



STEEL REFERENCE GUIDE

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Serving Southwestern Pennsylvania

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Serving Central Pennsylvania



Products and Services

Inventory Available in Stock

Angles	Sheet
Beams	Rebar
Channels	Hot Rolled Rounds
Expanded Metal	Cold Rolled Rounds
Bar Grating	Square Bars
Flats	Pipe
Plate	Tubing
Floor Plate	Wire Mesh

*Stainless, aluminum, and other items
are also available. Please inquire.*

Services *(detail on page 29)*

Flame Cutting
Plasma Cutting
Saw Cutting
Shearing



About Glosser

Our Mission

M. Glosser & Sons is dedicated to providing quality steel products, reliable delivery, and excellent customer service. While, at the same time, serving and supporting our community.

A Word from Our President and Our History

Glosser Steel Service is a division of M. Glosser & Sons, Inc., based in Johnstown, PA. M. Glosser & Sons has served the needs of business and industry for over 100 years.

Moses Isaac Glosser (1864-1949) emigrated to America in the early 1890's from eastern Europe. In 1899, upon the family's arrival in Windber, Pennsylvania, the Company was started. The sons who joined their father in business were Emanuel (1883-1966), Solomon (1886-1950), Nathan (1891-1925), and David (1899-1964). Upon David's death, the grandson, Daniel S. Glosser (1924-2016), ran the business up until his passing in 2016.

As we look forward to a bright future, the management and employees wish to thank all of our friends, suppliers, customers, for more than 100 successful years.

I am honored to be the fourth generation providing products and employment to so many in central and western Pennsylvania. Doing so allows for the continuing support my family has provided to the surrounding community for so long.

Greg Glosser
President
M. Glosser & Sons, Inc.

Since 1899



Expansive Inventory



On-Time Delivery



Superior Processing

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STRUCTURAL STEEL SHAPES

Structural steel shapes include angles, beams, and channels. These shapes are available in structural and bar sizes. Structural shapes are shapes in which at least one dimension (excluding length) is 3 inches or greater. Conversely, bar size shapes are those in which the greatest dimension (excluding length) of a shape is less than 3 inches.

Most of these items are available in 20 and 40 foot lengths. Many beam sizes are also available in longer lengths.

SPECIFICATIONS

The following specifications apply to structural steel shapes. Note that not all of these specifications apply to all structural steel shapes. Please refer to the pages that follow to find the available specifications by product.

ASTM A36 - Carbon Structural Steel

This specification covers structural quality shapes generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes.

ASTM A529 - High-Strength Carbon-Manganese Structural Steel

This specification covers high-strength structural quality shapes generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes. This specification has a similar yield strength but higher tensile strength than A572 due to the addition of copper and slightly higher carbon content.

ASTM A572 - High-Strength Low-Alloy Structural Steel

This specification covers high-strength structural quality shapes generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes.

ASTM A588 - High-Strength Low-Alloy Structural Steel

This specification covers high-strength structural quality shapes generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes. Steel covered by this specification exhibits higher corrosion resistance than other steel.

ASTM A992 - Structural Steel Shapes for Use in Building Framing

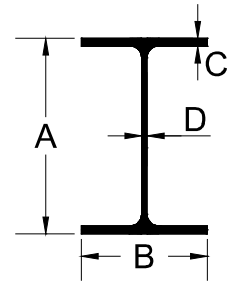
This specification covers structural quality shapes generally suitable for use in building framing applications, and for general structural purposes.

MULTI - Multiple Specification Steel

Items produced to cover all of the following specifications: A36, A992, A572-50, A529-50, A709-36, A709-50, as well as other less common specifications.

WIDE FLANGE BEAMS

Designated as "W" shapes, wide flange shapes are generally used as beams or columns. They are doubly-symmetric with substantially parallel inside flange surfaces. Depth sizes range from 4" to 36", and lengths from 20' to 60'. Available in A992/A572-50 (Grade 50) and A588 specifications.



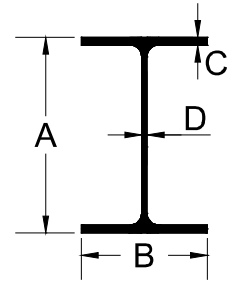
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth in	Flange		Web
					Width in	Thickness in	Thickness in
		in x lbs/ft		A	B	C	D
W4	W4x13	13	3.830	4.160	4.060	0.345	0.280
W5	W5x16	16	4.680	5.010	5.000	0.360	0.240
	W5x19	19	5.540	5.150	5.030	0.430	0.270
W6	W6x8.5	9	2.520	5.830	3.940	0.194	0.170
	W6x9	9	2.680	5.900	3.940	0.215	0.170
	W6x12	12	3.550	6.030	4.000	0.280	0.230
	W6x15	15	4.430	5.990	5.990	0.260	0.230
	W6x16	16	4.740	6.280	4.030	0.405	0.260
	W6x20	20	5.870	6.200	6.020	0.365	0.260
	W6x25	25	7.340	6.380	6.080	0.455	0.320
W8	W8x10	10	2.960	7.890	3.940	0.205	0.170
	W8x13	13	3.840	7.990	4.000	0.255	0.230
	W8x15	15	4.440	8.110	4.015	0.315	0.245
	W8x18	18	5.260	8.140	5.250	0.330	0.230
	W8x21	21	6.160	8.280	5.270	0.400	0.250
	W8x24	24	7.080	7.930	6.495	0.400	0.245
	W8x28	28	8.250	8.060	6.535	0.465	0.285
	W8x31	31	9.130	8.000	7.995	0.435	0.285
	W8x35	35	10.300	8.120	8.020	0.495	0.310
	W8x40	40	11.700	8.250	8.070	0.560	0.360
	W8x48	48	14.100	8.500	8.110	0.685	0.400
	W8x58	58	17.100	8.750	8.220	0.810	0.510
	W8x67	67	19.700	9.000	8.280	0.935	0.570
W10	W10x12	12	3.770	9.870	3.960	0.210	0.190
	W10x15	15	4.640	9.990	4.000	0.270	0.230
	W10x17	17	5.220	10.110	4.010	0.330	0.240
	W10x19	19	5.850	10.240	4.020	0.395	0.250
	W10x22	22	6.960	10.170	5.750	0.360	0.240
	W10x26	26	8.080	10.330	5.770	0.440	0.260
	W10x30	30	9.310	10.470	5.810	0.510	0.300

