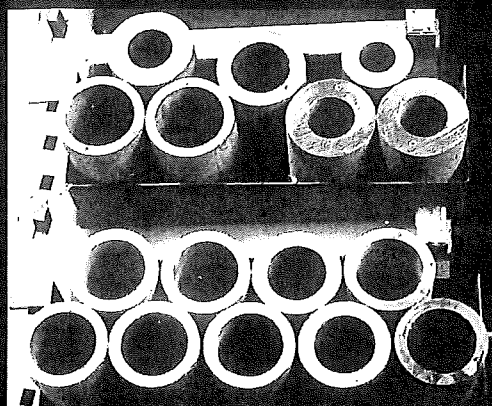
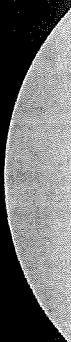
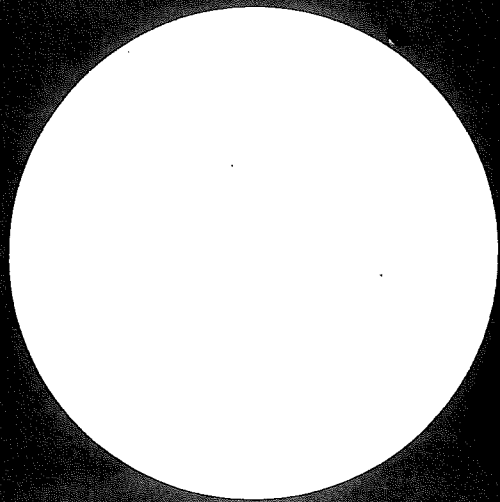
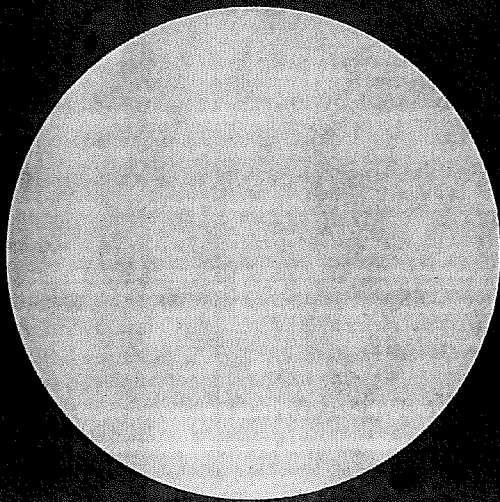
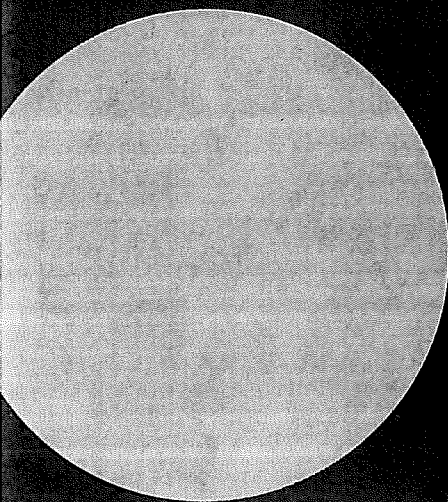


ROUND & HOLLOW BAR



No matter how you need it, round, flat, angle, square or hollow bar, it's stocked to meet your requirements at Specialty Steels. Sizes from 1/8 inch to 11 inch diameter in T303, T304, T316 and T416 alloys are standard. If you need a special alloy or unusual size, we can supply that too, in any quantity. In house production cutting is available.



HOT FINISHED OR COLD FINISHED BARS MACHINE STRAIGHTENED STAINLESS AND HEAT RESISTING STEELS

Hot finished:

1/8 inch in any 5 ft.; but may not exceed

$$\frac{1}{8} \times \frac{\text{No. of feet in length}}{5}$$

Tolerance in mm. = 2.09 mm × length (in metres).

