

STAINLESS STEEL

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GENERAL GUIDE TO STAINLESS STEEL (Partial List)

AUSTENITIC:

Non-magnetic, Chrome-Nickel series

A.I.S.I. U.N.S.	Characteristics	End-Use
301 S30100	Able to attain tempers from ¼ through full hard, extra full hard by cold rolling. Withstands severe forming in annealed condition.	Kitchen sinks, Automotive wheel covers. Toaster springs, Seat belt buckles.
303 S30300	Highest machinability rating among the 300 series. Forming and welding are not recommended.	Nuts and bolts, threaded rods, Fittings.
304 S30400	Excellent corrosion resistance and suitable for deep drawing applications when Nickel content is increased. Carbon content .08% max.	Food Industry, Chemical Industry, Deep drawing applications, Aesthetic application.
304L S30403	Same characteristics as 304 with a lower carbon content .03% max. Used when post weld annealing is impossible. The lower carbon content reduces carbide precipitation in the welded zone.	Large fabricated equipment.
316 S31600	Molybdenum bearing alloy with better overall corrosion resistance than 304 and higher creep strength at elevated temperatures.	Marine coastal environments, Pulp and paper industry, Chemical and petrochemical industry.
316L S31603	Same characteristics as 316 with a lower Carbon content .03 max. Good corrosion resistance in high temperature intermittent service. Used when post weld annealing is impossible. The lower carbon content reduces Carbide precipitation in the welded zone.	Large fabricated equipment.
317L S31703	Higher Molybdenum content than 316 for better corrosion resistance. Carbon content .03% max.	Corrosive environments. Chemical and petrochemical industries.
309 S30900 309S S30908	Heat resisting alloy with good corrosion resistance. High tensile and creep strengths as well as at elevated temperatures. 309S has a lower Carbon content .03 max.	Furnace parts, Baffles, Cement kiln chains. Exhaust manifold butterfly valves.
310 S31000 310S S31008	Improved characteristics over 309 and better scaling resistance in intermittent elevated temperatures. Grade 310 has a low co-efficient of expansion.	Furnace parts, Carburizing boxes, Heat exchangers, Oil burner parts.

Precipitation Hardening Stainless Steel

A.I.S.I. U.N.S.	Characteristics	End-Use
15-5PH S15500 17-4PH S17400 15-7PH S15700 17-7PH S17000	Chrome-Nickel alloys with other alloying elements such as Cu, Nb, Ta, Al, offering good corrosion resistance. They can be hardened by solution treating and aging to high strength.	Springs, clips, High strength shafts, aircraft components.

**FOR MORE INFORMATION CALL YOUR
RUSSEL METALS SALES REPRESENTATIVE**

GENERAL GUIDE TO STAINLESS STEEL (Partial List)

FERRITIC:

Magnetic, non-hardenable by heat treatment

A.I.S.I. U.N.S.	Characteristics	End-Use
409 S40900	Heat resistant alloy with a minimum chrome content; undesirable for aesthetic applications as a surface rust can form in moist atmospheres.	Automotive exhaust systems. Greenhouse heat exchangers, heat recuperators.
430 S43000	Base grade alloy in the Ferritic family with a good corrosion resistance to nitric acid and some organic acids; better heat resistance than the 409 and 410 grades. Good formability in annealed condition and maximum corrosion resistance in bright condition.	Automotive trim, chimney liners, kitchen equipment, architectural applications, cutlery, water evaporators.
434 S43400	A modified 430 grade with molybdenum added for improved corrosion resistance to road salt attack.	Automotive trim, chimney liners.
436 S43600	Another grade of 430 with niobium added for improved formability and surface characteristics.	Automotive trim.
444 S44400	A chrome-moly stabilized with titanium and/or columbium for improved resistance to pitting, intergranular and stress corrosion.	Solar panels, heat exchanger tubing, chemical processing equipment, hot water tanks.

MARTENSITIC:

Magnetic, hardenable by heat treatment

A.I.S.I. U.N.S.	Characteristics	End-Use
410 S41000 410S S41008	Base grade in the 400 series that can be hardened by heat treatment; must be polished for maximum corrosion resistance. 410S has a lower carbon content for improved weldability.	Bolts, nuts and screws, valves, mine ladder rungs, petroleum industry equipment.
416 S41600	Excellent machinability rating, available with various sulfur contents for different specific applications, maximum hardness is reached by heat treatment.	Bolts, nuts, gears and studs, motor shafts, automatic screw, machine parts, valve parts.
420 S42000	Highest hardness in the 12% chrome grade after heat treatment; must be polished for maximum corrosion resistance.	Cutlery, knife blades, shear blades.

DUPLEX

A.I.S.I. U.N.S.	Characteristics	End-Use
2205 S31803	The best of both worlds; high strength of the 400 series and the corrosion resistance of the 300 series. This allows for reduced weight on fabricated equipment.	Truck-tanks, boat tankers, railway tankers.

**“UNS” SYSTEM NOTIFIED STAINLESS STEEL
WITH A CAPITAL “S” FOLLOWED BY FIVE DIGITS**

STAINLESS STEEL FINISHES

SHEET: –

- No. 1** **Hot Rolled, Annealed & Pickled.** A dull finish used in applications where surface smoothness and uniformity of appearance are not of prime importance.
- No. 2B** **Bright Cold Rolled.** A general purpose Cold Rolled Finish. Its surface finish varies depending upon stainless type and thickness. Thinner sheets are usually brighter than thicker sheets.
- No. 2D** **Dull Cold Rolled.** This dull uniform finish is particularly designed for deep drawing applications.
- No. 4** A general purpose polished finish finds wide applications in restaurant equipment, dairy equipment, food processing, medical and chemical equipment as well as various architectural products.
- No. 10** A bright annealed highly reflective finish produced on mirror polished rolls and softened in a controlled atmosphere furnace.
A deep clear mirror finish could be attained through buffing by Custom Metal Finishers.

STRIP: –

- No. 1** **Standard, Annealed & Pickled.**
- No. 2** **Standard, Annealed, Pickled and Cold Rolled.**

STAINLESS STEEL PLATES

AISI TYPES 304/304 ELC AND 316/316 L

Hot Rolled, Annealed and Pickled

Specification conforms to ASTM A-240 ASME SA-240

Thickness Inches	Size Inches	Billing Weight per Sq. Ft. Lbs.	Billing Weight per Plate Lbs.
.1875	48 x 96	8.579	274
	48 x 120		343
	60 x 120		429
	72 x 120		515
	72 x 240		1029
	84 x 240		1201
	96 x 240		1372
.250	48 x 96	11.162	357
	48 x 120		446
	48 x 240		892
	60 x 120		558
	60 x 240		1116
	72 x 240		1339
	84 x 240		1563
.3125	96 x 240	13.746	1785
	48 x 96		439
	48 x 120		550
	60 x 240		1375
	72 x 240		1650
.375	96 x 240	16.496	2199
	48 x 96		528
	48 x 120		660
	60 x 240		1650
	72 x 240		1980
.500	96 x 240	21.663	2639
	48 x 96		693
	48 x 120		867
.625	96 x 240	26.831	3466
	48 x 120		1074
.750	96 x 240	32.123	4293
	48 x 120		1285
.875	96 x 240	37.291	5140
	48 x 120		1492
1.000	72 x 192	42.665	3580
	48 x 120		1707
	96 x 240		6827

Cont'd

STAINLESS STEEL PLATES

AISI TYPES 304/304 ELC AND 316/316 ELC

Hot Rolled, Annealed and Pickled

Specification conforms to ASTM A-240 ASME SA-240

Thickness Inches	Size Inches	Billing Weight per Sq. Ft. Lbs.	Billing Weight per Plate Lbs.
1.125	96 x 240	47.903	7664
1.250	96 x 240	53.226	8516
1.375	96 x 240	58.549	9368
1.500	96 x 240	63.871	10219
1.750	96 x 240	74.516	11923
2.000	96 x 240	85.161	13626
2.500	96 x 240	106.452	17032
3.000	96 x 240	127.742	20439

STAINLESS STEEL PLATES

Hot Rolled, Annealed and Pickled

Thickness in Inches	Size of Plate	Billing Weight per Plate Lbs.	AISI TYPE
			309 S 310 S
.1875	48 x 120	343	
	48 x 240	686	
	60 x 240	858	
.250	48 x 96	357	
	48 x 120	446	
	60 x 240	1116	
	84 x 240	1563	
	96 x 240	1786	
.375	48 x 96	528	
	48 x 120	660	
	96 x 240	2639	
.500	48 x 120	867	
	96 x 240	3466	
.750	48 x 120	1285	
	96 x 240	5140	
1.000	48 x 120	1707	
	72 x 192	4096	
1.250	60 x 192	4258	
1.500	60 x 192	5110	

**WE CAN SUPPLY STAINLESS STRIP
IN COILS SLIT TO ANY WIDTH DESIRED.
OTHER SIZES AVAILABLE ON REQUEST.**

STAINLESS STEEL SHEET

Finish – No. 10 – Bright Annealed

Gauge	Thickness Inches	Size Inches	Theo Weight per Sheet Lbs.
*16	.059	48 x 96	81.6
*18	.047	48 x 96	65.3
*20	.035	48 x 96	49.0
*22	.030	48 x 96	40.6
*24	.024	36 x 96	24.5