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth in	Flange		Web
					Width in	Thickness in	Thickness in
		in x lbs/ft		A	B	C	D
	W10x33	33	10.350	9.730	7.960	0.435	0.290
	W10x39	39	12.110	9.920	7.985	0.530	0.315
	W10x45	45	13.910	10.100	8.020	0.620	0.350
	W10x49	49	15.070	9.980	10.000	0.560	0.340
	W10x54	54	16.470	10.090	10.030	0.615	0.370
	W10x60	60	18.290	10.220	10.080	0.680	0.420
	W10x68	68	20.620	10.400	10.130	0.770	0.470
	W10x77	77	23.290	10.600	10.190	0.870	0.530
	W10x88	88	26.540	10.840	10.265	0.990	0.605
	W10x100	100	30.050	11.100	10.340	1.120	0.680
	W10x112	112	33.590	11.360	10.415	1.250	0.755
W12	W12x14	14	4.160	11.910	3.970	0.225	0.200
	W12x16	16	4.710	11.990	3.990	0.265	0.220
	W12x19	19	5.570	12.160	4.005	0.350	0.235
	W12x22	22	6.480	12.310	4.030	0.425	0.260
	W12x26	26	7.650	12.220	6.490	0.380	0.230
	W12x30	30	8.790	12.340	6.520	0.440	0.260
	W12x35	35	10.300	12.500	6.560	0.520	0.300
	W12x40	40	11.800	11.940	8.005	0.515	0.295
	W12x45	45	13.200	12.060	8.045	0.575	0.335
	W12x50	50	14.700	12.190	8.080	0.640	0.370
	W12x53	53	15.600	12.060	9.995	0.575	0.345
	W12x58	58	17.000	12.190	10.010	0.640	0.360
	W12x65	65	19.100	12.120	12.000	0.605	0.390
	W12x72	72	21.100	12.250	12.040	0.670	0.430
	W12x79	79	23.200	12.380	12.080	0.735	0.470
	W12x87	87	25.600	12.530	12.125	0.810	0.515
	W12x96	96	28.200	12.710	12.160	0.900	0.550
	W12x106	106	31.200	12.890	12.220	0.990	0.610
	W12x120	120	35.300	13.120	12.320	1.105	0.710

WIDE FLANGE BEAMS (continued)

Designated as "W" shapes, wide flange shapes are generally used as beams or columns. They are doubly-symmetric with substantially parallel inside flange surfaces. Depth sizes range from 4" to 36", and lengths from 20' to 60'. Available in A992/A572-50 (Grade 50) and A588 specifications.



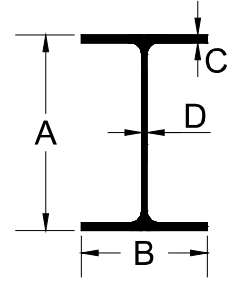
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth A in	Flange		Web
					Width B in	Thickness C in	Thickness D in
	W12x136	136	39.900	13.410	12.400	1.250	0.790
	W12x152	152	44.700	13.710	12.480	1.400	0.870
	W12x170	170	50.000	14.030	12.570	1.560	0.960
	W12x190	190	55.800	14.380	12.670	1.735	1.060
	W12x210	210	61.800	14.710	12.790	1.900	1.180
	W12x230	230	67.700	15.050	12.895	2.070	1.285
	W12x252	252	74.100	15.410	13.005	2.250	1.395
W14	W14x22	22	6.490	13.740	5.000	0.335	0.230
	W14x26	26	7.690	13.910	5.025	0.420	0.255
	W14x30	30	8.850	13.840	6.730	0.385	0.270
	W14x34	34	10.000	13.980	6.745	0.455	0.285
	W14x38	38	11.200	14.100	6.770	0.515	0.310
	W14x43	43	12.600	13.660	7.995	0.530	0.305
	W14x48	48	14.100	13.790	8.030	0.595	0.340
	W14x53	53	15.600	13.920	8.060	0.660	0.370
	W14x61	61	17.900	13.890	9.995	0.645	0.375
	W14x68	68	20.000	14.040	10.035	0.720	0.415
	W14x74	74	21.800	14.170	10.070	0.785	0.450
	W14x82	82	24.100	14.310	10.130	0.855	0.510
	W14x90	90	26.500	14.020	14.520	0.710	0.440
	W14x99	99	29.100	14.160	14.565	0.780	0.485
	W14x109	109	32.000	14.320	14.605	0.860	0.525
	W14x120	120	35.300	14.480	14.670	0.940	0.590
	W14x132	132	38.800	14.660	14.725	1.030	0.645
	W14x145	145	42.700	14.780	15.500	1.090	0.680
	W14x159	159	46.700	14.980	15.565	1.190	0.745
	W14x176	176	51.800	15.220	15.650	1.310	0.830
W14x193	193	56.800	15.480	15.710	1.440	0.890	
W14x211	211	62.000	15.720	15.800	1.560	0.980	
W14x233	233	68.500	16.040	15.890	1.720	1.070	

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth A in	Flange		Web
					Width B in	Thickness C in	Thickness D in
	W14x257	257	75.600	16.380	15.995	1.890	1.175
	W14x283	283	83.300	16.740	16.110	2.070	1.290
W16	W16x26	26	7.680	15.690	5.500	0.345	0.250
	W16x31	31	9.120	15.880	5.525	0.440	0.275
	W16x36	36	10.600	15.860	6.985	0.430	0.295
	W16x40	40	11.800	16.010	6.995	0.505	0.305
	W16x45	45	13.300	16.130	7.035	0.565	0.345
	W16x50	50	14.700	16.260	7.070	0.630	0.380
	W16x57	57	16.800	16.430	7.120	0.715	0.430
	W16x67	67	19.700	16.330	10.235	0.665	0.395
	W16x77	77	22.600	16.520	10.295	0.760	0.455
	W16x89	89	26.200	16.750	10.365	0.875	0.525
	W16x100	100	29.400	16.970	10.425	0.985	0.585
W18	W18x35	35	10.300	17.700	6.000	0.425	0.300
	W18x40	40	11.800	17.900	6.015	0.525	0.315
	W18x46	46	13.500	18.060	6.060	0.605	0.360
	W18x50	50	14.700	17.990	7.495	0.570	0.355
	W18x55	55	16.200	18.110	7.530	0.630	0.390
	W18x60	60	17.600	18.240	7.555	0.695	0.415
	W18x65	65	19.100	18.350	7.590	0.750	0.450
	W18x71	71	20.800	18.470	7.635	0.810	0.495
	W18x76	76	22.300	18.210	11.035	0.680	0.425
	W18x86	86	25.300	18.390	11.090	0.770	0.480
	W18x97	97	28.500	18.590	11.145	0.870	0.535
	W18x106	106	31.100	18.730	11.200	0.940	0.590
	W18x119	119	35.100	18.970	11.265	1.060	0.655
	W18x130	130	38.200	19.250	11.160	1.200	0.670
	W18x143	143	42.100	19.490	11.220	1.320	0.730
	W18x158	158	46.300	19.720	11.300	1.440	0.810
	W18x175	175	51.300	20.040	11.375	1.590	0.890