Cold finished:

1/16 inch in any 5 ft.; but may not exceed

$$\frac{1}{16} \times \frac{\text{No. of feet in length}}{5}$$

Tolerance in mm. = 1.05 mm × length (in metres)

(ASTM A484)

Measurement is taken on the concave side of the bar with a straight edge. Hot finished or cold fin-

ished bars for machining purposes are furnished machine-straightened to the above tolerances:

SIZE TOLERANCES

COLD FINISHED BARS, ROUNDS STAINLESS AND HEAT RESISTING STEELS

Specified Size		Size Tolerances ⁽¹⁾⁽²⁾			
		Over		Under	
In.	mm.	In.	mm.	In.	mm.
1/2 to 1	12.70 to 25.40 excl.	0.002	0.05	0.002	0.05
Over 1 to 1-1/2	25.40 to 38.10 excl.	0.0025	0.06	0.0025	0.06
Over 1-1/2 to 4 ⁽³⁾	38.10 to 101.6 inc. ⁽³⁾	0.003	0.08	0.003	0.08

(ASTM A484)

- (1) Size tolerances are over and under as shown in the above table. Also, rounds can be produced to tolerances all over and nothing over, or all under and nothing over, or any combination of over and under, if the total spread in size tolerance for a specified size is not less than the total spread shown in the table.
- (2) When it is necessary to heat treat or heat treat and pickle after cold finishing, size tolerances are double those shown in the table.
- (3) Cold finished bars over 4 inches (101.6 mm) in diameter are produced: size tolerances for such bars are not included herein.

COLD FINISHED BARS,
HEXAGONS, OCTAGONS, AND SQUARES

Specified Size		Size Tolerances*			
		Over		Under	
In.	mm.	In.	mm.	In.	mm.
1/2 to 1	42.70 to 25.40 incl.	0	0	0.004	0.10
Over 1 to 2	25.40 to 50.80 incl.	0	0	0.006	0.15
Over 2 to 3	50.80 to 76.20 incl.	0	0	0.008	0.20
Over 3	76.20	0	0	0.010	0.25

(ASTM A484)

*When it is necessary to heat treat or heat treat and pickle after cold finishing, size tolerances are double those shown in the table.

WIDTH AND THICKNESS TOLERANCES

COLD FINISHED BARS, FLATS
STAINLESS AND HEAT RESISTING STEELS

Width		Width Tolerance Over and Under ⁽¹⁾			
In.	mm.	For thicknesses 1/4 in. (6.35 mm) and under		For thicknesses Over 1/4 in. (6.35 mm.)	
		In.	mm.	In.	mm.
3/8 to 1	9.53 to 25.40 incl.	±0.004	±0.10	±0.002	±0.05
Over 1 to 2	25.40 to 50.80 incl.	±0.006	±0.15	±0.003	±0.08
Over 2 to 3	50.80 to 76.20 incl.	±0.008	±0.20	±0.004	±0.10
Over 3 to 4-1/2 ⁽²⁾	76.20 to 114.30 incl. ⁽²⁾	±0.010	±0.25	±0.005	±0.13

Thickness		Thickness Tolerance Over and Under ⁽¹⁾	
In.	mm	In.	mm
1/8 to 1	3.18 to 25.40 incl.	±0.002	±0.05
Over 1 to 2	25.40 to 50.80 incl.	±0.003	±0.08
Over 2 to 3	50.80 to 76.20 incl.	±0.004	±0.10
Over 3 to 4-1/2 ⁽²⁾	76.20 to 114.30 incl. ⁽²⁾	±0.005	±0.13

(ASTM A484)

When it is necessary to heat treat or heat treat and pickle after cold finishing, tolerances are double those shown in the table.

(2) Cold finished flat bars over 4-1/2 in. (114.3 mm) wide or thick are produced: width and thickness

tolerances for such bars are not included herein.