**Available on mill delivery basis; other sizes in stock.*



STAINLESS STEEL SHEETS

No. 2B Finish – Bright Cold Rolled and Annealed

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	AISI TYPE	
				304 L	316 L
10	.14062	36 x 96	137.5	✓	✓
		36 x 120	171.9	✓	
		48 x 96	183.4	✓	✓
		48 x 120	229.2	✓	✓
		48 x 144	275.0	✓	✓
		60 x 120	295.0	✓	
11	.125	30 x 96	101.8	✓	
		30 x 120	127.3	✓	
		36 x 96	122.2	✓	✓
		36 x 120	152.7	✓	✓
		48 x 96	162.9	✓	✓
		48 x 120	203.6	✓	✓
		48 x 144	244.3	✓	✓
		60 x 120	254.5		
12	.10937	30 x 96	89.2	✓	
		30 x 120	111.5	✓	
		36 x 96	107.0	✓	✓
		36 x 120	133.8	✓	✓
		36 x 144	160.6	✓	✓
		48 x 96	142.7	✓	✓
		48 x 120	178.4	✓	✓
		48 x 144	214.1	✓	✓
		60 x 120	223.0		
		48 x 120	152.8	✓	
13	.09375	48 x 120	152.8	✓	
14	.07812	30 x 96	63.6	✓	
		30 x 120	79.5	✓	
		36 x 96	76.3	✓	✓
		36 x 120	95.1	✓	✓
		36 x 144	114.5	✓	✓
		42 x 96	89.0	✓	
		42 x 120	111.3	✓	
		48 x 96	101.8	✓	✓
		48 x 120	127.2	✓	✓
		48 x 144	149.2	✓	✓
		60 x 120	159.0	✓	✓
		30 x 96	51.0	✓	
16	.0625	30 x 120	63.8	✓	
		36 x 96	61.2	✓	✓
		36 x 120	76.5	✓	
		36 x 144	91.8	✓	
		42 x 96	71.4	✓	
		42 x 120	89.3	✓	
		48 x 96	81.6	✓	✓
		48 x 120	102.0	✓	✓
		48 x 144	122.4	✓	✓
		60 x 120	127.5	✓	
		30 x 96	40.8	✓	
		30 x 120	51.0	✓	
18	.050	36 x 96	49.0	✓	✓
		36 x 120	61.2	✓	✓
		36 x 144	73.4	✓	✓
		42 x 96	57.1	✓	
		42 x 120	71.4	✓	
		48 x 96	65.3	✓	✓

Cont'd

STAINLESS STEEL SHEETS

No. 2B Finish – Bright Cold Rolled and Annealed

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	AISI TYPE	
				304	316
18	.050	48 x 120	81.6	✓	✓
		48 x 144	97.9	✓	✓
		60 x 120	102.0	✓	
20	.0375	30 x 96	30.6	✓	
		30 x 120	38.3	✓	
		36 x 96	36.7	✓	✓
		36 x 120	45.9	✓	✓
		36 x 144	55.1	✓	✓
		42 x 96	42.8	✓	
		42 x 120	53.6	✓	
		48 x 96	49.0	✓	✓
		48 x 120	61.2	✓	✓
		48 x 144	73.4	✓	✓
		60 x 120	76.5		
22	.03125	30 x 96	25.4	✓	
		30 x 120	31.8	✓	
		36 x 96	30.5	✓	✓
		36 x 120	38.1	✓	✓
		36 x 144	45.7	✓	✓
		42 x 96	35.6	✓	
		42 x 120	44.5	✓	
		48 x 96	40.6	✓	✓
		48 x 120	50.8	✓	✓
		48 x 144	61.0		✓
24	.025	30 x 96	20.4	✓	
		30 x 120	25.5	✓	
		36 x 96	24.5	✓	✓
		36 x 120	30.6	✓	✓
		48 x 96	32.6	✓	✓
		48 x 120	40.8	✓	✓
26	.01875	36 x 96	18.3	✓	
		36 x 120	22.9	✓	
		48 x 96	24.4	✓	
		48 x 120	30.5	✓	
28	.01562	36 x 96	15.8		

STAINLESS STEEL SHEETS

No. 1 Finish – Hot Rolled, Annealed and Pickled

or

No. 2B Finish – Bright Cold Rolled and Annealed

Thickness gauge or inches	Sheet Size	Theo. Wt. per Sheet	AISI TYPE
			310
16 ga.	48 x 120	102.0	✓
14 ga.	48 x 120	127.2	
12 ga.	48 x 120	178.4	
$\frac{1}{8}$ "	48 x 120	203.6	✓

STAINLESS STEEL SHEETS

No. 4 Polish One side

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	AISI TYPE	
				304	316
10	.14062	36 x 96	137.5	✓	✓
		36 x 120	171.9	✓	
		48 x 96	183.4	✓	✓
		48 x 120	229.2	✓	✓
		48 x 144	275.0	✓	✓
		60 x 120	295.0	✓	
11	.125	30 x 96	101.8	✓	
		30 x 120	127.3	✓	
		36 x 96	122.2	✓	✓
		36 x 120	152.7	✓	✓
		48 x 96	162.9	✓	✓
		48 x 120	203.6	✓	✓
		48 x 144	244.3	✓	✓
		60 x 120	254.5		
12	.10937	30 x 96	89.2	✓	
		30 x 120	111.5	✓	
		36 x 96	107.0	✓	✓
		36 x 120	133.8	✓	✓
		36 x 144	160.6	✓	✓
		48 x 96	142.7	✓	✓
		48 x 120	178.4	✓	✓
		48 x 144	214.1	✓	✓
		48 x 96	101.9	✓	
		60 x 120	223.0		
13	.09375	48 x 120	152.8	✓	
14	.07812	30 x 96	63.6	✓	
		30 x 120	79.5	✓	
		36 x 96	76.3	✓	✓
		36 x 120	95.1	✓	✓
		36 x 144	114.5	✓	✓
		42 x 96	89.0	✓	
		42 x 120	111.3	✓	
		48 x 96	101.8	✓	✓
		48 x 120	127.2	✓	✓
		48 x 144	149.2	✓	✓
		60 x 120	159.0	✓	✓
16	.0625	30 x 96	51.0	✓	
		30 x 120	63.8	✓	
		36 x 96	61.2	✓	✓
		36 x 120	76.5	✓	
		36 x 144	91.8	✓	
		42 x 96	71.4	✓	
		42 x 120	89.3	✓	
		48 x 96	81.6	✓	✓
		48 x 120	102.0	✓	✓
		48 x 144	122.4	✓	✓
		60 x 120	127.5	✓	
18	.050	30 x 96	40.8	✓	
		30 x 120	51.0	✓	
		36 x 96	49.0	✓	✓
		36 x 120	61.2	✓	✓
		36 x 144	73.4	✓	✓
		42 x 96	57.1	✓	
		42 x 120	71.4	✓	
		48 x 96	65.3	✓	✓

Cont'd

STAINLESS STEEL SHEETS

No. 4 Polish One Side

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	AISI TYPE	
				304	316
18	.050	48 x 120	81.6	✓	✓
		48 x 144	97.9	✓	✓
		60 x 120	102.0	✓	
20	.0375	30 x 96	30.6	✓	
		30 x 120	38.3	✓	
		36 x 96	36.7	✓	✓
		36 x 120	45.9	✓	✓
		36 x 144	55.1	✓	✓
		42 x 96	42.8	✓	
		42 x 120	53.6	✓	
		48 x 96	49.0	✓	✓
		48 x 120	61.2	✓	✓
		48 x 144	73.4	✓	✓
22	.03125	30 x 96	25.4	✓	
		30 x 120	31.8	✓	
		36 x 96	30.5	✓	✓
		36 x 120	38.1	✓	✓
		36 x 144	45.7	✓	✓
		42 x 96	35.6	✓	
		42 x 120	44.5	✓	
		48 x 96	40.6	✓	✓
		48 x 120	50.8	✓	✓
		48 x 144	61.0		✓
24	.025	30 x 96	20.4	✓	
		30 x 120	25.5	✓	
		36 x 96	24.5	✓	✓
		36 x 120	30.6	✓	✓
		48 x 96	32.6	✓	✓
		48 x 120	40.8	✓	✓
26	.01875	36 x 96	18.3	✓	
		36 x 120	22.9	✓	
		48 x 96	24.4	✓	
		48 x 120	30.5	✓	
28	.01962	36 x 96	15.8		

STAINLESS STEEL SHEETS

XL Blend 'S' – XL Buff

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	XL Blend 'S'	XL Buff
24	.025	48 x 96	32.6	✓	
22	.03125	36 x 96	30.5	✓	
		36 x 120	38.1		
		48 x 96	40.6		✓
		48 x 120	50.8	✓	✓
20	.0375	36 x 96	36.7	✓	
		36 x 120	45.9	✓	
		48 x 96	49.0	✓	

Cont'd

STAINLESS STEEL SHEETS

XL Blend 'S' – XL Buff

Gauge	Thickness Inches	Size Inches	Theo. Weight per Sheet Lbs.	XL Blend 'S'	XL Buff
20	.0375	48 x 120	61.2	✓	✓
		48 x 144	73.4		✓
18	.050	36 x 96	49.0	✓	
		36 x 120	61.2	✓	
		48 x 96	65.3	✓	✓
		48 x 120	81.6	✓	✓
		48 x 144	97.9		✓
16	.0625	36 x 96	61.2	✓	
		36 x 120	76.5	✓	
		48 x 96	81.6	✓	✓
		48 x 120	102.0	✓	
14	.07812	36 x 96	76.3	✓	
		36 x 120	95.1	✓	
		48 x 96	101.8	✓	✓
		48 x 120	127.2	✓	✓
12	.10937	48 x 96	142.7	✓	
11	.125	48 x 120	203.6		✓

STAINLESS STEEL COIL

304 & 316, 2B 304 L & 316 L

Gauge	Size	Lb/ft ²	Type 304 ELC	Type 316 ELC
26	.01875 x 36	.7632	✓	
24	.025 x 36	1.02	✓	
	48		✓	✓
22	.03125 x 30	1.27		
	36		✓	✓
	42			
	48		✓	✓
20	.0375 x 30	1.53		
	36		✓	✓
	42			
	48		✓	✓
	60			
18	.050 x 30	2.04		
	36		✓	
	42			
	48		✓	✓
	60			
16	.0625 x 30	2.55		
	36		✓	✓
	42			
	48		✓	✓
	60			
14	.07812 x 30	3.18		
	36		✓	
	42			
	48		✓	
	60			
12	.10937 x 36	4.46		
	48		✓	
	60			
11	.125 x 36	5.25		
	48		✓	
	60			
10	.14062 x 48	5.76		
	60		✓	✓

STAINLESS STEEL EXPANDED METAL

Expanded Metal may be used for many industrial purposes such as open partitions, window guards, machine guards and other manufacturing and maintenance uses.