WIDE FLANGE BEAMS (continued)

Designated as "W" shapes, wide flange shapes are generally used as beams or columns. They are doubly-symmetric with substantially parallel inside flange surfaces. Depth sizes range from 4" to 36", and lengths from 20' to 60'. Available in A992/A572-50 (Grade 50) and A588 specifications.



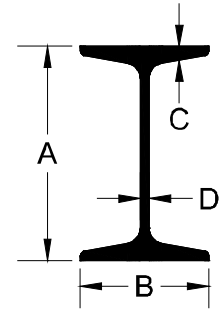
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth A in	Flange		Web
					Width B in	Thickness C in	Thickness D in
	W18x192	192	56.400	20.350	11.455	1.750	0.960
	W18x211	211	62.100	20.670	11.555	1.910	1.060
W21	W21x44	44	13.000	20.660	6.500	0.450	0.350
	W21x50	50	14.700	20.830	6.530	0.535	0.380
	W21x57	57	16.700	21.060	6.555	0.650	0.405
	W21x62	62	18.300	20.990	8.240	0.615	0.400
	W21x68	68	20.000	21.130	8.270	0.685	0.430
	W21x73	73	21.500	21.240	8.295	0.740	0.455
	W21x83	83	24.300	21.430	8.355	0.835	0.515
	W21x93	93	27.300	21.620	8.420	0.930	0.580
	W21x101	101	29.800	21.360	12.290	0.800	0.500
	W21x111	111	32.700	21.510	12.340	0.875	0.550
	W21x122	122	35.900	21.680	12.390	0.960	0.600
	W21x132	132	38.800	21.830	12.440	1.035	0.650
	W21x147	147	43.200	22.060	12.510	1.150	0.720
	W21x166	166	48.900	22.480	12.420	1.360	0.750
	W21x182	182	53.700	22.720	12.500	1.480	0.830
	W21x201	201	59.200	23.030	12.575	1.630	0.910
W24	W24x55	55	16.200	23.570	7.005	0.505	0.395
	W24x62	62	18.200	23.740	7.040	0.590	0.430
	W24x68	68	20.100	23.730	8.965	0.585	0.415
	W24x76	76	22.400	23.920	8.990	0.680	0.440
	W24x84	84	24.700	24.100	9.020	0.770	0.470
	W24x94	94	27.700	24.310	9.065	0.875	0.515
	W24x103	103	30.300	24.530	9.000	0.980	0.550
	W24x104	104	30.600	24.060	12.750	0.750	0.500
	W24x117	117	34.400	24.260	12.800	0.850	0.550
	W24x131	131	38.500	24.480	12.855	0.960	0.605
W24x146	146	43.000	24.740	12.900	1.090	0.650	

Section Number	Section Name	Weight lbs/ft	Area in ²	Depth A in	Flange		Web
					Width B in	Thickness C in	Thickness D in
	W24x162	162	47.700	25.000	12.955	1.220	0.705
	W24x176	176	51.700	25.240	12.890	1.340	0.750
	W24x192	192	56.300	25.470	12.950	1.460	0.810
W27	W27x84	84	24.800	26.710	9.960	0.640	0.460
	W27x94	94	27.700	26.920	9.990	0.745	0.490
	W27x102	102	30.000	27.090	10.015	0.830	0.515
	W27x114	114	33.500	27.290	10.070	0.930	0.570
	W27x129	129	37.800	27.630	10.010	1.100	0.610
W30	W30x90	90	26.400	29.530	10.400	0.610	0.470
	W30x99	99	29.100	29.650	10.450	0.670	0.520
	W30x108	108	31.700	29.830	10.475	0.760	0.545
	W30x116	116	34.200	30.010	10.495	0.850	0.565
	W30x124	124	36.500	30.170	10.515	0.930	0.585
	W30x132	132	38.900	30.310	10.545	1.000	0.615
W33	W33x118	118	34.700	32.860	11.480	0.740	0.550
	W33x130	130	38.300	33.090	11.510	0.855	0.580
	W33x141	141	41.600	33.300	11.535	0.960	0.605
	W33x152	152	44.700	33.490	11.565	1.055	0.635
	W33x169	169	49.500	33.820	11.500	1.220	0.670
W36	W36x135	135	39.700	35.550	11.950	0.790	0.600
	W36x150	150	44.200	35.850	11.975	0.940	0.625
	W36x160	160	47.000	36.010	12.000	1.020	0.650
	W36x170	170	50.000	36.170	12.030	1.100	0.680
	W36x182	182	53.600	36.330	12.075	1.180	0.725
	W36x194	194	57.000	36.490	12.115	1.260	0.765
	W36x210	210	61.800	36.690	12.180	1.360	0.830
	W36x232	232	68.100	37.120	12.120	1.570	0.870
W36x256	256	75.400	37.430	12.215	1.730	0.960	

AMERICAN STANDARD I BEAMS

Designated as "S" shapes, American Standard I Beams are generally used as beams or columns. They are doubly-symmetric with tapered flanges for increased flange support. Depth sizes range from 3" to 24", and lengths from 20' to 60'. Available in A992/A572-50 (Grade 50) specification.