**HOT ROLLED BARS,
ROUNDS AND SQUARES
STAINLESS AND HEAT RESISTING STEELS**

Specified Size		Size Tolerance				Out of round ⁽¹⁾ or Out of square section ⁽²⁾	
		Over		Under		In.	mm.
In.	mm.	In.	mm.	In.	mm.		
Over 1/4 to 5/16(3)(4)	6.35 to 7.94 incl.(3)(4)	(5)	(5)	(5)	(5)	(5)	(5)
Over 5/16 to 7/16(3)(4)	7.94 to 11.11 incl.(3)(4)	0.006	0.15	0.006	0.15	0.009	0.23
Over 7/16 to 5/8(3)(4)	11.11 to 15.88 incl.(3)(4)	0.007	0.18	0.007	0.18	0.010	0.25
Over 5/8 to 7/8	15.88 to 22.22 incl.	0.008	0.20	0.008	0.20	0.012	0.30
Over 7/8 to 1	22.22 to 25.40 incl.	0.009	0.23	0.009	0.23	0.013	0.33
Over 1 to 1-1/8	25.40 to 28.58 incl.	0.010	0.25	0.010	0.25	0.015	0.38
Over 1-1/8 to 1-1/4	28.58 to 31.75 incl.	0.011	0.28	0.011	0.28	0.016	0.41
Over 1-1/4 to 1-3/8	31.75 to 34.93 incl.	0.012	0.30	0.012	0.30	0.018	0.46
Over 1-3/8 to 1-1/2	34.93 to 38.10 incl.	0.014	0.36	0.014	0.36	0.021	0.53
Over 1-1/2 to 2	38.10 to 50.80 incl.	1/64	0.40	1/64	0.40	0.023	0.58
Over 2 to 2-1/2	50.80 to 63.50 incl.	1/32	0.79	0	0	0.023	0.58
Over 2-1/2 to 3-1/2	63.50 to 88.90 incl.	3/64	1.19	0	0	0.035	0.89
Over 3-1/2 to 4-1/2	88.90 to 114.3 incl.	1/16	1.59	0	0	0.046	1.17
Over 4-1/2 to 5-1/2	114.3 to 139.7 incl.	5/64	1.98	0	0	0.058	1.47
Over 5-1/2 to 6-1/2	139.7 to 165.1 incl.	1/8	3.18	0	0	0.070	1.78
Over 6-1/2 to 8	165.1 to 203.2 incl.	5/32	3.97	0	0	0.085	2.16

(ASTM A484)

- (1) Out-of-round is the difference between the maximum and minimum diameters of the bar, measured at the same cross section.
- (2) Out-of-square section is the difference in the two dimensions at the same cross section of a square bar, each dimension being the distance between opposite faces.

- (3) Size tolerances for rounds in the size range of 1/4 in. (6.35 mm) to 5/16 in. (7.94 mm), incl., and for rounds in the size range of 1/4 in. (6.35 mm) to approximately 5/8 in. (15.88 mm) which are produced on rod mills in coils, are not shown.

- (4) Variations in size of coiled product made on rod mills are greater than size tolerances for product made on bar mills.
- (5) Squares in this size are not produced as hot rolled product.

SIZE TOLERANCES

HOT ROLLED BARS,
HEXAGONS AND OCTAGONS
STAINLESS AND HEAT RESISTING STEELS

Specified Sizes Measured Between Opposite Sides		Size Tolerance				Maximum Difference 3 Measurements For Hexagons Only	
		Over		Under		In.	mm
In.	mm.	In.	mm.	In.	mm.	In.	mm
Over 1/4 to 1/2	6.35 to 12.70 incl.	0.007	0.18	0.007	0.18	0.011	0.28
Over 1/2 to 1	12.70 to 25.40 incl.	0.010	0.25	0.010	0.25	0.015	0.38
Over 1 to 1-1/2	25.40 to 38.10 incl.	0.021	0.53	0.021	0.53	0.025	0.64
Over 1-1/2 to 2	38.10 to 50.80 incl.	1/32	0.79	1/32	0.79	1/32	0.79
Over 2 to 2-1/2	50.80 to 63.50 incl.	3/64	1.19	3/64	1.19	3/64	1.19
Over 2-1/2 to 3-1/2	63.50 to 88.90 incl.	1/16	1.59	1/16	1.59	1/16	1.59

(ASTM A484)