It is more rigid than an equal weight of solid steel plate or wire mesh. In fabricating it may be cut to any desired shape without loss of its original strength. Expanded metal has no sharp edges.

STANDARD STAINLESS STEEL EXPANDED METAL

Style No.	Sheet Size Inches	Weight per 100 Sq. Ft. Lbs.	Approximate Size of Openings		Approx. % Open Area
			Width, Ins.	Lengths, Ins.	
1/2-20	48 x 96	53	.422	.92	64-70
1/2-18	48 x 96	73	.39	.93	72-76
1/2-16	48 x 96	91	.38	.90	65-70
3/4-20	48 x 96	35	.85	1.66	88-92
3/4-18	48 x 96	48	.85	1.70	87-90
3/4-16	48 x 96	60	.84	1.69	85-88
3/4-13	48 x 96	91	.81	1.63	80-83
1 1/2-16	48 x 96	45	1.25	2.60	90-92
1 1/2-13	48 x 96	68	1.22	2.54	85-88
1 1/2-9	48 x 96	137	1.15	2.42	75-78

NOTE: Above sizes available upon request only.

FLATTENED STAINLESS STEEL EXPANDED METAL

Style No.	Sheet Size Inches	Weight per 100 Sq. Ft. Lbs.	Approximate Size of Openings		Approx. % Open Area
			Width, Ins.	Lengths, Ins.	
1/2-20F	48 x 96	51	.355	.99	60-67
1/2-18F	48 x 96	69	.255	.98	55-60
1/2-16F	48 x 96	86	.255	.97	58-61
3/4-20F	48 x 96	34	.66	1.79	76-80
3/4-18F	48 x 96	46	.67	1.78	70-75
3/4-16F	48 x 96	57	.68	1.76	72-77
3/4-13F	48 x 96	88	.64	1.79	72-76
1 1/2-16F	48 x 96	44	1.07	2.73	78-84
1 1/2-13F	48 x 96	66	1.05	2.66	78-84
1 1/2-9F	48 x 96	133	1.02	2.55	72-76

Above sizes available upon request only.

STAINLESS STEEL BARS

Annealed and Centerless Ground

Conforms to ASTM A-276, A-580, A-581 and A-582 other specifications available MIL-S, AMS, QOS

ROUNDS

Sizes under 1" dia. Stock Lengths – 12 to 14 Feet

Sizes 1" dia. and larger Stock Lengths – 14 to 16 Feet

Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE			
		303	304 L	316 L	416
1/8 dia.	.042	✓	✓		✓
3/16	.094	✓	✓	✓	
7/32	.128	✓			
1/4	.167	✓	✓	✓	✓
9/32	.211	✓			
5/16	.261	✓	✓	✓	✓
3/8	.376	✓	✓	✓	✓
7/16	.511	✓	✓	✓	✓
1/2	.668	✓	✓	✓	✓
9/16	.845	✓	✓	✓	✓
5/8	1.043	✓	✓	✓	✓
11/16	1.262	✓			✓
3/4	1.502	✓	✓	✓	✓
13/16	1.763	✓			✓
7/8	2.045	✓	✓	✓	✓
15/16	2.347	✓			
1	2.670	✓	✓	✓	✓
1 1/16	3.010				✓
1 1/8	3.380	✓	✓	✓	✓
1 1/16	3.766	✓	✓		
1 1/4	4.172	✓	✓	✓	✓
1 5/16	4.600	✓			
1 3/8	5.049	✓	✓	✓	
1 7/16	5.518	✓			✓
1 1/2	6.008	✓	✓	✓	✓
1 5/8	7.051	✓		✓	
1 3/4	8.178	✓	✓	✓	✓
1 7/8	9.388	✓			✓
2	10.681	✓	✓	✓	✓
2 1/8	12.060		✓		
2 1/4	13.519	✓	✓	✓	
2 3/8	15.060				✓
2 1/2	16.690	✓	✓	✓	
2 5/8	18.400	✓			
2 3/4	20.195	✓			
3	24.033	✓	✓	✓	
4	42.726	✓			
4 1/4	48.233			✓	
4 1/2	54.075		✓	✓	
5	66.759		✓	✓	
5 1/2	80.778		✓		
6	96.133		✓	✓	

STAINLESS STEEL BARS

Cold Drawn

Conforms to ASTM A-580 and A-581

ROUNDS

Stock Lengths – 12 to 14 Feet

Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE		
		303	304	316
1/16 dia.	.010		✓	
3/32	.023	✓		
1/8	.042	✓	✓	✓
5/32	.065	✓		
3/16	.094	*	*	*
7/32	.128	*		

*Available upon request

STAINLESS STEEL BARS

Hot Rolled, Annealed and Pickled

Conforms to ASTM A-276

SQUARES

Stock Lengths – 12 to 14 Feet

Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE	
		304	316
1/4 sq.	.213	✓	✓
5/16	.332	*	
3/8	.478	✓	✓
1/2	.850	✓	✓
5/8	1.238	✓	✓
3/4	1.913	✓	✓
7/8	2.603		*
1	3.400	✓	✓
1 1/8	4.300	✓	
1 1/4	5.313	✓	*
1 1/2	7.650	✓	
1 3/4	10.410	*	
2	13.600	✓	
2 1/2	21.250	*	

*Available upon request

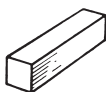
STAINLESS STEEL BARS

AISI TYPE 303

Cold Drawn

SQUARES

Stock Lengths – 12 to 14 Feet



Size in Inches	Theo. Weight per Ft. Lbs.	Size in Inches	Theo. Weight per Ft. Lbs.
1/8 Sq.	.053	5/8 Sq.	1.238
3/16	.120	3/4	1.913
1/4	.213	7/8	2.600*
5/16	.332	1	3.400
3/8	.478	1 1/4	5.313*
1/2	.850	1 1/2	7.650*

STAINLESS STEEL BARS

AISI TYPE 303

Cold Drawn – Free Machining

HEXAGONS

Stock Lengths – 12 to 14 Feet



Size in Inches	Theo. Weight per Ft. Lbs.	Size in Inches	Theo. Weight per Ft. Lbs.
1/4 across flats	.184	7/8 across flats	2.254
3/8	.414	1	2.945
1/2	.736	1 1/4	4.601*
5/8	1.150	1 3/8	5.567*
3/4	1.656	1 1/2	6.625*

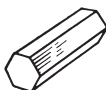
STAINLESS STEEL BARS

AISI TYPE 304

Hot Rolled, Annealed and Pickled

HEXAGONS

Stock Lengths – 12 to 14 Feet



Size in Inches	Theo. Weight per Ft. Lbs.	Size in Inches	Theo. Weight per Ft. Lbs.
5/8 across flats	1.150	1 1/4 across flats	4.601*
3/4	1.656	1 3/8	5.567*
7/8	2.254	1 1/2	6.625*
1	2.954	1 5/8	7.775*
1 1/8	3.727*	1 7/8	10.352*
		2	11.780*

*Available upon request

STAINLESS STEEL BARS

Hot Rolled, Annealed and Pickled

Conforms to ASTM A-276

FLATS

Stock Lengths – 12 to 14 Feet



Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE	
		304 L	316 L
1/8 x 1/2	.212	✓	
1/8 x 5/8	.266	✓	
1/8 x 3/4	.319	✓	✓
1/8 x 1	.425	✓	✓
1/8 x 1 1/4	.531	✓	✓
1/8 x 1 1/2	.638	✓	✓
1/8 x 2	.850	✓	✓
1/8 x 3	1.280	✓	✓
1/8 x 4	1.700	*	✓
3/16 x 3/4	.478	✓	✓
3/16 x 1	.638	✓	✓
3/16 x 1 1/4	.797	✓	✓
3/16 x 1 1/2	.959	✓	✓
3/16 x 1 3/4	1.120	✓	✓
3/16 x 2	1.275	✓	✓
3/16 x 2 1/2	1.590	✓	
3/16 x 3	1.910	✓	
1/4 x 1/2	.425	*	
1/4 x 3/4	.638	✓	
1/4 x 1	.850	✓	✓
1/4 x 1 1/4	1.063	✓	✓
1/4 x 1 1/2	1.275	✓	✓
1/4 x 1 3/4	1.488	✓	
1/4 x 2	1.700	✓	✓
1/4 x 2 1/2	2.125	✓	✓
1/4 x 3	2.550	✓	✓
1/4 x 4	3.400	✓	✓
3/8 x 3/4	.956	✓	
3/8 x 1	1.275	✓	✓
3/8 x 1 1/4	1.594	✓	✓
3/8 x 1 1/2	1.913	✓	✓
3/8 x 2	2.550	✓	✓
3/8 x 2 1/2	3.188	✓	
3/8 x 3	3.825	✓	✓
3/8 x 4	5.100	✓	✓
1/2 x 3/4	1.275	✓	✓
1/2 x 1	1.700	✓	✓
1/2 x 1 1/4	2.125	✓	✓
1/2 x 1 1/2	2.550	✓	✓
1/2 x 2	3.400	✓	✓
1/2 x 2 1/2	4.250	✓	
1/2 x 3	5.100	✓	✓
1/2 x 4	6.800	✓	✓
5/8 x 1	2.125	✓	✓
5/8 x 2 5/8	5.576		*

*Available upon request

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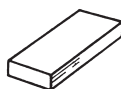
STAINLESS STEEL BARS

Hot Rolled, Annealed and Pickled

Conforms to ASTM A-276

FLATS

Stock Lengths – 12 to 14 Feet



Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE	
		304 L	316 L
$\frac{3}{8}$ x 3	6.375	✓	
$\frac{3}{4}$ x 1	2.550	✓	
$\frac{3}{4}$ x $1\frac{1}{4}$	3.190	✓	
$\frac{3}{4}$ x $1\frac{1}{2}$	3.825	✓	✓
$\frac{3}{4}$ x $1\frac{3}{4}$	4.460	✓	✓
$\frac{3}{4}$ x 2	5.100	✓	✓
$\frac{3}{4}$ x $2\frac{1}{2}$	6.375	✓	
$\frac{3}{4}$ x 3	7.650	✓	✓
$\frac{3}{4}$ x 4	10.200	✓	
1 x $1\frac{1}{4}$	4.250	✓	
1 x $1\frac{1}{2}$	5.100	✓	✓
1 x 2	6.800	✓	✓
1 x $2\frac{1}{2}$	8.500	✓	
1 x 3	10.200	✓	✓
1 x 4	13.600	✓	✓

Intermediate sizes of flat bars are available sheared or abrasive cut from plate (not necessarily straight or flat).

