller than 0.049" is allowed up to 0.04%.

Surface Roughness

Tube O.D. (D) mm	External Surface μin. (μm)	Internal Surface μin. (μm)
3.18≤D≤48.6	Ra≤63 (1.6)	Ra≤15 (0.38)
48.6<D≤63.5		Ra≤20 (0.51)

Dimensional Tolerance and Scope of Supply

Tube O.D.	Wall Thickness	O.D. Tolerance	Wall Thickness Tolerance	Tubing Length		Process	
in.	in.	in. (mm)	%	m	ft	Seamless	Welded
1/8	0.028	0/+0.003 (0.08)	+/-10	2 or 3	-	√	-
1/4	0.035	+/-0.004 (0.10)		4 or 6	20		√
	0.039						
3/8	0.035						
	0.039						
	0.049						
1/2	0.035						
	0.039						
	0.049						
3/4	0.049						
	0.065						
1	0.049						
	0.065						
1 1/2	0.065	+/-0.008 (0.20)					
2	0.065	+/-0.010 (0.25)					
2 1/2	0.065						

Working Pressure at Ambient Temperature

For seamless tubing, working pressures are calculated in accordance with ASME B31.3: for single butt weld tubing, multiply the pressure rating by 0.8.

Tube O.D. in.	Wall Thickness in.				
	0.028	0.035	0.039	0.049	0.065
	Working Pressure psig				
1/8	8500	-	-	-	-
1/4	-	5100	5700	-	-
3/8	-	3300	3700	4800	-
1/2	-	2600	3000	3700	-
3/4	-	-	-	2400	3300
1	-	-	-	1800	2400
1 1/2	-	-	-	-	1600
2	-	-	-	-	1200
2 1/2	-	-	-	-	950

Elevated Temperature Factors

Temperature		Factor
°F	°C	316L
200	93	1.00
400	204	0.96
600	315	0.85
800	426	0.79
1000	537	0.76

Example:
1/2 in. O.D. × 0.035 in. wall thickness BA series tubing at 600 °F (315 °C):
1. Working pressure is 2600 psig at -20 °F to 100 °F (-28 °C to 37 °C);
2. Elevated temperature factor is 0.85 at 600 °F (315 °C);
   2600 psig × 0.85 = 2210 psig
conclude the working pressure of 1/2 in. O.D. × 0.035 in. wall thickness BA series tubing at 600 °F (315 °C) is 2210 psig.

EP Series



Features

- Materials:316L
- Standards: ASTM A269, A632, A312 or JIS G3459
- Sizes:ASTM A269/A632: 1/8"-2 1/2"
- Process: internal surface electropolished to roughness of Ra≤15 μin (0.38 μm), Ra≤10 μin (0.25 μm), Ra≤7 μin (0.18 μm), Ra≤5 μin (0.13 μm); external surface roughness of Ra≤40 μin (1 μm)
- Marking: packing bags are marked with brand, material grade, specification and heat number
- Standard length: 20 ft, 2 m, 3 m, 4 m and 6 m

Materials

Grade	Standard	BESTOK Designator	Composition %							
			C	Mn	P	S	Si	Ni	Cr	Mo
316L	ASTM	6L	≤ 0.035①	≤ 2.00	≤ 0.045	≤ 0.03	≤ 1.00	10.0-15.0	16.0-18.0	2.0-3.0
	JIS G3459		≤ 0.03					12.0-16.0		

① The carbon content of tubing with outside diameter smaller than 1/2" or wall thickness smaller than 0.049" is allowed up to 0.04%.

Surface Roughness

Tube O.D. (D) mm	External Surface μm (μin.)	Internal Surface μm (μin.)		
	EP	EP		
		A	B	C
3.18	Ra≤ 1.0 (40)	-	-	Ra≤ 0.38 (15)
6.35≤ D≤ 63.5		Ra≤ 0.13 (5)	Ra≤ 0.18 (7)	Ra≤ 0.25 (10)

Tubing

Dimensional Tolerance and Scope of Supply

ASTM A269/A632 Compliant EP Series							
Tube O.D.	Wall Thickness	O.D. Tolerance	Wall Thickness Tolerance	Tubing Length		Process	
in.	in.	in. (mm)	%	m	ft	Seamless	Welded
1/8	0.028	+0.003 (0.08)/0	+/-10	2 or 3	-	√	-
1/4	0.035	+/-0.004 (0.10)		4 or 6	20		√
	0.039						
3/8	0.035						
	0.039						
	0.049						
1/2	0.035						
	0.039						
	0.049						
3/4	0.049						
	0.065						
1	0.049						
	0.065						
1 1/2	0.065	+/-0.008 (0.20)					
2	0.065	+/-0.010 (0.25)					
2 1/2	0.065						

Working Pressure at Ambient Temperature

For seamless tubing, working pressures are calculated in accordance with ASME B31.3: for single butt weld tubing, multiply the pressure rating by 0.8.