SIZE TOLERANCES

HOT ROLLED BARS, FLATS
STAINLESS AND HEAT RESISTING STEELS

Specified Widths, In.	Thickness Tolerances, In., For Thicknesses Given										
	1/8 to 1/2 Incl.	Over 1/2 to 1 Incl.	Over 1 to 2 Incl.	Over 2 to 4 Incl.		Over 4 to 6 Incl.		Over 6 to 8 Incl.		Width Tolerance, In.	
	Over and Under		Over	Under	Over	Under	Over	Under	Over	Under	
Up to 1 incl.	0.008	0.010	-	-	-	-	-	-	-	0.015	0.015
Over 1 to 2 incl.	0.012	0.015	0.031	-	-	-	-	-	-	0.031	0.031
Over 2 to 4 incl.	0.015	0.020	0.031	0.062	0.031	-	-	-	-	0.062	0.031
Over 4 to 6 incl.	0.015	0.020	0.031	0.062	0.031	0.093	0.062	-	-	0.093	0.062
Over 6 to 8 incl.	0.016	0.025	0.031	0.062	0.031	0.093	0.062	0.125	0.156	0.125	0.156
Over 8 to 10 incl.	0.021	0.031	0.031	0.062	0.031	0.093	0.062	0.125	0.156	0.156	0.187

(ASTM A484)

THEORETICAL WEIGHTS OF STAINLESS STEEL BAR

ROUNDS, SQUARES, HEXAGONALS
POUNDS PER LINEAL FOOT

In.	Round	Square	Hex.
1/64	.0006519	.0008300	
1/32	.002607	.003320	
3/64	.005867	.007470	
1/16	.01043	.01328	
5/64	.01630	.02075	
3/32	.02347	.02988	
7/64	.03194	.04067	
1/8	.04172	.05312	
9/64	.05280	.06723	
5/32	.06519	.08300	
11/64	.07888	.1004	
3/16	.09387	.1195	
13/64	.1102	.1403	
7/32	.1278	.1627	
15/64	.1467	.1868	
1/4	.1669	.2125	.184
17/64	.1884	.2399	
9/32	.2112	.2689	
19/64	.2353	.2996	
5/16	.2607	.3320	.287
21/64	.2874	.3660	
11/32	.3155	.4017	
23/64	.3448	.4391	
3/8	.3755	.4781	.414
25/64	.4074	.5187	
13/32	.4406	.5611	
27/64	.4752	.6051	
7/16	.5111	.6507	.564
29/64	.5482	.6980	
15/32	.5867	.7470	
31/64	.6264	.7976	
1/2	.6675	.8499	.736

In.	Round	Square	Hex.
33/64	.7099	.9038	
17/32	.7536	.9595	
35/64	.7985	1.017	
9/16	.8448	1.076	.932
37/64	.8924	1.136	
19/32	.9413	1.198	
39/64	.9915	1.262	
5/8	1.043	1.328	1.15
41/64	1.096	1.395	
21/32	1.150	1.464	
43/64	1.205	1.535	
11/16	1.262	1.607	
45/64	1.320	1.681	
23/32	1.379	1.756	
47/64	1.440	1.833	
3/4	1.502	1.913	1.66
49/64	1.565	1.993	
25/32	1.630	2.075	
51/64	1.696	2.159	
13/16	1.763	2.245	
53/64	1.831	2.331	
27/32	1.901	2.420	
55/64	1.972	2.511	
7/8	2.044	2.603	2.25
57/64	2.118	2.697	
29/32	2.193	2.792	
59/64	2.269	2.889	
15/16	2.347	2.988	
61/64	2.426	3.088	
31/32	2.506	3.190	
63/64	2.587	3.294	
1	2.670	3.400	2.94

THEORETICAL WEIGHTS OF STAINLESS STEEL BAR

ROUNDS, SQUARES, HEXAGONALS
POUNDS PER LINEAL FOOT

In.	Round	Square	Hex.
1-1/32	2.839	3.615	
1-1/16	3.015	3.838	3.32
1-3/32	3.194	4.067	
1-1/8	3.380	4.303	3.73
1-5/32	3.570	4.545	
1-3/16	3.766	4.795	
1-7/32	3.966	5.050	
1-1/4	4.172	5.313	4.60
1-9/32	4.383	5.581	
1-5/16	4.600	5.857	
1-11/32	4.822	6.139	
1-3/8	5.049	6.428	5.57
1-13/32	5.281	6.724	
1-7/16	5.518	7.026	
1-15/32	5.764	7.335	
1-1/2	6.009	7.650	6.62
1-9/16	6.519	8.301	
1-5/8	7.051	8.978	7.77
1-11/16	7.604	9.682	
1-3/4	8.178	10.41	9.02
1-13/16	8.773	11.17	
1-7/8	9.388	11.95	10.35
1-15/16	10.02	12.76	
2	10.68	13.60	11.78
2-1/16	11.36	14.46	
2-1/8	12.06	15.35	
2-3/16	12.78	16.27	
2-1/4	13.52	17.21	
2-5/16	14.28	18.18	
2-3/8	15.06	19.18	
2-7/16	15.87	20.20	
2-1/2	16.69	21.25	