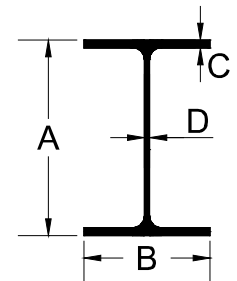
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
S3	S3x5.7	5.7	1.67	3.00	2.330	0.260	0.170
	S3x7.5	7.5	2.21	3.00	2.509	0.260	0.349
S4	S4x7.7	7.7	2.26	4.00	2.663	0.293	0.193
	S4x9.5	9.5	2.79	4.00	2.796	0.293	0.326
S5	S5x10	10.0	2.94	5.00	3.004	0.326	0.214
S6	S6x12.5	12.5	3.67	6.00	3.332	0.359	0.232
	S6x17.25	17.3	5.07	6.00	3.565	0.359	0.465
S8	S8x18.4	18.4	5.41	8.00	4.001	0.425	0.271
	S8x23	23.0	6.77	8.00	4.171	0.425	0.441
S10	S10x25.4	25.4	7.46	10.00	4.661	0.491	0.311
	S10x35	35.0	10.30	10.00	4.944	0.491	0.594
S12	S12x31.8	31.8	9.35	12.00	5.000	0.544	0.350
	S12x35	35.0	10.30	12.00	5.078	0.544	0.428
	S12x40.8	40.8	12.00	12.00	5.252	0.659	0.462

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
S15	S12x50	50.0	14.70	12.00	5.477	0.659	0.687
	S15x42.9	42.9	12.60	15.00	5.501	0.622	0.411
	S15x50	50.0	14.70	15.00	5.640	0.622	0.550
S18	S18x54.7	54.7	16.10	18.00	6.001	0.691	0.461
	S18x70	70.0	20.60	18.00	6.251	0.691	0.711
S20	S20x66	66.0	19.40	20.00	6.255	0.795	0.505
	S20x75	75.0	22.00	20.00	6.385	0.795	0.635
	S20x86	86.0	25.30	20.30	7.060	0.920	0.660
	S20x96	96.0	28.20	20.30	7.200	0.920	0.800
S24	S24x80	80.0	23.50	24.00	7.000	0.870	0.500
	S24x90	90.0	26.50	24.00	7.125	0.870	0.625
	S24x100	100.0	29.30	24.00	7.245	0.870	0.745
	S24x106	106.0	31.20	24.50	7.870	1.090	0.620
	S24x121	121.0	35.60	24.50	8.050	1.090	0.800

JUNIOR BEAMS

Designated as "M" shapes, Junior Beams are narrow, light sections generally used for applications in which a low weight per foot is desirable. Depth sizes range from 6" to 12.5", and stock lengths are 20' and 40'. Available in A529-50 (Grade 50) specification.



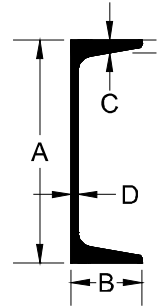
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
M6	M6x4.4	4.4	1.29	6.000	1.844	0.171	0.114
M8	M8x6.5	6.5	1.92	8.000	2.281	0.189	0.135
M10	M10x8	8.0	2.35	9.950	2.690	0.182	0.141
	M10x9	9.0	2.65	10.000	2.690	0.206	0.157

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
M12	M12x10.8	10.8	3.18	11.970	3.065	0.210	0.160
	M12x11.8	11.8	3.47	12.000	3.065	0.225	0.177
M12.5	M12.5x11.7	11.7	3.43	12.500	3.500	0.211	0.155
	M12.5x12.4	12.4	3.66	12.534	3.750	0.228	0.155

STRUCTURAL CHANNELS

Designated as "C" shapes, structural channels are shapes comprised of a vertical web with horizontal flanges at the top and bottom on one side only. Depth sizes range from 3" to 15", and lengths of 20' and 40'. Available in A36 and A992 specifications.



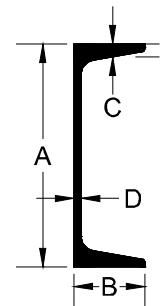
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Web Depth	Flange		Web Thickness
					Width	Thickness	
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
C3	C3 x 3.5	3.5	1.03	3.00	1.372	0.273	0.132
	C3 x 4.1	4.1	1.21	3.00	1.410	0.273	0.170
	C3 x 5	5.0	1.47	3.00	1.498	0.273	0.258
	C3 x 6	6.0	1.76	3.00	1.596	0.273	0.356
C4	C4 x 4.5	4.5	1.32	4.00	1.584	0.296	0.125
	C4 x 5.4	5.4	1.59	4.00	1.584	0.296	0.184
	C4 x 6.25	6.3	1.84	4.00	1.647	0.272	0.247
	C4 x 7.25	7.3	2.13	4.00	1.721	0.296	0.321
C5	C5 x 6.7	6.7	1.97	5.00	1.750	0.320	0.190
	C5 x 9	9.0	2.64	5.00	1.885	0.320	0.325
C6	C6 x 8.2	8.2	2.40	6.00	1.920	0.343	0.200
	C6 x 10.5	10.5	3.09	6.00	2.034	0.343	0.314
	C6 x 13	13.0	3.83	6.00	2.157	0.343	0.437
C7	C7 x 9.8	9.8	2.87	7.00	2.090	0.366	0.210
	C7 x 12.25	12.3	3.60	7.00	2.194	0.366	0.314
	C7 x 14.75	14.8	4.33	7.00	2.299	0.366	0.419

Section Number	Section Name	Weight	Area	Web Depth	Flange		Web Thickness
					Width	Thickness	
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
C8	C8 x 11.5	11.5	3.38	8.00	2.260	0.390	0.220
	C8 x 13.75	13.8	4.04	8.00	2.343	0.390	0.303
	C8 x 18.75	18.8	5.51	8.00	2.527	0.390	0.487
C9	C9 x 13.4	13.4	3.94	9.00	2.433	0.413	0.233
	C9 x 15	15.0	4.41	9.00	2.485	0.413	0.285
	C9 x 20	20.0	5.88	9.00	2.648	0.413	0.448
C10	C10 x 15.3	15.3	4.49	10.00	2.600	0.436	0.240
	C10 x 25	25.0	7.35	10.00	2.886	0.436	0.526
	C10 x 29	29.0	8.82	10.00	2.739	0.436	0.379
C12	C12 x 20.7	20.7	6.09	12.00	2.942	0.501	0.282
	C12 x 25	25.0	7.35	12.00	3.047	0.501	0.387
	C12 x 30	30.0	8.82	12.00	3.170	0.501	0.510
C15	C15 x 33.9	33.9	9.96	15.00	3.400	0.650	0.400
	C15 x 40	40.0	11.80	15.00	3.520	0.650	0.520
	C15 x 50	50.0	14.70	15.00	3.716	0.650	0.716

MISCELLANEOUS CHANNELS

Designated as "MC" shapes, miscellaneous channels are shapes comprised of a vertical web with horizontal flanges at the top and bottom on one side only. Depth sizes range from 3" to 18", and lengths of 20' and 40'. Available in A36 and A992 specifications.



Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Depth	Flange		Web Thickness
					Width	Thickness	
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
MC3	MC3 x 7.1	7.1	2.09	3.00	1.938	0.351	0.312
MC4	MC4 x 13.8	13.8	4.02	4.00	2.500	0.500	0.500
MC6	MC6 x 6.5	6.5	1.93	6.00	1.850	0.291	0.155
	MC6 x 7	7.0	2.07	6.00	1.875	0.291	0.179
	MC6 x 12	12.0	3.53	6.00	2.497	0.375	0.310
	MC6 x 15.1	15.1	4.44	6.00	2.941	0.475	0.316

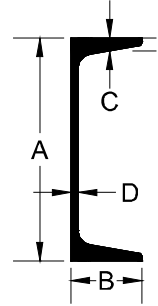
Section Number	Section Name	Weight	Area	Depth	Flange		Web Thickness
					Width	Thickness	
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
	MC6 x 15.3	15.3	4.50	6.00	3.500	0.385	0.340
	MC6 x 16.3	16.3	4.79	6.00	3.000	0.475	0.375
	MC6 x 18	18.0	5.29	6.00	3.504	0.475	0.379
MC7	MC7 x 19.1	19.1	5.61	7.00	3.452	0.500	0.352
	MC7 x 22.7	22.7	6.67	7.00	3.603	0.500	0.503
MC8	MC8 x 8.5	8.5	2.50	8.00	1.874	0.311	0.179

MISCELLANEOUS CHANNELS (continued)

Designated as "MC" shapes, miscellaneous channels are shapes comprised of a vertical web with horizontal flanges at the top and bottom on one side only.

Depth sizes range from 3" to 18", and lengths of 20' and 40'.

Available in A36 and A992 specifications.



Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
	MC8 x 18.7	18.7	5.50	8.00	2.978	0.500	0.353
	MC8 x 20	20.0	5.88	8.00	3.025	0.500	0.400
	MC8 x 21.4	21.4	6.28	8.00	3.450	0.525	0.375
	MC8 x 22.8	22.8	6.70	8.00	3.502	0.525	0.427
MC9	MC9 x 23.9	23.9	7.02	9.00	3.450	0.550	0.400
	MC9 x 25.4	25.4	7.47	9.00	3.500	0.550	0.450
MC10	MC10 x 6.5	6.5	1.91	10.00	1.170	0.202	0.152
	MC10 x 8.4	8.4	2.46	10.00	1.500	0.280	0.170
	MC10 x 22	22.0	6.45	10.00	3.315	0.575	0.290
	MC10 x 25	25.0	7.35	10.00	3.405	0.575	0.380
	MC10 x 28.5	28.5	8.37	10.00	3.950	0.575	0.425
	MC10 x 33.6	33.6	9.87	10.00	4.100	0.575	0.575
	MC10 x 41.1	41.1	12.10	10.00	4.321	0.575	0.796
MC12	MC12 x 10.6	10.6	3.10	12.00	1.500	0.309	0.190

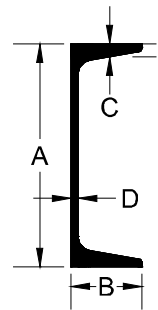
Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	C	D
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
	MC12 x 14.3	14.3	4.19	12.00	2.125	0.313	0.250
	MC12 x 31	31.0	9.12	12.00	3.670	0.700	0.370
	MC12 x 35	35.0	10.30	12.00	3.765	0.700	0.465
	MC12 x 40	40.0	11.80	12.00	3.890	0.700	0.590
	MC12 x 45	45.0	13.20	12.00	4.010	0.700	0.710
	MC12 x 50	50.0	14.70	12.00	4.135	0.700	0.835
MC13	MC13 x 31.8	31.8	9.35	13.00	4.000	0.610	0.375
	MC13 x 35	35.0	10.30	13.00	4.072	0.610	0.447
	MC13 x 40	40.0	11.80	13.00	4.185	0.610	0.560
	MC13 x 50	50.0	14.70	13.00	4.412	0.610	0.787
MC18	MC18 x 42.7	42.7	12.60	18.00	3.950	0.625	0.450
	MC18 x 45.8	45.8	13.50	18.00	4.000	0.625	0.500
	MC18 x 51.9	51.9	15.30	18.00	4.100	0.625	0.600
	MC18 x 58	58.0	17.10	18.00	4.200	0.625	0.700

BAR SIZE CHANNELS

Also designated as "C" shapes, channels are called "bar size" when the vertical web (depth) size is less than 3 inches.

Depth sizes range from 1" to 2-1/2", and length is 20' only.

Available in A36 specification.



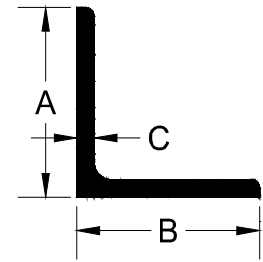
Theoretical Dimensions and Properties for Designing

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	D	
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
C1	C1 x 3/8 x 1/8	0.68	0.199	1	3/8	1/8	
	C1 x 1/2 x 1/8	0.83	0.242	1	1/2	1/8	
C1-1/4	C1-1/4 x 1/2 x 1/8	1.01	0.297	1 1/4	1/2	1/8	
C1-1/2	C1-1/2 x 1/2 x 1/8	1.12	0.329	1 1/2	1/2	1/8	
	C1-1/2 x 9/16 x 3/16	1.44	0.423	1 1/2	9/16	3/16	
	C1-1/2 x 3/4 x 1/8	1.17	0.348	1 1/2	3/4	1/8	

Section Number	Section Name	Weight	Area	Depth	Flange		Web
					Width	Thickness	Thickness
				A	B	D	
	in x lbs/ft	lbs/ft	in ²	in	in	in	in
C2	C2 x 1/2 x 1/8	1.43	0.42	2	1/2	1/8	
	C2 x 9/16 x 3/16	1.86	0.545	2	9/16	1/8	
	C2 x 5/8 x 1/4	2.28	0.67	2	5/8	1/4	
	C2 x 1 x 1/8	1.61	0.473	2	1	1/8	
	C2 x 1 x 3/16	2.32	0.683	2	1	3/16	
C2-1/2	C2-1/2 x 5/8 x 3/16	2.27	0.668	2 1/2	5/8	3/16	

BAR SIZE ANGLES

Designated as "L" shapes, bar size angles are those in which both flanges, or legs, are less than 3 inches in width. Sizes may also be classified as equal-leg or unequal-leg. Flange/leg sizes range from 1/2" to 2 1/2", and lengths are 20' and 40'. Available in A36 and Multi specifications.



