

Stainless Steel Pipe – Welded & Seamless – ASTM A312M

Grades: 304/304L, 316/316L

Stainless steel pipe is available in a wide range of sizes in welded and seamless construction.

Nominal Pipe Size		Outside Diameter (mm)	Wall Thickness (mm)							
			Sch 5S		Sch 10S		Sch 40S		Sch 80S	
DN	NPS		WT (mm)	Weight (kg/m)	WT (mm)	Weight (kg/m)	WT (mm)	Weight (kg/m)	WT (mm)	Weight (kg/m)
6	⅛	10.3			1.24	0.28	1.73	0.37	2.41	0.47
8	¼	13.7			1.65	0.49	2.24	0.63	3.02	0.80
10	⅜	17.1			1.65	0.63	2.31	0.84	3.20	1.10
15	½	21.3	1.65	0.80	2.11	1.00	2.77	1.27	3.73	1.62
20	¾	26.7	1.65	1.02	2.11	1.28	2.87	1.69	3.91	2.20
25	1	33.4	1.65	1.29	2.77	2.09	3.38	2.50	4.55	3.24
32	1¼	42.2	1.65	1.65	2.77	2.69	3.56	3.39	4.85	4.47
40	1½	48.3	1.65	1.90	2.77	3.11	3.68	4.05	5.08	5.41
50	2	60.3	1.65	2.39	2.77	3.93	3.91	5.44	5.54	7.48
65	2½	73.0	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.41
80	3	88.9	2.11	4.52	3.05	6.46	5.49	11.29	7.62	15.27
90	3½	101.6	2.11	5.18	3.05	7.41	5.74	13.57	8.08	18.64
100	4	114.3	2.11	5.84	3.05	8.37	6.02	16.08	8.56	22.32
125	5	141.3	2.77	9.46	3.40	11.56	6.55	21.77	9.53	30.97
150	6	168.3	2.77	11.31	3.40	13.83	7.11	28.26	10.97	42.56
200	8	219.1	2.77	14.78	3.76	19.97	8.18	42.55	12.70	64.64
250	10	273.1	3.40	22.61	4.19	27.79	9.27	60.31	12.70	81.56
300	12	323.9	3.96	31.25	4.57	35.99	9.53	73.88	12.70	97.47
350	14	355.6	3.96	34.34	4.78	41.36	9.53	81.33	12.70	107.40
400	16	406.4	4.19	41.56	4.78	47.34	9.53	93.27	12.70	123.31
450	18	457	4.19	46.79	4.78	53.31	9.53	105.17	12.70	139.16
500	20	508	4.78	59.32	5.54	68.65	9.53	117.15	12.70	155.13
550	22	559	4.78	65.33	5.54	75.62				
600	24	610	5.54	82.58	6.35	94.53	9.53	141.12	12.70	187.07

- Stainless steel pipe nominal dimensions listed in the table are based on ASTM A312M and ASME B36.19M.
- These dimensions are nominal and weights are theroritical– substantial tolerances apply
- For other wall thicknesses and larger sizes consult ASME B36.10M; stainless steel pipe may be available to these carbon steel pipe sizes.

Chemical Requirements of ASTM A312

Grade	UNS Designation[A]	Chemical Composition, %								
		Carbon	Manganese	Phosphorous	Sulfur	Silicon	Chromium	Nickel	Molybdenum	Nitrogen[C]
TP304	S30400	0.08	2.00	0.045	0.030	1.00	18.0-20.0	8.0-11.0	...	...
TP304L	S30403	0.035[D]	2.00	0.045	0.030	1.00	18.0-20.0	8.0-13.0	...	...
TP316	S31600	0.08	2.00	0.045	0.030	1.00	16.0-18.0	11.0-14.0	2.00-3.00	...
TP316L	S31603	0.035[D]	2.00	0.045	0.030	1.00	16.0-18.0	10.0-14.0	2.00-3.00	...
TP321	S32100	0.08	2.00	0.045	0.030	1.00	17.0-19.0	9.0-12.0		0.10

Mechanical Properties of ASTM A312 Pipe

Tensile Requirements			
Grade	UNS Designation	Tensile STrength, min ksi [MPa]	Yield Strength, min ksi [MPa]
TP304	S30400	75 [515]	30 [205]
TP304L	S30403	70 [485]	25 [170]
TP316	S31600	75 [515]	30 [205]
TP316L	S31603	70 [485]	25 [170]
TP321	S32100		
Welded		75 [515]	30 [205]
Seamless			
≤3/8 in.		75 [515]	30 [205]
＞3/8 in.		70 [485]	25 [170]

Mechanical Properties of ASTM A312 Pipe

Permitted Variations in Wall thickness (%)		
Tolerance, % from Nominal		
NPS Designator	Over	Under
1/8 to 2 1/2., all t/D ratios	+20.0%	- 12.5%
3 to 18 incl., t/D up to 5% incl.	+22.5%	- 12.5%
3 to 18 incl., t/D > 5%	+15.0%	- 12.5%
20 and larger, welded, all t/D ratios	+17.5%	- 12.5%
20 and larger, seamless, t/D up to 5% incl.	+22.5%	- 12.5%
20 and larger, seamless, t/D > 5%	+15.0%	- 12.5%

where: t=Nominal Wall Thickness
D=Ordered Outside Diameter

Mechanical Properties of ASTM A312 Pipe

Permitted Variation in Outside Diameter (mm)		Length (mm)
OD	Tolerance	Tolerance
10.29 - 48.26	+0.40/-0.80	+6/-0
48.26 - 114.30	+0.80/-0.80	
114.30 - 219.08	+1.60/-0.80	
219.08 - 457.20	+2.40/-0.80	

SpecifiedProperties

There is a range of carbon steel "tube" covered by AS 1074, AS 1579 and EN ISO 1127 for Stainless Steel Tubes that also has DN designations for nominal size. There are some differences between these and the ASTM /ASME pipes of the same designation as shown in the table of nominal outside diameters at right. The AS tubes and EN ISO 1127 tubes do not have schedules of wall thickness but rather come in Light, Medium and Heavy wall.