In.	Round	Square	Hex.
2-9/16	17.53	22.33	
2-5/8	18.40	23.43	
2-11/16	19.29	24.56	
2-3/4	20.20	25.71	
2-13/16	21.12	26.90	
2-7/8	22.07	28.10	
2-15/16	23.04	29.34	
3	24.03	30.60	
3-1/8	26.08	33.20	
3-1/4	28.21	35.91	
3-3/8	30.42	38.73	
3-1/2	32.71	41.65	
3-5/8	35.09	44.68	
3-3/4	37.55	47.81	
3-7/8	40.10	51.05	
4	42.73	54.40	
4-1/4	48.23	61.41	
4-1/2	54.07	68.85	
4-3/4	60.25	76.71	
5	66.76	85.00	
5-1/4	73.60	93.71	
5-1/2	80.78	102.8	
5-3/4	88.29	112.4	
6	96.13	122.4	
6-1/2	112.8	143.7	
7	130.9	166.6	
7-1/2	150.2	191.3	
8	170.9	217.6	
9	216.3	275.4	
10	267.0	340.0	
11	323.1	411.4	
12	384.5	489.6	

APPROXIMATE WEIGHT OF EQUAL ANGLES

Size Inches	Thickness Inches	Pounds per ft.
3/4 x 3/4	3/32	0.45
	1/8	0.59
	3/16	0.84
7/8 x 7/8	3/32	0.53
	1/8	0.70
	3/16	1.00
1 x 1	7/64	0.71
	1/8	0.80
	3/16	1.16
	1/4	1.49
1-1/8 x 1-1/8	1/8	0.91
	3/16	1.32
1-1/4 x 1-1/4	1/8	1.01
	9/64	1.14
	3/16	1.48
	1/4	1.92
	5/16	2.33
1-7/16 x 1-7/16	3/32	0.87
	1/8	1.17
	5/32	1.44
	3/16	1.71

Size Inches	Thickness Inches	Pounds per ft.	
1-1/2 x 1-1/2	3/32	0.93	
	1/8	1.23	
	3/16	1.80	
	1/4	2.34	
	5/16	2.86	
	3/8	3.35	
	7/16	3.88	
1-3/4 x 1-3/4	1/8	1.44	
	3/16	2.12	
	1/4	2.77	
	5/16	3.39	
	3/8	3.99	
2 x 2	1/8	1.65	
	3/16	2.44	
	1/4	3.19	
	5/16	3.92	
	3/8	4.7	
	7/16	5.3	
	1/2	6.0	
	2-1/2 x 2-1/2	1/8	2.08
		3/16	3.07
		1/4	4.1
5/16		5.0	
3/8		5.9	
7/16		6.8	
1/2		7.7	
	9/16	8.5	
	5/8	9.3	

Size Inches	Thickness Inches	Pounds per ft.
3 x 3	1/8	2.50
	3/16	3.74
	1/4	4.9
	5/16	6.1
	3/8	7.2
	7/16	8.3
	1/2	9.4
	9/16	10.4
	5/8	11.5
	11/16	12.5
4 x 4	3/4	13.5
	1/4	6.6
	5/16	8.2
	3/8	9.8
	7/16	11.3
	1/2	12.8
	9/16	14.3
	5/8	15.7
	11/16	17.1
	3/4	18.5
	13/16	19.9

Size Inches		Approx. Pounds per Ft.
1/8	1/2	.243
	5/8	.266
	3/4	.319
	7/8	.372
	1	.425
	1-1/4	.531
	1-1/2	.638
	1-3/4	.744
	2	.85
	2-1/2	1.063
3/16	3	1.275
	3-1/2	1.488
	4	1.70
	1/2	.319
	5/8	.398
	3/4	.478
	1	.638
	1-1/4	.797
	1-1/2	.956
	1-3/4	1.12
2	2	1.28
	2-1/4	1.43
	2-1/2	1.59
	3	1.91
	3-1/2	2.23
	4	2.55