STAINLESS STEEL ANGLES

Hot Rolled, Annealed and Pickled

Stock Lengths – 20 feet random



Size in Inches	Theo. Weight per Ft. Lbs.	AISI TYPE	
		304 L	316 L
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{8}$	.59	✓	✓
1 x 1 x $\frac{1}{8}$	.80	✓	✓
1 x 1 x $\frac{3}{16}$	1.16	✓	✓
$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{8}$	1.01	✓	✓
$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{3}{16}$	1.51	✓	
$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{4}$	1.92	✓	✓
$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{1}{8}$	1.23	✓	✓
$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{16}$	1.80	✓	✓
$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{1}{4}$	2.34	✓	✓
2 x 2 x $\frac{1}{8}$	1.65	✓	✓
2 x 2 x $\frac{3}{16}$	2.44	✓	✓
2 x 2 x $\frac{1}{4}$	3.19	✓	✓
2 x 2 x $\frac{3}{8}$	4.70		✓
$2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{3}{16}$	3.07	✓	✓
$2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{1}{4}$	4.10	✓	✓
3 x 3 x $\frac{1}{4}$	4.90	✓	✓
3 x 3 x $\frac{3}{8}$	7.20	✓	✓
4 x 4 x $\frac{3}{8}$	9.80		✓

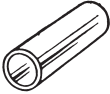
STAINLESS STEEL TUBING

AISI TYPE 304 L

Cold Drawn, Annealed and Pickled, Seamless

Conforms to ASTM A-269 and/or A-312

Stock Lengths – 17 to 24 Feet random



Outside Diameter Inches	Average Wall Thickness		Inside Diameter Inches	Theo. Weight per Ft. Lbs.
	B.W. Ga.	Inches		
.045		.008	.029	.0036
1/8		.010	.105	.0123
3/16	20	.035	.117	.0572
1/4	20	.035	.180	.0804
	18	.049	.152	.1052
	16	.065	.120	.1284
5/16	20	.035	.242	.1039
	16	.065	.182	.1722
3/8	20	.035	.305	.1271
	18	.049	.277	.1706
	16	.065	.245	.2152
.405		.068	.269	.2447
		.095*	.215	.3145
7/16	14	.083*	.272	.3147
1/2	20	.035	.430	.1738
	18	.049	.402	.2360
	16	.065	.370	.3020
.540		.088	.364	.4248
		.119	.302	.5351
5/8	20	.035	.555	.2205
	18	.049	.527	.3014
	16	.065	.495	.3888
	13	.095*	.435	.5377
	11	.120*	.385	.6472
.675		.091	.493	.5676
		.126	.423	.7388
3/4	20	.035	.680	.2673
	18	.049	.652	.3668
	16	.065	.620	.4755
	11	.120	.510	.8074
.840	16	.065*	.710	.5383
	14	.083*	.674	.6710
	12	.109	.622	.8510
		.147	.546	1.0880
7/8	16	.065	.745	.5623
1	20	.035	.930	.3607
	18	.049	.902	.4977
	16	.065	.870	.6491
	11	.120	.760	1.1280
1.050	16	.065*	.920	.6838
	14	.083*	.884	.8572
		.113	.824	1.1310
		.154	.742	1.4740

*Available upon request

Cont'd

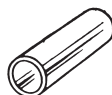
STAINLESS STEEL TUBING

AISI TYPE 304 L

Cold Drawn, Annealed and Pickled, Seamless

Conforms to ASTM A-269 and/or A-312

Stock Lengths – 17 to 24 Feet random



Outside Diameter Inches	Average Wall Thickness		Inside Diameter Inches	Theo. Weight per Ft. Lbs.
	B.W. Ga.	Inches		
1 $\frac{1}{16}$		.047	.969	.478
1 $\frac{1}{4}$	18	.049*	1.152	.628
	16	.065	1.120	.822
1.315	16	.065*	1.185	.867
	12	.109	1.097	1.404
		.133	1.049	1.679
		.179	.957	2.172
1 $\frac{1}{2}$	18	.049*	1.402	.759
	16	.065	1.370	.996
	11	.120	1.260	1.769
1.660	12	.109	1.442	1.806
		.140	1.380	2.273
		.191	1.278	2.997
1 $\frac{3}{4}$	16	.065	1.620	1.170
1.900	16	.065*	1.770	1.274
	12	.109	1.682	2.085
		.145	1.610	2.718
		.200	1.500	3.631
2	18	.049*	1.902	1.021
	16	.065	1.870	1.343
	11	.120*	1.760	2.409
2 $\frac{3}{8}$	16	.065*	2.245	1.604
	12	.109	2.157	2.638
		.154	2.067	3.653
		.218	1.939	5.022
2 $\frac{1}{2}$	16	.065*	2.370	1.690
2 $\frac{7}{8}$	11	.120	2.635	3.531
		.203	2.469	5.793
		.276	2.323	7.661
3	16	.065*	2.870	2.037
	11	.120	2.760	3.691
3 $\frac{1}{2}$	14	.083*	3.334	3.029
	11	.120	3.260	4.332
		.216	3.068	7.576
		.300	2.900	10.250
4	11	.120	3.760	4.973
		.226	3.548	9.109
		.318	3.364	12.510
4 $\frac{1}{2}$	14	.083*	4.334	3.915
		.120	4.260	5.613
		.237	4.026	10.790
		.337	3.826	14.980

*Available upon request

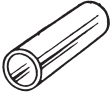
STAINLESS STEEL TUBING

AISI TYPE 316 L

Cold Drawn, Annealed and Pickled, Seamless

Conforms to ASTM A-269 and/or A-312

Stock Lengths – 17 to 24 Feet random



Outside Diameter Inches	Average Wall Thickness		Inside Diameter Inches	Theo. Weight per Ft. Lbs.
	B.W. Ga.	Inches		
¼	20	.035	.180	.0804
	18	.049	.152	.1052
	16	.065	.120	.1284
⅜	20	.035	.305	.1271
	18	.049	.277	.1706
	16	.065	.245	.2152
.405		.068	.269	.2447
½	20	.035	.430	.1738
	18	.049	.402	.2360
	16	.065	.370	.3020
.540		.088	.364	.4248
⅝	16	.065	.495	.3888
		.091	.493	.5676
		.126	.423*	.7388
¾	20	.035	.680	.2673
	18	.049	.652	.3668
	16	.065	.620	.4755
.840	16	.065	.710*	.5383
	14	.083	.674*	.6710
	12	.109	.622	.8510
		.147	.546*	1.0880
1	16	.065	.870	.6491
1.050	16	.065	.920*	.6838
	14	.083	.884*	.8572
		.113	.824	1.1310
		.154	.742*	1.4740
1¼	16	.065	1.120*	.8226
	16	.065	1.185*	.8678
	12	.109	1.097*	1.4040
		.133	1.049	1.6790
		.179	.957*	2.1720
1½	16	.065	1.370*	.9962
		.140	1.380	2.2730
	16	.065	1.770*	1.2740
1.660	12	.109	1.682*	2.0850
		.145	1.610	2.7180
		.200	1.500*	3.6310
2	16	.065	1.870*	1.3430

*Available upon request

Cont'd

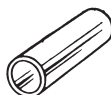
STAINLESS STEEL TUBING

AISI TYPE 316 L

Cold Drawn, Annealed and Pickled, Seamless

Conforms to ASTM A-269 and/or A-312

Stock Lengths – 17 to 24 Feet random



Outside Diameter Inches	Average Wall Thickness		Inside Diameter Inches	Theo. Weight per Ft. Lbs.
	B.W. Ga.	Inches		
2¾	16	.065	2.245*	1.604
		.109	2.157*	2.638
		.154	2.067	3.653
		.218	1.939*	5.022
2⅞		.203	2.469	5.793
3½	14	.083	3.334*	3.029
		.120	3.260*	4.332
		.216	3.068	7.576
		.300	2.900*	10.250
4	11	.120	3.760*	4.973
		.226	3.548	9.109
		.318	3.364*	12.510
4½	14	.083	4.334*	3.915
		.237	4.026	10.790
		.337	3.826*	14.980

AIRCRAFT SPECIFICATION STAINLESS STEELS

STAINLESS STEEL AIRCRAFT SHEET TO SPECIFICATIONS

Spec. AMS 5504 Type 410 2 D Finish

Spec. MIL-S-6721 Type 321 2 D Finish

Spec. AMS 5510 Type 321 2 D Finish

Details of sizes carried and reference data on request.

COLD DRAWN STAINLESS STEEL

AIRCRAFT TUBING

To Specifications

Spec. MIL-T-8808 Type 321 Seamless & Welded

Spec. MIL-T-6845 Type 304 Seamless ⅛ Hard

Spec. AMS 5645 Type 321 Seamless

Details of sizes carried and reference data on request.

STAINLESS STEEL AIRCRAFT BAR

To Specifications

Spec. AMS 5613 Type 410

Spec. AMS 5645 Type 321

Spec. AMS 5732 Alloy A286

Details of sizes carried and reference data on request.