Flanges intended for use with ASTM pipe or AS 1074 tube or EN ISO 1127 tubes may need different internal bore sizes; note particularly DN 65, DN 125 and DN 150.

Nominal Size (DN)	ASME (mm)	AS 1074 / AS 1579 (mm)	EN ISO 1127
15	21.3	21.3	21.3
20	26.7	26.9	26.9
25	33.4	33.7	33.7
32	42.2	42.4	42.4
40	48.3	48.3	48.3
50	60.3	60.3	60.3
65	73.0	76.2	76.1
80	88.9	88.9	88.9
90	101.6	101.6	101.6
100	114.3	114.3	114.3
125	141.3	139.7	139.7
150	168.3	165.1	168.3

Welded/Seamless Buttweld Fittings Schedule 10S & Schedule 40S

SIZE	
DN	NPS
15	1/2
20	3/4
25	1
32	1 1/4
40	1 1/2
50	2
65	2 1/2
80	3
90	3 1/2
100	4
125	5
150	6
200	8
250	10
300	12
350	14
400	16
450	18
500	20
600	24

Grade-304/304L, 316/316L To ASTM A403



90 ° Elbow



45 ° Elbow



Equal Tee



End Cap

Grade-304/304L, 316/316L To ASTM A403

SIZE	
DN	NPS
20 x 15	3/4 x 1/2
25 x 15	1 x 1/2
25 x 20	1 x 3/4
32 x 20	1 1/4 x 3/4
32 x 25	1 1/4 x 1
40 x 20	1 1/2 x 3/4
40 x 25	1 1/2 x 1
40 x 32	1 1/2 x 1 1/4
50 x 20	2 x 3/4
50 x 25	2 x 1
50 x 32	2 x 1 1/4
50 x 40	2 x 1 1/2
65 x 20	2 1/2 x 3/4
65 x 25	2 1/2 x 1
65 x 32	2 1/2 x 1 1/4
65 x 40	2 1/2 x 1 1/2
65 x 50	2 1/2 x 2
80 x 25	3 x 1
80 x 32	3 x 1 1/4
80 x 40	3 x 1 1/2
80 x 50	3 x 2
80 x 65	3 x 2 1/2
100 x 25	4 x 1
100 x 32	4 x 1 1/4
100 x 40	4 x 1 1/2

SIZE	
DN	NPS
100 x 50	4 x 2
100 x 65	4 x 2 1/2
100 x 80	4 x 3
125 x 50	5 x 2
125 x 65	5 x 2 1/2
125 x 80	5 x 3
125 x 100	5 x 4
150 x 50	6 x 2
150 x 65	6 x 2 1/2
150 x 80	6 x 3
150 x 100	6 x 4
150 x 125	6 x 5
200 x 80	8 x 3
200 x 100	8 x 4
200 x 125	8 x 5
200 x 150	8 x 6
250 x 100	10 x 4
250 x 150	10 x 6
250 x 200	10 x 8
300 x 200	12 x 8
300 x 250	12 x 10
350 x 300	14 x 12
400 x 200	16 x 8
400 x 250	16 x 10
400 x 300	16 x 12



Concentric Reducer



Reducing Tee

Screwed Low Pressure "150lb" BSP 304/316 Fittings

SIZE	
DN	NPS
6	1/8
8	1/4
10	3/8
15	1/2
20	3/4
25	1
32	1 1/4
40	1 1/2
50	2
65	2 1/2
80	3
100	4



Plain Socket



Nut Socket



90° Elbow



90° Male Female Elbow



90° Equal Tee



Nipple



TBE Pipe Nipple



TOE Pipe Nipple



Cap Plug



Square Head Plug



Hose Tail



Union

SIZE	
DN	NPS
8 x 6	1/4 x 1/8
10 x 6	3/8 x 1/8
10 x 8	3/8 x 1/4
15 x 6	1/2 x 1/8
15 x 8	1/2 x 1/4
15 x 10	1/2 x 3/8
20 x 8	3/4 x 1/4
20 x 10	3/4 x 3/8
20 x 15	3/4 x 1/2
25 x 8	1 x 1/4
25 x 10	1 x 3/8
25 x 15	1 x 1/2
25 x 20	1 x 3/4
32 x 15	1 1/4 x 1/2
32 x 20	1 1/4 x 3/4
32 x 25	1 1/4 x 1
40 x 15	1 1/2 x 1/2
40 x 20	1 1/2 x 3/4
40 x 25	1 1/2 x 1

SIZE	
DN	NPS
40 x 32	1 1/2 x 1 1/4
50 x 20	2 x 3/4
50 x 25	2 x 1
50 x 32	2 x 1 1/4
50 x 40	2 x 1 1/2
65 x 20	2 1/2 x 3/4
65 x 25	2 1/2 x 1
65 x 32	2 1/2 x 1 1/4
65 x 40	2 1/2 x 1 1/2
65 x 50	2 1/2 x 2
80 x 25	3 x 1
80 x 32	3 x 1 1/4
80 x 40	3 x 1 1/2
80 x 50	3 x 2
80 x 65	3 x 2 1/2
100 x 15	4 x 1/2
100 x 25	4 x 1
100 x 50	4 x 2
100 x 80	4 x 3



Reducing Socket



Reducing Bush



Reducing Nipple