ASTM A269/A632 Compliant EP Series					
Tube O.D. in.	Wall Thickness in.				
	0.028	0.035	0.039	0.049	0.065
	Working Pressure psig				
1/8	8500	-	-	-	-
1/4	-	5100	5700	-	-
3/8	-	3300	3700	4800	-
1/2	-	2600	3000	3700	-
3/4	-	-	-	2400	3300
1	-	-	-	1800	2400
1 1/2	-	-	-	-	1600
2	-	-	-	-	1200
2 1/2	-	-	-	-	950

Elevated Temperature Factors

Temperature		Factor
°F	°C	316L
200	93	1.00
400	204	0.96
600	315	0.85
800	426	0.79
1000	537	0.76

Example:
1/2 in. O.D. × 0.035 in. wall thickness EP tubing at 600 °F (315 °C):
1. Working pressure is 2600 psig at -20 °F to 100 °F (-28 °C to 37 °C);
2. Elevated temperature factor is 0.85 at 600 °F (315 °C);
   2600 psig × 0.85 = 2210 psig
conclude the working pressure of 1/2 in. O.D. × 0.035 in. wall thickness EP tubing at 600 °F (315 °C) is 2210 psig.

Instrumentation Tubing

TC Series



Features

- Materials: 316/316L, 304/304L
- Sizes: 1/32" to 1/2" and 0.8 mm to 12 mm
- Working temperature: -325°F to 1000°F (-198°C to 537°C)
- Bright annealed with machined finished external surface
- For use with BESTOK tube fittings, 4:1 safety factor for the tubing and connection part of fitting and tubing
- Marked with brand, material grade, standard, specification and heat number

Materials

UNS	Grade	ASTM Standard	BESTOK Designator	Composition %				Mechanical Properties			
				C	Cr	Ni	Mo	Yield Strength MPa	Tensile Strength MPa	Elongation %	Hardness
S31600/S31603	316/316L	A269	SS	≤0.035①	16-18	10-14	2.0-3.0	≥205	≥515	≥35	≤80 HRB
S30400/S30403	304/304L		4S	≤0.035①	18-20	8-11	-				

① The carbon content of tubing with outside diameter smaller than 1/2" or wall thickness smaller than 0.049" is allowed up to 0.04%.

Working Pressure and Elevated Temperature Factors

Refer to the working pressure of MP series tubing.

Ordering Information and Dimensions

Random length example
Customer requirement: coiled tubing, 316/316L stainless steel , 12 mm O. D. x 1.5 mm wall thickness, about 150 m/coil length, total length 1500 m.
Recommended ordering number: TC12M-1.5-50M-SS

不定尺长度等级表　Random Length Grade Table

Fractional

BESTOK P/N	Tube O.D. in.	Wall① Thickness in.	Random Length Grade				Cut Length ② Tolerance ft, (m)
			30M	50M	100M	Length Range /ft, (m)	
TC2-028-	1/8	0.028	30000mm	50000mm	100000mm	Length Range /ft, (m)	+1.640 (+0.50)
TC2-035-		0.035	30000mm	50000mm	100000mm		
TC3-028-	3/16	0.028	30000mm	50000mm	100000mm		
TC3-035-		0.035	30000mm	50000mm	100000mm		
TC4-028-	1/4	0.028	30000mm	50000mm	100000mm		
TC4-035-		0.035	30000mm	50000mm	100000mm		
TC4-049-		0.049	30000mm	50000mm	100000mm		
TC4-065-		0.065	30000mm	50000mm	100000mm		
TC6-035-	3/8	0.035	30000mm	50000mm	100000mm		
TC6-049-		0.049	30000mm	50000mm	100000mm		
TC6-065-		0.065	30000mm	50000mm	100000mm		
TC8-035-	1/2	0.035	30000mm	50000mm	100000mm		
TC8-049-		0.049	30000mm	50000mm	100000mm		
TC8-065-		0.065	30000mm	50000mm	100000mm		
TC8-083-		0.083	30000mm	50000mm	100000mm		