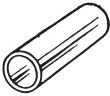
**Available upon request*

**STAINLESS STEEL PIPE
WELDED OR SEAMLESS**

SCHEDULE 5

Conforms to ASTM A-312

Stock Lengths – 17 to 24 Feet



Size in Inches	Type 304	Type 304 ELC	Type 316	Type 316 ELC
½	✓	✓	✓	✓
¾	✓	✓	✓	✓
1	✓	✓	✓	✓
1½	✓	✓	✓	✓
2	✓	✓	✓	✓
3	✓	✓	✓	✓
4	✓	✓	✓	✓

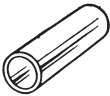
**Available upon request*

SEAMLESS STAINLESS STEEL PIPE

SCHEDULE 10

Conforms to ASTM A-312

Stock Lengths – 17 to 24 Feet



Size in Inches	Type 304	Type 304 ELC	Type 316	Type 316 ELC
½	✓	*	*	
¾	✓	*	*	*
1	✓	*	*	*
1¼	✓			
1½	✓	*	*	*
2	✓	*	*	*
2½	✓			
3	*		*	
4	✓			
6	*			
8	*			

See table for pipe size dimensions.

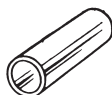
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STAINLESS STEEL PIPE WELDED OR SEAMLESS

SCHEDULE 40

Conforms to ASTM A-312

Stock Lengths – 17 to 24 Feet



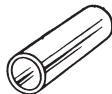
Size in Inches	Type 304	Type* 304 ELC	Type* 310	Type 316	Type* 316 ELC
1/8	✓			✓	
1/4	✓			✓	
3/8	✓			✓	
1/2	✓	✓	✓	✓	✓
3/4	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓
1 1/4	✓	✓		✓	
1 1/2	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓
2 1/2	✓			✓	
3	✓	✓		✓	✓
3 1/2	✓			✓	
4	✓	✓		✓	✓
6	✓			✓	
8	✓			✓	

STAINLESS STEEL PIPE SEAMLESS

SCHEDULE 80

Conforms to ASTM A-312

Stock Lengths – 17 to 24 Feet



Size in Inches	Type 304 L	Type 316 L*
1/8	✓	
1/4	✓	
3/8	✓	✓
1/2	✓	✓
3/4	✓	✓
1	✓	✓
1 1/4	✓	
1 1/2	✓	✓
2	✓	✓
2 1/2	✓	
3	✓	✓
3 1/2	✓	✓
4	✓	✓
6	✓	
8	✓	

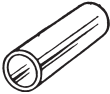
See table for pipe size dimensions.

*Available upon request

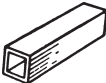
STAINLESS STEEL WELDED
ORNAMENTAL TUBING

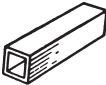
TYPES 301 and/or 304

Stock Lengths – 20 Feet Random



Outside Diameter Inches	Average Wall Thickness		Weight Lbs./Ft.	Polished OD 180 Grit	Polished & Buffed
	B.W. Ga.	Inches			
ROUND					
5/8	18	.049	.3014	✓	
3/4	18	.049	.3668	✓	
7/8	18	.049	.4323	✓	✓
	16	.065	.5623	✓	✓
1	18	.049	.4977	✓	✓
	16	.065	.6491	✓	✓
1 1/8	11	.120	1.300		✓
1 1/4	18	.049	.6280	✓	
	16	.065	.8226	✓	
1 1/2	16	.065	.9962	✓	✓
	11	.120	1.769	✓	
1 5/8	18	.049	.8248	✓	
	16	.065	1.083	✓	
1.90	16	.065	1.274	✓	
2	16	.065	1.343	✓	✓
2 1/2	16	.065	1.690	✓	
SQUARE					
3/4 x 3/4	18	.049	.470	✓	
	16	.065	.605	✓	
1 x 1	18	.049	.633	✓	
	16	.065	.826	✓	
	11	.120	1.436	✓	
1 1/4 x 1 1/4	16	.065	1.048	✓	
1 1/2 x 1 1/2	16	.065	1.269	✓	
	11	.120	2.062	✓	
2 x 2	16	.065	1.711	✓	
	11	.120	3.068	✓	
3 x 3	11	.120	4.700	✓	





THEORETICAL WEIGHTS

STAINLESS STEEL PLATES AND SHEETS

Number of Gauge	Approximate Thickness Decimals of an inch	Approximate Fractions of an inch	Theo. Weight Pounds/Sq. Ft. Chrome Nickel Alloys
	1.0000	1	42.665
	.9375	$\frac{15}{16}$	40.978
	.8750	$\frac{7}{8}$	37.291
	.8125	$\frac{13}{16}$	34.707
	.7500	$\frac{3}{4}$	32.123
	.6875	$\frac{11}{16}$	29.477
	.6250	$\frac{5}{8}$	26.831
	.5625	$\frac{9}{16}$	24.247
	.5000	$\frac{1}{2}$	21.663
	.46875	$\frac{15}{32}$	20.871
	.4375	$\frac{7}{16}$	20.079
	.40625	$\frac{13}{32}$	18.288
	.3750	$\frac{3}{8}$	16.496
	.34375	$\frac{11}{32}$	15.621
0	.3125	$\frac{5}{16}$	13.746
1	.28125	$\frac{9}{32}$	12.454
2	.26562	$\frac{17}{64}$	11.808
3	.2500	$\frac{1}{4}$	11.162
4	.234375	$\frac{15}{64}$	10.567
5	.21875	$\frac{7}{32}$	9.871
6	.203125	$\frac{13}{64}$	9.225
7	.1875	$\frac{3}{16}$	8.579
8	.171875	.161 to .176	7.2187
9	.15625	.146 to .160	6.5625
10	.140625	.131 to .145	5.9062
11	.125	.115 to .130	5.2500
12	.109375	.099 to .114	4.46
13	.09375	.084 to .098	3.9375
14	.078125	.073 to .083	3.18
15	.0703125	.066 to .072	2.9531
16	.0625	.059 to .065	2.55
17	.05625	.053 to .058	2.3625
18	.050	.047 to .052	2.04
19	.04375	.041 to .046	1.8375
20	.0375	.036 to .040	1.53
21	.034375	.033 to .035	1.4437
22	.03125	.030 to .032	1.27
23	.028125	.027 to .029	1.1813
24	.025	.024 to .026	1.020
25	.021875	.0199 to .023	.9187
26	.01875	.0178 to .0198	.7632

A.I.S.I. STAINLESS TYPE NUMBERS – Chemical Analysis Specifications

AISI Type No.	Carbon	Mn. Max.	Si Max.	Chromium
301	.15 Max.	2.00	1.00	16.00/18.00
302	Over .08/.15	2.00	1.00	17.00/19.00
302B	Over .08/.15	2.00	2.00/3.00	17.00/19.00
303	.15 Max.	2.00	1.00	17.00/19.00
303SE	.15 Max.	2.00	1.00	17.00/19.00
304	.08 Max.	2.00	1.00	18.00/20.00
304L	.03 Max.	2.00	1.00	18.00/20.00
305	.12 Max.	2.00	1.00	17.00/19.00
308	.08 Max.	2.00	1.00	19.00/21.00
309	.20 Max.	2.00	1.00	22.00/24.00
309S	.08 Max.	2.00	1.00	22.00/24.00
309SCb	.08 Max.	2.00	1.00	22.00/24.00
310	.25 Max.	2.00	1.50	24.00/26.00
310S	.08 Max.	2.00	1.50	24.00/26.00
314	.25 Max.	2.00	1.50/3.00	23.00/26.00
316	.08 Max.	2.00	1.00	16.00/18.00
316L	.03 Max.	2.00	1.00	16.00/18.00
317	.08 Max.	2.00	1.00	18.00/20.00
318	.08 Max.	2.50	1.00	17.00/19.00

(Continued specifications from section above)

AISI Type No.	Nickel	Other Elements	U.N.S.
301	6.00/ 8.00		S30100
302	8.00/10.00		S30200
302B	8.00/10.00		S30215
303	8.00/10.00	S.15 Min.* Mo. .60 Max. SE .15 Min.	S30300
303SE	8.00/10.00		S30323
304	8.00/11.00		S30400
304L	8.00/11.00		S30403
305	10.00/13.00		S30500
308	10.00/12.00		S30800
309	12.00/15.00		S30900
309S	12.00/15.00		S30908
309SCb	12.00/15.00	Cb. + Ta. 10xC. Min.	
310	19.00/22.00		S31000
310S	19.00/22.00		S31008
314	19.00/22.00		
316	10.00/14.00	Mo. 2.00/3.00	S31600
316L	10.00/14.00	Mo. 2.00/3.00	S31603
317	11.00/14.00	Mo. 3.00/4.00	S31700
318	13.00/15.00	Mo. 2.00/3.00 Cb. + Ta. 10xC. Min.	