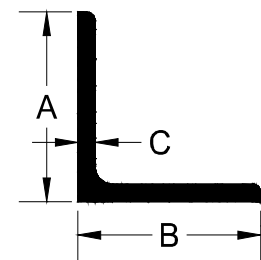
Theoretical Dimensions and Properties for Designing

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
L1/2 x 1/2	1/8	0.4
L3/4 x 3/4	1/8	0.6
L1 x 1	1/8	0.8
	3/16	1.2
	1/4	1.5
L1 1/4 x 1 1/4	1/8	1.0
	3/16	1.5
	1/4	1.9
L1 1/2 x 1 1/2	1/8	1.2
	3/16	1.8
	1/4	2.3
L1 3/4 x 1 3/4	1/8	1.4
	3/16	2.1
	1/4	2.8
L2 x 1 1/2	1/8	1.4
	3/16	2.1

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
	1/4	2.8
L2 x 2	1/8	1.7
	3/16	2.4
	1/4	3.2
	5/16	3.9
	3/8	4.7
L2 1/2 x 2	3/16	2.8
	1/4	3.6
	5/16	4.5
	3/8	5.3
L2 1/2 x 2 1/2	3/16	3.1
	1/4	4.1
	5/16	5.0
	3/8	5.9
	1/2	7.7

STRUCTURAL ANGLES

Designated as "L" shapes, structural angles are those in which either flange, or leg, is at least 3 inches in width. Sizes may also be classified as equal-leg or unequal-leg. Flange/leg sizes range from 2" to 8", and lengths are 20' and 40'. Available in A36 and Multi specifications.



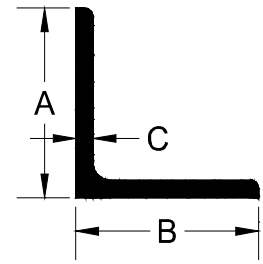
Theoretical Dimensions and Properties for Designing

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
L3 x 2	3/16	3.1
	1/4	4.1
	5/16	5.0
	3/8	5.9
	1/2	7.7
L3 x 2 1/2	1/4	4.5

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
	5/16	5.6
	3/8	6.6
L3 x 3	3/16	3.7
	1/4	4.9
	5/16	6.1
	3/8	7.2

STRUCTURAL ANGLES (continued)

Designated as "L" shapes, structural angles are those in which either flange, or leg, is at least 3 inches in width. Sizes may also be classified as equal-leg or unequal-leg. Flange/leg sizes range from 2" to 8", and lengths are 20' and 40'. Available in A36 and Multi specifications.



Theoretical Dimensions and Properties for Designing

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
L3 1/2 x 2 1/2	1/2	9.4
	1/4	4.9
	5/16	6.1
L3 1/2 x 3	3/8	7.2
	1/2	9.4
	1/4	5.4
L3 1/2 x 3 1/2	5/16	6.6
	3/8	7.9
	1/2	10.2
L4 x 3	1/4	5.8
	5/16	7.2
	3/8	8.5
L4 x 3 1/2	1/2	11.1
	1/4	5.8
	5/16	7.2
L4 x 4	3/8	8.5
	1/2	11.1
	1/4	6.2
L4 x 4	5/16	7.7
	3/8	9.1
	1/2	11.9
L5 x 3	1/4	6.6
	5/16	8.2
	3/8	9.8
L5 x 3 1/2	1/2	12.8
	5/8	15.7
	3/4	18.5
L5 x 3 1/2	1/4	6.6
	5/16	8.2
	3/8	9.8
L5 x 3 1/2	1/2	12.8
	1/4	7.0
	5/16	8.7
L5 x 3 1/2	3/8	10.4
	1/2	13.6

Section Name and Size	Flange Thickness	Weight
A x B in x in.	C in	lbs/ft
L5 x 5	5/16	10.3
	3/8	12.3
	1/2	16.2
L6 x 3 1/2	5/8	20.0
	3/4	23.6
	5/16	9.8
L6 x 4	3/8	11.7
	1/2	15.3
	5/16	10.3
L6 x 4	3/8	12.3
	1/2	16.2
	5/8	20.0
L6 x 6	3/4	23.6
	5/16	12.4
	3/8	14.9
L6 x 6	1/2	19.6
	5/8	24.2
	3/4	28.7
L7 x 4	1	37.4
	3/8	13.6
	1/2	17.9
L7 x 4	5/8	22.1
	3/4	26.2
	1/2	19.6
L8 x 4	5/8	24.2
	3/4	28.7
	1	37.4
L8 x 6	1/2	23.0
	5/8	28.5
	3/4	33.8
L8 x 6	1	44.2
	1/2	26.4
	5/8	32.7
L8 x 8	3/4	38.9
	1	51.0

HOT ROLLED BARS

SPECIFICATIONS

ASTM A36

A structural quality carbon steel used in general fabrication work, ASTM A36 steel can be used in welded, bolted, or riveted construction and other applications requiring minimum physical properties of 36,000 PSI yield strength and 58,000 PSI tensile strength. ASTM A36 steel can be used to design lighter weight structures and equipment with good weldability. Standard stock length is 20 feet.