Metric

BESTOK P/N	Tube O.D. mm	Wall① Thickness mm	Random Length Grade				Cut Length ② Tolerance (m)
			30M	50M	100M	Length Range /m	
TC3M-0.8-	3	0.8	30000mm	50000mm	100000mm		+0.50
TC6M-0.8-	6	0.8	30000mm	50000mm	100000mm		
TC6M-1.0-		1.0	30000mm	50000mm	100000mm		
TC6M-1.2-		1.2	30000mm	50000mm	100000mm		
TC6M-1.5-		1.5	30000mm	50000mm	100000mm		
TC8M-1.0-		1.0	30000mm	50000mm	100000mm		
TC8M-1.2-	8	1.2	30000mm	50000mm	100000mm		
TC8M-1.5-		1.5	30000mm	50000mm	100000mm		
TC10M-1.0-	10	1.0	30000mm	50000mm	100000mm		
TC10M-1.2-		1.2	30000mm	50000mm	100000mm		
TC10M-1.5-		1.5	30000mm	50000mm	100000mm		
TC12M-1.0-	12	1.0	30000mm	50000mm	100000mm		
TC12M-1.2-		1.2	30000mm	50000mm	100000mm		
TC12M-1.5-		1.5	30000mm	50000mm	100000mm		
TC12M-2.0-		2.0	30000mm	50000mm	100000mm		

Notes: ① Other wall thicknesses available subject to confirmation from BESTOK.
② Custom shorter cut length available.

Cut Length Example
Customer requirement: coiled tubing, 304/304L stainless steel, 8 mm O. D. x 1.2 mm wall thickness, 400 m/coil length, total length 2000 m.
Recommended ordering number: TC8M-1.2-400M-4S

Ordering Number Description

A B C D E F G

T 8 - 049 - 3M - MP - A269 - 6L

A	Series
T=Stainless Steel Seamless Tubing	
P=Stainless Steel Seamless Pipe	
TC=Coiled Tubing	

B	Tube O.D.		
Fractional		Metric	
1	1/16"	2M	2 mm
2	1/8"	3M	3 mm
3	3/16"	6M	6 mm
4	1/4"	8M	8 mm
5	5/16"	10M	10mm
6	3/8"	12M	12mm
8	1/2"	14M	14mm
10	5/8"	15M	15 mm
12	3/4"	16M	16 mm
14	7/8"	18M	18 mm
16	1"	20M	20 mm
20	1 1/4"	22M	22 mm
24	1 1/2"	25M	25 mm
		28M	28 mm
		30M	30mm
		32M	32 mm
		38M	38 mm

C	Wall Thickness		
Fractional		Metric	
028	0.028"	0.8	0.8 mm
035	0.035"	1.0	1.0 mm
049	0.049"	1.2	1.2 mm
065	0.065"	1.5	1.5 mm
083	0.083"	1.8	1.8 mm
095	0.095"	2.0	2.0 mm
109	0.109"	2.2	2.2 mm
120	0.120"	2.5	2.5 mm
134	0.134"	2.8	2.8 mm
156	0.156"	3.0	3.0 mm
188	0.188"	3.5	3.5 mm
		4.0	4.0 mm
		4.5	4.5 mm

D	Length
0.1M	100 mm
0.5M	500 mm
1M	1000 mm
2M	2000 mm
3M	3000 mm
6M	6000 mm

E	Surface Condition
MP	Pickling
BA	Bright Annealing
EP	Cold Working Followed by Bright Annealing

F	Executive Standard
A269	ASTM A269
A312	ASTM A312
A789	ASTM A789
B165	ASTM B165
B622	ASTM B622

G	Material
6L=316L SS	
4L=304L SS	
21S=321 SS	
904L=904L SS	
SS=316 SS	
M=Alloy 400	
D7=2507 Duplex	
HC=Alloy C-276	

BESTOK

— WE ARE YOUR BETTER CHOICE —

Thanks for your reading!

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