Cont'd

A.I.S.I. STAINLESS TYPE NUMBERS – Chemical Analysis Specifications

AISI Type No.	Carbon	Mn. Max.	Si Max.	Chromium
321	.08 Max.	2.00	1.00	17.00/19.00
347	.08 Max.	2.00	1.00	17.00/19.00
348	.08 Max.	2.00	1.00	17.00/19.00
403	.15 Max.	1.00	.50	11.50/13.00
405	.08 Max.	1.00	1.00	11.50/14.50
409	.08 Max.	1.00	1.00	10.00/13.00
410	.15 Max.	1.00	1.00	11.50/13.50
414	.15 Max.	1.00	1.00	11.50/13.50
416	.15 Max.	1.25	1.00	12.00/14.00
420	Over .15	1.00	1.00	12.00/14.00
420F	Over .15	1.25	1.00	12.00/14.00
430	.12 Max.	1.00	1.00	14.00/18.00
430F	.12 Max.	1.25	1.00	14.00/18.00
431	.20 Max.	1.00	1.00	15.00/17.00
440A	.60/ .75	1.00	1.00	16.00/18.00
440B	.75/ .95	1.00	1.00	16.00/18.00
440C	.95/1.20	1.00	1.00	16.00/18.00
440F	.95/1.20	1.25	1.00	16.00/18.00
442	.25 Max.	1.00	1.00	18.00/23.00
446	.35 Max.	1.00	1.00	23.00/27.00

(Continued specifications from section above)

AISI Type No.	Nickel	Other Elements	U.N.S.
321	9.00/12.00	Ti. 5xC. Min.	S32100
347	9.00/13.00	Cb. + Ta. 10xC. Min.	S34700
348	9.00/13.00	Cb. + Ta. 10xC. Min. Ta. 10 Max.	S34800
403			S40300
405		Alum. .10/30	S40500
409		S .030 Max.	S40900
410			S41000
414	1.25/2.50		S41400
416		*	S41600
420			S42000
420F		*	S42020
430			S43000
430F		*	S43020
431	1.25/2.50		S43100
440A		Mo. 0.75 Max.	S44002
440B		Mo. 0.75 Max.	S44003
440C		Mo. 0.75 Max.	S44004
440F		*	
442			S44200
446		N ² 0.25 Max.	S44600

NOTE: Phosphorus .04 Max. and Sulphur .03 Max. – all Types except 303, 416, 420 F, 430 F, and 440F.
*Types 303, 416, 420 F, 430 F and 440 F – Phosphorus or Sulphur or Selenium .07 Min.,
Molybdenum or Zirconium .60 Max.

The chemical analysis of the "T" designations used in the A.S.T.M. specifications covering
our stocks of Seamless and Welded Stainless Pipe and Tubing vary slightly from the analy-
ses of the AISI Type numbers shown above.

NOMINAL PROPERTIES – AISI STAINLESS STEELS

Alloy Physical Properties	Type 304	Type 321	Type 347	Type 316	Type 317
Physical Properties – AISI Stainless Steels					
Density lb./cu. in. ....	.28	.28	.28	.29	.29
low carbon steel = 1.00.	1.01	1.01	1.01	1.02	1.02
Specific Electrical Resistance at 68°F.					
microhms/cm. ³	70.00	71.00	71.00	72.30	72.30
microhms/in. ³	27.60	28.00	28.00	28.50	28.50
low carbon steel = 1.00.	6.40	6.50	6.50	6.60	6.60
Melting Range °F.	2550-2590	2550-2590	2550-2590	2550-2550	2550-2550
Structure	Austenitic	Austenitic	Austenitic	Austenitic	Austenitic
Magnetic Permeability					
as annealed	u = 1.00	u = 1.00	u = 1.00	u = 1.00	u = 1.00
after 10% reduction of area	u = 1.10	u = 1.10	u = 1.10	u = 1.10	u = 1.10
Specific Heat					
cal./°C./gm. (0° to 100°C.)	.12	.12	.12	.12	.12
B.t.u./°F./lb. (32° to 212°F.)	.12	.12	.12	.12	.12
low carbon steel = 1.00 (0° to 100°C.)	1.10	1.10	1.10	1.10	1.10
Thermal conductivity					
cal./cm ² /sec./°C./cm., at 100°C. ....	.03	.03	.03	.03	.03
B.t.u./sq. ft./hr./°F./in., at 212°F.	113.00	112.00	112.00	108.00	108.00

Alloy Physical Properties	Type 310	Type 405	Type 409	Type 430	Type 446
Physical Properties – AISI Stainless Steels					
Density lb./cu. in. ....	.28	.27	.28	.27	.27
low carbon steel = 1.00.	1.01	.97	.....	.96	.95
Specific Electrical Resistance at 68°F.					
microhms/cm. ³	79.00	61.00	61.0	59.00	67.00
microhms/in. ³	31.00	23.60	.....	23.20	26.40
low carbon steel = 1.00.	7.20	5.50	.....	5.40	6.10
Melting Range °F.	2550-2650	2700-2790	2700-2790	2710-2750	2710-2750
Structure	Austenitic	Ferritic	.....	Ferritic	Ferritic
Magnetic Permeability					
as annealed	u = 1.00	Ferro- magnetic		Ferro- magnetic	Ferro- magnetic
after 10% reduction of area	.....	Ferro- magnetic		Ferro- magnetic	Ferro- magnetic
Specific Heat					
cal./°C./gm. (0° to 100°C.)	.12	.11	.11	.11	.12
B.t.u./°F./lb. (32° to 212°F.)	.12	.11	.11	.11	.12
low carbon steel = 1.00 (0° to 100°C.)	1.10	1.00	.....	1.00	1.10
Thermal conductivity					
cal./cm ² /sec./°C./cm., at 100°C. ....	.03	.....	.....	.00	.05
B.t.u./sq. ft./hr./°F./in., at 212°F.	93.00	.....	.....	181.00	145.00

Cont'd

NOMINAL PROPERTIES – AISI STAINLESS STEELS

Alloy Physical Properties	Type 304	Type 321	Type 347	Type 316	Type 317
Physical Properties – AISI Stainless Steels					
low carbon steel = 1.00 at 100°C.....	.33	.32	.32	.31	.31
cal./cm. ² /sec./°C./cm., at 500°C.....	.05	.05	.05	.05	.05
B.t.u./sq. ft./hr./°F./in., at 932°F.....	150.00	153.00	153.00	145.00	145.00
Coefficient of Thermal Expansion					
per °F. x 10 ⁻⁶ (32° to 212°F.)	9.60	9.30	9.30	8.40	8.40
low carbon steel = 1.00 (32° to 212°F.)	1.45	1.40	1.40	1.27	1.27
per °F. x 10 ⁻⁶ (32° to 932°F.)	10.20	10.30	10.30	9.60	9.60
Mechanical Properties at Room Temperatures	Annealed	Annealed	Annealed	Annealed	Annealed
Tensile Strength 10 ³ lb./sq. in.	75-100	75-100	75-100	75-100	75-100
Yield Strength 10 ³ lb./sq. in.	30-60	30-60	30-60	30-60	30-60
Modulus of Elasticity 10 ⁶ lb./sq. in.	29	29	29	29	29
Elongation in 2", %	35-60	35-60	35-60	35-60	35-60
Reduction of Area, %	60-80	60-80	60-80	60-80	60-80
Charpy Impact Strength, ft-lb.	77	77	77	77	77

Alloy Physical Properties	Type 310	Type 405	Type 409	Type 430	Type 446
Physical Properties – AISI Stainless Steels					
low carbon steel = 1.00 at 100°C.....	.27	.....	.....	.52	.42
cal./cm. ² /sec./°C./cm., at 500°C.....	.04	.....	.....	.06	.05
B.t.u./sq. ft./hr./°F./in., at 932°F.....	125.00	.....	.....	182.00	169.00
Coefficient of Thermal Expansion					
per °F. x 10 ⁻⁶ (32° to 212°F.)	8.00	6.00	6.0	5.80	5.90
low carbon steel = 1.00 (32° to 212°F.)	1.21	.91	.....	.88	.90
per °F. x 10 ⁻⁶ (32° to 932°F.)	9.20	6.70	.....	6.30	6.30
Mechanical Properties at Room Temperatures	Annealed	Annealed	Annealed	Annealed	Annealed
Tensile Strength 10 ³ lb./sq. in.	75-100	60-90	65-105	60-90	70-100
Yield Strength 10 ³ lb./sq. in.	30-70	30-60	35-65	35-65	40-70
Modulus of Elasticity 10 ⁶ lb./sq. in.	29	28	29	29	29
Elongation in 2", %	30-55	20-40	20-35	20-30	18-25
Reduction of Area, %	60-80	50-70	.....	35-60	25-50
Charpy Impact Strength, ft-lb.	77	60	.....	.....	.....

NOMINAL PROPERTIES – AISI STAINLESS STEELS

Alloy Physical Properties	Type 304	Type 321	Type 347	Type 316	Type 317
Mechanical Properties					
Izod Impact Strength, ft.-lb.	75-110	75-110	75-110	75-110	75-110
Endurance Limit (Fatigue), 10 ³ lb./sq. in.	35	45	45	43	43
Brinell Hardness Number	135-190	135-190	135-190	135-190	135-190
Rockwell Hardness Number	B75-90	B75-90	B75-90	B75-90	B75-90
Olsen Cup Value, in .....	.....	.....	.....	.....	.....
Stress Causing 1% Elongation (Creep) in 10,000 Hours					
At 1000 °F., lb./sq. in.	17,000	17,000	17,000	25,000	25,000
At 1200 °F., lb./sq. in.	6,000	6,000	6,000	15,000	15,000
At 1350 °F., lb./sq. in.	3,000	3,000	3,000	7,000	7,000
At 1500 °F., lb./sq. in.	1,000	1,000	1,000	3,000	3,000
Scaling Temperature, °F. (approximate)	1,650	1,650	1,650	1,650	1,650
Initial Forging Temperature, °F.	2,200	2,200	2,200	2,200	2,200
Finishing Forging Temperature, °F.	Not under 1600-1700	Not under 1600-1700	Not under 1600-1700	Not under 1600-1700	Not under 1600-1700
Annealing Treatment	Heat to 1900-2000 °F. and Quench.	Heat to 1900-2000 °F. and Quench.	Heat to 1900-2000 °F. and Quench.	Heat to 1950-2050 °F. and Quench.	Heat to 1950-2050 °F. and Quench.