ROUND AND SQUARE BARS

ASTM A36 HOT ROLLED ROUNDS

Diameter			Diameter			Diameter		
Inches	Foot	20 ft.	Inches	Foot	20 ft.	Inches	Foot	20 ft.
¼	0.167	3.34	1 ⅛	3.38	67.66	2 ¼	13.5	270.6
⅕	0.261	5.22	1 ¼	4.18	83.53	2 ⅜	15.1	301.5
⅜	0.376	7.52	1 ⅜	5.05	101.1	2 ½	16.7	334.1
½	0.668	13.36	1 ½	6.01	120.3	2 ⅝	18.4	368.4
⅝	0.845	16.90	1 ⅝	7.06	141.2	2 ¾	20.2	404.3
⅞	1.04	20.86	1 ¾	8.19	163.7	2 ⅞	22.1	441.9
¾	1.50	30.04	1 ⅞	9.40	187.9	3	24.1	481.1
⅞	2.04	40.88	2	10.7	213.8			
1	2.67	53.46	2 ⅛	12.1	241.4			

ASTM A36 HOT ROLLED SQUARES

Size			Size			Size		
Inches	Foot	20 ft.	Inches	Foot	20 ft.	Inches	Foot	20 ft.
⅜	0.478	9.56	⅞	2.60	52.06	1 ½	7.65	153.0
½	0.850	17.00	1	3.40	68.00	1 ¾	10.41	208.3
⅝	1.33	26.56	1 ⅛	4.30	86.06	2	13.60	272.0
¾	1.91	38.26	1 ¼	5.31	106.3			

HOT ROLLED BARS

FLATS (1/4" thickness and up)

Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.
1/4 x 1/2	0.43	5/16 x 5	5.32	1/2 x 2	3.40	3/4 x 1	2.55
3/4	0.64	6	6.38	2 1/2	4.25	1 1/4	3.19
1	0.85	7	7.44	3	5.10	1 1/2	3.83
1 1/4	1.06	8	8.51	3 1/2	5.96	1 3/4	4.47
1 1/2	1.28	10	10.64	4	6.81	2	5.10
1 3/4	1.49	3/8 x 3/4	0.96	4 1/2	7.66	2 1/2	6.38
2	1.70	1	1.28	5	8.51	3	7.66
2 1/4	1.91	1 1/4	1.60	5 1/2	9.36	3 1/2	8.93
2 1/2	2.13	1 1/2	1.91	6	10.21	4	10.21
3	2.55	1 3/4	2.23	7	11.91	4 1/2	11.49
3 1/2	2.98	2	2.55	8	13.61	5	12.76
4	3.40	2 1/4	2.87	9	15.31	6	15.31
4 1/2	3.83	2 1/2	3.19	10	17.02	7	17.87
5	4.25	3	3.83	11	18.72	8	20.42
5 1/2	4.68	3 1/2	4.47	12	20.42	9	22.97
6	5.10	4	5.10	5/8 x 1	2.13	10	25.52
7	5.96	4 1/2	5.74	1 1/2	3.19	12	30.63
8	6.81	5	6.38	2	4.25	1 x 1	3.40
9	7.66	5 1/2	7.02	2 1/2	5.32	1 1/4	4.25
10	8.51	6	7.66	3	6.38	1 1/2	5.10
11	9.36	7	8.93	3 1/2	7.44	2	6.81
12	10.21	8	10.21	4	8.51	2 1/2	8.51
5/16 x 1	1.06	9	11.49	4 1/2	9.57	3	10.21
1 1/4	1.33	10	12.76	5	10.64	3 1/2	11.91
1 1/2	1.60	11	14.04	5 1/2	11.70	4	13.61
1 3/4	1.86	12	15.31	6	12.76	4 1/2	15.31
2	2.13	1/2 x 3/4	1.28	7	14.89	5	17.02
2 1/2	2.66	1	1.70	8	17.02	6	20.42
3	3.19	1 1/4	2.13	9	19.14	8	27.23
3 1/2	3.72	1 1/2	2.55	10	21.27	10	34.03
4	4.25	1 3/4	2.98	12	25.52	12	40.84

STRIPS (1/8 & 3/16" thicknesses)

Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.	Size in Inches	Pounds per ft.
1/8 x 1/2	0.21	1/8 x 3	1.28	3/16 x 1/2	0.32	3/16 x 3	1.91
3/4	0.32	3 1/2	1.49	3/4	0.48	3 1/2	2.23
1	0.43	4	1.70	1	0.64	4	2.55
1 1/4	0.53	4 1/2	1.91	1 1/4	0.80	4 1/2	2.87
1 1/2	0.64	5	2.13	1 1/2	0.96	5	3.19
1 3/4	0.74	5 1/2	2.34	1 3/4	1.12	5 1/2	3.51
2	0.85	6	2.55	2	1.28	6	3.83
2 1/2	1.06	8	3.40	2 1/2	1.60	8	5.10

ROUND REINFORCING BARS (REBAR)

Steel reinforcing bars, or rebar, are used as reinforcement in concrete construction. Small lugs are provided on the surface of the bar which inhibits longitudinal movement of the bar relative to the concrete which surrounds it.

SPECIFICATIONS

ASTM A615

This specification covers deformed and plain steel bars for concrete reinforcement. Note that the rebar produced under this specification is not suitable for welded applications. It is available primarily in two grades, Grade 40 and Grade 60. The mechanical properties of these grades are as follows:

Grade 40 - 40,000 Minimum Yield Point psi

Grade 60 - 60,000 Minimum Yield Point psi

ASTM A706

This specification covers deformed and plain low-alloy steel bars for concrete reinforcement. The specification has more restrictive mechanical properties and chemical composition in order to be weldable. It is available in Grade 60 and Grade 80. The mechanical properties of these grades are as follows:

Grade 60 - 60,000 Minimum Yield Point psi

Grade 80 - 80,000 Minimum Yield Point psi

REINFORCING BARS

Available bar sizes range from #3 to #9. The bar size numbers indicate the number of $\frac{1}{8}$ inch increments included in the nominal diameter. Stock lengths are 20 and 40 feet.

Bar Number	Nominal Diameter in Inches	Pounds per Foot	Cross-Section Area in Square Inches	Perimeter in Inches
3	0.375	0.376	0.11	1.178
4	0.500	0.668	0.20	1.571
5	0.625	1.043	0.31	1.963
6	0.750	1.502	0.44	2.356
7	0.875	2.044	0.60	2.749
8	1.000	2.670	0.79	3.142
9	1.128	3.400	1.00	3.540

COLD FINISHED BARS

Cold finished steel, also known as cold rolled, is essentially hot rolled steel that has additional processing. It is typically produced by cold drawing, turning, and/or grinding hot rolled bars. This process improves the dimensional tolerances of the bar, the straightness, the surface appearance as well as enhancing the physical properties and machinability.