Size Inches		Approx. Pounds per Ft.
1/4	1/2	.425
	5/8	.531
	3/4	.638
	1	.850
	1-1/4	1.06
	1-1/2	1.28
	1-3/4	1.49
	2	1.70
	2-1/4	1.91
	2-1/2	2.13
5/16	3	2.55
	3-1/2	2.98
	4	3.40
	3/4	.797
	1	1.06
	1-1/4	1.33
	1-1/2	1.59
	1-3/4	1.86
	2	2.13
	2-1/4	2.39
2	2-1/2	2.66
	3	3.19
	3-1/2	3.72
	4	4.25

Size Inches		Approx. Pounds per Ft.
3/8	1/2	.638
	3/4	.956
	1	1.28
	1-1/4	1.59
	1-1/2	1.91
	1-3/4	2.23
	2	2.55
	2-1/4	2.87
	2-1/2	3.19
	2-3/4	3.51
1/2	3	3.83
	3-1/2	4.46
	4	5.10
	3/4	1.28
	1	1.70
	1-1/4	2.13
	1-1/2	2.55
	1-3/4	2.98
	2	3.40
	2-1/4	3.83
2	2-1/2	4.25
	2-3/4	4.68
	3	5.10
	3-1/2	5.95
	4	6.80

mm	O.D.	I.D.	Mean Wt. LB/FT.	mm	O.D.	I.D.	Mean Wt. LB/FT.	mm	O.D.	I.D.	Mean Wt. LB/FT.
40/28	1.57	1.10	3.7	90/71	3.54	2.80	14.0	140/100		3.94	42.9
40/25		0.98	4.4	90/63		2.48	18.4	140/80		3.15	57.7
40/20		0.79	5.3	90/50		1.97	24.5	150/125	5.91	4.92	32.1
45/32	1.77	1.26	4.5	95/50	3.74	1.97	28.4	150/106		4.17	50.2
45/28		1.10	5.5	100/80	3.94	3.15	16.5	150/80		3.15	70.2
45/20		0.79	7.1	100/71		2.80	22.1	160/132	6.30	5.17	38.0
50/36	1.97	1.42	5.4	100/56		2.20	30.0	160/112		4.41	58.1
50/32		1.26	6.6	106/80	4.17	3.15	21.8	170/140	6.69	5.51	43.2
50/25		0.98	8.2	106/71		2.80	27.4	170/118		4.65	66.6
56/40	2.20	1.57	6.9	106/56		2.20	35.3	180/150	7.09	5.91	46.1
56/36		1.42	8.2	112/90	4.41	3.54	20.4	180/125		4.92	74.6
56/28		1.10	10.3	112/80		3.15	27.4	190/160	7.48	6.30	49.4
63/50	2.48	1.97	6.7	112/63		2.48	37.5	190/132		5.20	83.7
63/40		1.57	10.5	118/90	4.65	3.54	26.4	200/160	7.87	6.30	66.1
63/32		1.26	12.9	118/80		3.15	33.4	200/140		5.51	90.8
71/56	2.80	2.20	8.7	118/63		2.48	43.4	212/170	8.35	6.69	73.7
71/45		1.77	13.3	125/100	4.92	3.94	25.8	212/130		5.12	123.2
71/36		1.42	16.3	125/90		3.54	33.7	224/180	8.82	7.09	81.7
75/40	2.95	1.57	17.6	125/71		2.80	46.3	224/140		5.51	134.5
80/63	3.15	2.48	11.1	132/106	5.20	4.17	28.4	236/190	9.29	7.48	90.2
80/50		1.97	17.2	132/90		3.54	41.4	236/150		5.91	146.2
80/40		1.57	21.0	132/71		2.80	54.0	250/200	9.84	7.87	103.2
85/45	3.35	1.77	22.7	140/112	5.51	4.41	32.4				

Specifications
Specialty Steels Hollow Bar is produced in accordance to ASTM A-511 in Grade AISI T-316

Tolerances
In accordance with International Standard ISO 2938. Outside diameter: +2/-0% with a minimum of +1/-0mm

Wall thickness: -5%