Alloy Physical Properties	Type 310	Type 405	Type 409	Type 430	Type 446
Mechanical Properties					
Izod Impact Strength, ft.-lb.	75-110	60-100	.....	25-100	.....
Endurance Limit (Fatigue), 10 ³ lb./sq. in. ....	.....	.....	.....	35-50	35-55
Brinell Hardness Number	150-210	150-207	.....	150-190	150-207
Rockwell Hardness Number	B80-95	B80-95	70-85	B80-90	B80-95
Olsen Cup Value, in .....	.....	.....	.....	.....	.....
Stress Causing 1% Elongation (Creep) in 10,000 Hours					
At 1000 °F., lb./sq. in.	18,000	.....	.....	8,500	6,000
At 1200 °F., lb./sq. in.	8,000	.....	.....	2,000	1,500
At 1350 °F., lb./sq. in.	3,000	.....	.....	1,200	600
At 1500 °F., lb./sq. in.	900	.....	.....	.....	.....
Scaling Temperature, °F. (approximate)	2,000	1,300	1,300	1,550	2,100
Initial Forging Temperature, °F.	2,150	2,000	2,100	2,000	2,000
Finishing Forging Temperature, °F.	Not under 1600-1700	.....	Not over 1,400	Not over 1,400	Not over 1400-1450
Annealing Treatment	Heat to 2000-2100 °F. and Quench.	Heat to 1350-1500 °F. and Quench.	Air-cool from 1350-1500 °F.	Air-cool from 1400-1500 °F.	Rapid cool from 1550-1650 °F.

Cont'd

NOMINAL PROPERTIES – AISI STAINLESS STEELS

Alloy Physical Properties	Type 304	Type 321	Type 347	Type 316	Type 317
Abrasion Resistance	Good	Good	Good	Good	Good
Cold Forming (Drawing – Stamping)	Good	Good	Good	Good	Good
Machinability (Bessemer Screw stock 100%)	about 45%	about 45%	about 45%	about 45%	about 45%
Welding (Arc, Gas, Resistance, Atomic Hydrogen)	Very good; anneal heavier than $\frac{1}{8}$ "- $\frac{3}{16}$ " for maximum corrosion resistance.	Very good; not necessary to anneal.	Very good; not necessary to anneal.	Very good; anneal for maximum corrosion resistance.	Very good; anneal for maximum corrosion resistance.
Precautions (See Notes)	(A)	(D)	(D)	(A)	(A)

Alloy Physical Properties	Type 318	Type 405	Type 409	Type 430	Type 446
Abrasion Resistance	Good	Fair	. . . .	Fair	Fair
Cold Forming (Drawing – Stamping)	Good	Fair	Fair	Good	Poor
Machinability (Bessemer Screw stock 100%)	about 45%	about 54%	. . . .	about 54%	about 40%
Welding (Arc, Gas, Resistance, Atomic Hydrogen)	Very good; anneal for maximum corrosion resistance.	Good; welding does not harden appreciably.	Good	Fair; welds are brittle when cold. Slight response to anneal.	Fair; welds are brittle when cold. Slight response to anneal
Precautions (See Notes)	(A)	(B)		(C)	(C)

- (A) Preheat slowly to 1600°F., then heat rapidly to the forging temperature. Exposure to temperatures between 800° to 1600°F. produces marked susceptibility to intergranular corrosion. If the metal is unattacked, this can be cured by repeating the annealing treatment.
- (B) Preheat slowly to 1450°F., then heat rapidly to 2100°F. for forging. Maximum corrosion resistance of Type 410 is developed only in the heat-treated condition. (Temper below 850°F. or above 1100°F.)
- (C) In forging, preheat slowly to 1450°F. Excessive grain growth takes place above 2000°F. Expert welding is required to avoid excessive grain growth. Prolonged exposure at 850-950°F. produces cold brittleness. To prevent this, heat to 1550-1650°F. and quench.
- (D) For maximum corrosion resistance in high temperature service, heat to 1550°F., hold 2 hours and air-cool.

STAINLESS STEEL SHEET TOLERANCES PER ASTM A-480

STRETCHER LEVELLED STANDARD OF FLATNESS

(Exclusive of Hard Tempers of 300 Series)

Thickness Inches	Length Inches	Tolerance Inches maximum deviation from a horizontal flat surface
Up to 48 incl.	to 96 incl.	$\frac{1}{8}$
	Over 96	$\frac{1}{4}$
Over 48	to 96 incl.	$\frac{1}{4}$
	Over 96	$\frac{1}{4}$

THICKNESS TOLERANCE

Cold Rolled

Thickness Inches	Tolerance Inches plus or minus
Under .1875 – .146	.014
.145 – .131	.012
.130 – .115	.010
.114 – .099	.009
.098 – .084	.008
.083 – .073	.007
.072 – .059	.006
.058 – .041	.005
.040 – .027	.004
.026 – .017	.003
.016 – .008	.002
.007 – .006	.0015
.005	.001

NOTE: Thickness measurements are taken at least $\frac{3}{8}$ inches from the edge of the sheet.

Cont'd

STAINLESS STEEL SHEET TOLERANCES

WIDTH TOLERANCE

Cold Rolled Not Resquared

Thickness Inches	Width Inches	Tolerance Inches plus only
Under .1875	Over 18 to under 48	$\frac{1}{16}$
	48 and over	$\frac{1}{8}$

Hot Rolled and Cold Rolled Resquared

Stretcher levelled standard of flatness.

Thickness Inches	Width Inches	Tolerance Inches plus only
.131 and over	60 and under	$\frac{1}{4}$
.030 and under	48 and over	$\frac{1}{8}$
	Under 48	$\frac{1}{16}$

LENGTH TOLERANCE

Cold Rolled – Not Resquared

Length Inches	Tolerance Inches plus only
120 and under	$\frac{1}{4}$
Over 120 to 240	$\frac{1}{2}$

Hot Rolled and Cold Rolled – Resquared

Stretcher standard of flatness.

Thickness Inches	Length Inches	Tolerance Inches plus only
.131 and over	Up to 240	$\frac{1}{4}$
.030 and under	Up to 120	$\frac{1}{16}$
	120 and over	$\frac{1}{8}$

CAMBER TOLERANCE

Cold Rolled Sheets – Not Resquared

Width Inches	Tolerance Inches per unit length of any 8 feet
Over 18 to 36	$\frac{1}{8}$
Over 36	$\frac{3}{32}$

Cont'd

STAINLESS STEEL SHEET TOLERANCES PER ASTM A-480

FLATNESS TOLERANCE

Hot and Cold Rolled and Polished Finished Sheets

Sheets not specified to stretcher levelled standard of flatness (exclusive of dead soft and deep drawing sheets).

Thickness Inches	Width Inches	Tolerance Inches maximum deviation from a horizontal flat surface
.062 and over	To 60 incl.	$\frac{1}{2}$
Under .062	To 36 incl.	$\frac{1}{2}$
	Over 36 to 60 incl.	$\frac{3}{4}$

Hot and Cold Rolled Sheets

Sheets specified to stretcher levelled standard of flatness (exclusive of dead soft and deep drawing sheets).

Width Inches	Thickness inches	Length Inches	Tolerance Inches maximum deviation from a horizontal flat surface
To 48 incl.	Under $\frac{3}{16}$	To 96 incl.	$\frac{1}{8}$
	Under $\frac{3}{16}$	Over 96	$\frac{1}{4}$
Over 48	Under $\frac{3}{16}$	To 96 incl.	$\frac{1}{4}$
	Under $\frac{3}{16}$	Over 96	$\frac{1}{4}$

Cold Rolled Sheets

$\frac{1}{4}$ and $\frac{1}{2}$ Hard Tempers – 300 Series Only

Width Inches	Length Inches	Tolerance Inches maximum deviation from a horizontal flat surface	
		$\frac{1}{2}$ HARD	$\frac{1}{4}$ HARD
Over 18 to under 36	.016 and under	$\frac{1}{2}$	$\frac{3}{4}$
	.017 to .030	$\frac{5}{8}$	$\frac{7}{8}$
	Over .030	$\frac{3}{4}$	$\frac{7}{8}$
36 to 48 incl.	.016 and under	$\frac{5}{8}$	1
	.017 to .030	$\frac{3}{4}$	$1\frac{1}{8}$
	Over .030	1	$1\frac{1}{8}$

Weight Tolerances

The actual weight of any one item of an order thickness and size in any finish is limited to overweight by the following tolerances:

1. Any item of five sheets or less, or any item estimated to weigh 200 pounds or less, may actually weigh as much as 10% over the theoretical weight.
2. Any item of more than five sheets and estimated to weigh more than 200 pounds may actually weigh as much as $7\frac{1}{2}\%$ over the theoretical weight.

There is no under-tolerance in weight for stainless steel sheets, under-tolerance being restricted by the permissible thickness variations.

For determining estimated weight the following factors are to be used:

Stainless and Heat Resisting Steel Sheets –

Chromium Nickel 42.0 lbs. per sq. ft. per in. thickness.

Straight Chromium. 41.2 lbs. per sq. ft. per in. thickness.

Cont'd

STAINLESS STEEL BAR TOLERANCES

SIZE TOLERANCES Rounds and Squares

Size Inches	Size tolerance Inches plus or minus *Inches plus only	Max. out of Round or square Tolerance Inches
$\frac{1}{4}$ to $\frac{5}{16}$	.005	.008
Over $\frac{5}{16}$ to $\frac{7}{16}$	.006	.009
Over $\frac{7}{16}$ to $\frac{1}{2}$	.007	.010
Over $\frac{1}{2}$ to $\frac{3}{4}$	.008	.012
Over $\frac{3}{4}$ to 1	.009	.013
Over 1 to $1\frac{1}{4}$	.010	.015
Over $1\frac{1}{4}$ to $1\frac{1}{2}$	.011	.016
Over $1\frac{1}{2}$ to $1\frac{3}{4}$	.012	.018
Over $1\frac{3}{4}$ to 2	.014	.021
Over 2 to $2\frac{1}{2}$	$\frac{1}{64}$	.023
Over $2\frac{1}{2}$ to $3\frac{1}{4}$	$\frac{1}{32}$	.023
Over $3\frac{1}{4}$ to 4	$\frac{3}{64}$	.035

Rounds Only

$3\frac{1}{2}$ to $3\frac{3}{4}$	$\frac{3}{64}$	.035
Over $3\frac{3}{4}$ to 4	$\frac{1}{16}$	.046
Over 4 to $5\frac{1}{2}$	$\frac{5}{64}$	.058
Over $5\frac{1}{2}$ to 6	$\frac{1}{8}$	.070
Over 6 to 8	$\frac{5}{32}$	.085

Out-of-round is the difference between maximum and minimum diameter of the bar at same cross section.

Out-of-square is the difference in the two dimensions of the same cross section of a square bar, each dimension being the distance between opposite faces.

Hot rolled rounds in coils in sizes from $\frac{9}{32}$ " to $\frac{23}{32}$ " take size tolerances of plus or minus $\frac{1}{64}$ " on the diameter and .024" max. out-of-round.

Hexagons and Octagons

Size Inches	Size Tolerance Inches	Max. Difference in Measurement across the Flats at same Cross Section Inches
$\frac{1}{2}$	.007	.011
Over $\frac{1}{2}$ to 1	.010	.015
Over 1 to $1\frac{1}{2}$	+.021 -.013	.025
Over $1\frac{1}{2}$ to 2	$+\frac{1}{32}$ $-\frac{1}{64}$	$\frac{1}{32}$

*Hexagons only.

Larger sizes supplied forged only.

Cont'd

STAINLESS STEEL BAR TOLERANCES

Flats

Width inches	1/8 to 3/16 inches	Over 3/16 to 1 inches	Thickness Tolerance Inches plus or minus		Width Tolerance inches plus or minus
			Over 1 to 2 inches		
To 1	.008	.010	—		1/64
Over 1 to 2	.012	.010	1/32		1/32
Over 2 to 3	.015	.015	1/32		+1/16 -1/32
Over 3 to 4	—	.020	+3/64 -1/64		+1/16 -1/32
Over 4 to 6	—	—	+3/64 -1/64		+1/8 -1/32
Over 6 to 8	—	—	+3/64 -1/64		+7/32 -1/16
Over 8 to 10	—	—	+3/64 -1/64		+1/4 -3/32

COLD FINISHED BAR AND WIRE

SIZE TOLERANCES

Rounds

Size Inches	Smooth Turned		Cold Drawn & Cent. Grd.	
.100 to .3125	—	—	+0.001	-.001
Over .3125 to .686	—	—	+0.0015	-.0015
Over .686 to .999	+0.002	-.002	+0.000	-.002
Over .999 to 1.499	+0.0025	-.0025	+0.000	-.0025
Over 1.499 to 3.499	+0.003	-.003	+0.000	-.003
Over 3.499	+0.004	-.004	+0.000	-.003

Squares – Hexagons

Size Inches	Cold Drawn & Cent. Grd.	
.125 to .3125	+0.000	-.002
Over .3125 to .500	+0.000	-.003
Over .500 to 1.000	+0.000	-.004
Over 1.000 to 2.000	+0.000	-.006
Over 2.000 to 3.000	+0.000	-.008
Over 3.000 to 4.000	+0.000	-.010

Flats

Width or Thickness Inches	Width Tolerance Inches plus or minus		Thickness Tolerance Inches plus or minus
	1/4 & under	Over 1/4	
3/16 to 1	.004	.002	.002
Over 1 to 2	.006	.003	.003
Over 2 to 3	.008	.004	.004

NOTE: When it is necessary to heat treat or heat treat and pickle after COLD FINISHING because of special hardness or mechanical property requirements, TOLERANCES ARE DOUBLE those shown above.

Cont'd

STAINLESS STEEL BAR TOLERANCES

LENGTH TOLERANCES

Hot Rolled and Cold Finished Bars

Machine Cut After Machine Straightening

Sizes of Rounds, Squares Hexagons, Octagons and Width of Flats Inches	Tolerance			
	Length to 12 Ft. incl.		Length Over 12 Ft.	
	Inches Over	Inches Under	Inches Over	Inches Under
To 3	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{16}$
Over 3 to 6	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{3}{16}$	$\frac{1}{16}$
Over 6 to 10	$\frac{3}{16}$	$\frac{1}{16}$	$\frac{1}{4}$	$\frac{1}{16}$
Over 10 to 15	$\frac{1}{4}$	$\frac{1}{16}$	$\frac{5}{16}$	$\frac{1}{16}$
Over 15	$\frac{5}{16}$	$\frac{1}{16}$	$\frac{3}{8}$	$\frac{1}{16}$

Variations may be specified all over or all under the ordered length, in which case the sum of the two variations shall apply. When the finished length is specified on the order, the sum of the two variations shall apply as a plus tolerance unless otherwise specified.

STRAIGHTNESS TOLERANCES

Machine straightened hot rolled bars: $-\frac{1}{8}$ " in any 5 ft. length.

Machine straightened cold finished bars: $-\frac{1}{16}$ " in any 5 ft. length.

STAINLESS STEEL BAR TOLERANCES

PLATE TOLERANCES

THICKNESS TOLERANCE inches plus or minus

Thickness Inches	Tolerance
$\frac{3}{16}$ to under $\frac{3}{8}$	+.046 -.010
$\frac{3}{8}$ to under $\frac{1}{2}$	+.054 -.010
$\frac{1}{2}$ to under 1	+.060 -.010

WIDTH AND LENGTH TOLERANCE inches plus only

Tolerances are in inches over specified width and length for a given width, length and thickness. The tolerance under specified width and length is $\frac{1}{4}$ inch.

Length Inches	Width Inches	Thickness Inches					
		Under 3/8 Length		3/8 to 1/2 incl. Length		Over 1/2 Length	
144 and under	48 and under	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{5}{16}$
	Over 48 to 60 incl.	$\frac{1}{4}$	$\frac{3}{16}$	$\frac{5}{16}$	$\frac{1}{4}$	$\frac{7}{16}$	$\frac{3}{8}$
Over 144 to 240	48 and under	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{5}{8}$	$\frac{5}{16}$
	Over 48 to 60 incl.	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{5}{8}$	$\frac{5}{16}$	$\frac{3}{4}$	$\frac{3}{8}$

Cont'd

STAINLESS STEEL TOLERANCES

FLATNESS TOLERANCE inches

Thickness Inches	Inches maximum deviation from a horizontal flat surface								
	48 and under	Over 48 to under 60	60 to under 72	72 to under 84	84 to under 96	96 to under 108	108 to under 120	120 to under 144	144 and under
$\frac{3}{16}$ to $\frac{1}{4}$ excl.	$\frac{3}{4}$	$1\frac{1}{16}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{5}{8}$	$1\frac{5}{8}$	....	....	....
$\frac{1}{4}$ to $\frac{3}{8}$ excl.	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{3}{8}$	$1\frac{7}{16}$	$1\frac{9}{16}$	$1\frac{7}{8}$	....
$\frac{3}{8}$ to $\frac{1}{2}$ excl.	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{15}{16}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{7}{16}$	$1\frac{3}{4}$
$\frac{1}{2}$ to $\frac{3}{4}$ excl.	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{13}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{3}{8}$
$\frac{3}{4}$ to 1 excl.	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{15}{16}$	1	$1\frac{1}{8}$

If the longer dimension is under 36 inches, the tolerance is not greater than $\frac{1}{4}$ inch.

The shorter dimension specified is considered the width and the flatness tolerance across the width does not exceed the tabular amount for that dimension.

The maximum deviation from a flat surface does not exceed the tabular tolerance for the longer dimensions specified.

Tolerances apply to annealed plates only.

CAMBER TOLERANCES inches	Length of plate in feet	x 1/8
	5	

STAINLESS STEEL PLATE TOLERANCES

WEIGHT TOLERANCE percent

RECTANGULAR SHEARED MILL PLATES

Excess in average weight of lots* for widths given in inches, expressed in percentage of nominal weight.

Width Inches	Thickness Inches							
	3/16 to under 1/4	1/4 to under 5/16	5/16 to under 3/8	3/8 to under 7/16	7/16 to under 1/2	1/2 to under 5/8	5/8 to under 3/4	3/4 to under 1
48 and under	10.5	9.0	7.5	7.0	6.0	5.5	4.5	4.0
Over 48 to under 60	12.0	10.5	9.0	7.5	7.0	6.0	5.5	4.5

The tolerance in weight for individual plates is $1\frac{1}{2}$ times the amount given in the above table.

The overweight for circular and sketch plates is 25 percent greater than the amounts given in the table.

*The term lot means all the plates of each tabular width and thickness group represented in each shipment.

**ALL OUR PRODUCTS ARE STORED UNDER COVER
in heated warehouses which ensures that materials
shipped are IN GOOD CLEAN CONDITION.**

STAINLESS TUBING – DIMENSIONAL TOLERANCES – COLD DRAWN – ROUND – ANNEALED

Group No.	O.D. size range	O.D. tolerances Inches	Wall tolerances See notes (a) and (b)	Ovality
				Double O.D. Tolerances when wall is
1	$\frac{3}{16}$ inch to but not including $\frac{1}{2}$ inch. . .	Plus 0.005 Minus 0.005	Plus 15% Minus 15%	
2	$\frac{1}{2}$ inch to but not including $1\frac{1}{2}$ inch. . .	Plus 0.005 Minus 0.005	Plus 10% Minus 10%	Lighter than 0.065"
3	$1\frac{1}{2}$ inch to but not including $3\frac{1}{2}$ inch. . .	Plus 0.010 Minus 0.010	Plus 10% Minus 10%	Lighter than 0.095"
4	$3\frac{1}{2}$ inch to but not including $5\frac{1}{2}$ inch. . .	Plus 0.015 Minus 0.015	Plus 10% Minus 10%	Lighter than 0.150"
5	$5\frac{1}{2}$ inch to but not including 8 inch. . . .	Plus 0.030 Minus 0.030	Plus 10% Minus 10%	

(a) Tubes with wall thicknesses more than 25% of their O.D. or with wall thicknesses greater than $1\frac{1}{4}$ inches or weighing more than 90 pounds per foot, may vary in wall thickness plus and minus $12\frac{1}{2}\%$.

(b) For tubes with I.D. less than $\frac{1}{2}$ inch (or less than $\frac{5}{8}$ inch when the wall thickness is more than 20% of the O.D.), which cannot successfully be drawn over a mandrel, the wall thickness may vary 15% over or under that specified and the I.D. will be governed by the O.D. and wall thickness variations.