1018 is a low carbon, open-hearth steel with good case hardening qualities. This is a general purpose grade with good welding and brazing characteristics. It is generally suitable for cold forming and bending operations.

1045 is a medium carbon steel with greater strength and hardness compared with 1018 grade steel. This grade has good heat treatment response. It can be forged satisfactorily and is the most common shafting steel in the medium carbon range.

TYPICAL CHEMICAL PROPERTIES OF COLD FINISHED BARS				
Grade	Carbon	Manganese	Phosphorus	Sulphur
1018	0.18%	0.60-0.90%	0.04% Max.	0.05% Max.
1045	0.45%	0.60-0.90%	0.04% Max.	0.05% Max.

TYPICAL MECHANICAL PROPERTIES OF COLD FINISHED BARS					
Grade	Tensile Strength, psi	Yield Strength, psi	Elongation in 2"	Reduction in Area	Brinell Hardness
1018	65,000	55,000	16%	40%	126
1045	90,000	80,000	11%	30%	179

COLD FINISHED ROUNDS

1018 & 1045 Stock Lengths: 12 feet & 20 feet

Size		Pounds Per		Size		Pounds Per		Size		Pounds Per	
Inches	Foot	12 ft.	20 ft.	Inches	Foot	12 ft.	20 ft.	Inches	Foot	12 ft.	20 ft.
1/8	0.042	0.501	0.835	1 1/16	2.35	28.19	46.98	2	10.69	128.3	213.8
3/16	0.094	1.13	1.88	1	2.67	32.07	53.46	2 1/8	11.37	136.4	227.4
1/4	0.167	2.01	3.34	1 1/16	3.02	36.21	60.35	2 1/16	12.07	144.8	241.4
5/16	0.261	3.13	5.22	1 1/8	3.38	40.59	67.66	2 1/4	12.79	153.5	255.8
3/8	0.376	4.51	7.52	1 3/16	3.77	45.23	75.38	2 3/16	13.53	162.4	270.6
7/16	0.512	6.14	10.23	1 1/4	4.18	50.12	83.53	2 3/8	15.08	180.9	301.5
1/2	0.668	8.02	13.36	1 3/8	5.05	60.64	101.1	2 7/16	15.88	190.6	317.6
9/16	0.846	10.15	16.91	1 7/16	5.52	66.28	110.5	2 1/2	16.71	200.5	334.1
5/8	1.04	12.53	20.88	1 1/2	6.01	72.17	120.3	2 5/8	18.42	221.0	368.4
1 1/16	1.26	15.16	25.27	1 5/8	7.06	84.70	141.2	2 3/4	20.21	242.6	404.3
3/4	1.50	18.04	30.07	1 3/4	8.19	98.23	163.7	2 7/8	22.09	265.1	441.9
13/16	1.76	21.17	35.29	1 7/8	9.40	112.8	187.9	2 15/16	23.06	276.8	461.3
7/8	2.05	24.56	40.93	1 15/16	10.03	120.4	200.7	3	24.06	288.7	481.1

HOT ROLLED STEEL PLATE

Hot Rolled Steel Plate is available in thicknesses of $\frac{3}{16}$ " and greater. All available thicknesses are stocked as 96" x 240" (8' x 20') plates. Plates from 48" x 96" (4' x 8') and larger are also stocked generally for thicknesses of $\frac{1}{2}$ " and under. Please inquire for the availability of custom sizes.

SPECIFICATIONS

Steel plate is available to the following specifications:

ASTM A36 - Carbon Steel Plate

This specification covers carbon steel plates generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes.

ASTM A514 - High-Strength Quenched and Tempered Steel Plate

This specification covers structural quality quenched and tempered alloy steel plate. Steel plate covered by this specification exhibits high yield strength at 90-100 ksi and good weldability.

ASTM A516 - Pressure Vessel Steel Plate for Moderate and Lower Temperature Use

This specification covers steel plate intended primarily for service in welded pressure vessels where improved notch toughness is required. It is used typically for lower to moderate temperature applications. Commonly available as Grade 70 (A516-70).

ASTM A572 - High-Strength Low-Alloy Steel Plate

This specification covers high-strength structural steel plate generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes. Commonly available as Grade 50 (A572-50).

ASTM A588 - High-Strength Low-Alloy Steel Plate

This specification covers high-strength structural steel plates generally suitable for use in riveted, bolted, or welded construction, and for general structural purposes. Steel covered by this specification exhibits higher corrosion resistance than other steel.

Abrasion Resistant (AR)

Steel plate exhibiting high abrasion resistance and hardness. This plate is designed for increased service life for applications in which abrasion is present.

HOT ROLLED STEEL PLATE

THEORETICAL WEIGHTS

Thickness Inches	Weight per Square Foot Pounds	Stock Sizes (W X L) Ft. x Ft.	Weight per Plate Pounds	Thickness Inches	Weight per Square Foot Pounds	Stock Sizes (W X L) Ft. x Ft.	Weight per Plate Pounds
3/16	7.66	4 X 8	245.03	3/8	15.31	6 X 10	918.86
	7.66	4 X 10	306.29		15.31	8 X 20	2,450.30
	7.66	5 X 8	306.29	1/2	20.42	4 X 8	653.41
	7.66	5 X 10	382.86		20.42	4 X 10	816.77
	7.66	6 X 10	459.43		20.42	5 X 10	1,020.96
	7.66	6 X 12	551.32		20.42	6 X 10	1,225.15
	7.66	8 X 20	1,225.15		20.42	8 X 20	3,267.07
1/4	10.21	4 X 8	326.71	5/8	25.52	4 X 8	816.77
	10.21	4 X 10	408.38		25.52	8 X 20	4,083.84
	10.21	5 X 8	408.38	3/4	30.63	4 X 8	980.12
	10.21	5 X 10	510.48		30.63	8 X 20	4,900.61
	10.21	5 X 12	612.58	7/8	35.73	4 X 8	1,143.48
	10.21	6 X 10	612.58		35.73	8 X 20	5,717.38
	10.21	6 X 12	735.09	1	40.84	4 X 8	1,306.83
	10.21	8 X 20	1,633.54		40.84	8 X 20	6,534.14
5/16	12.76	4 X 8	408.38	1 1/8	45.94	8 X 20	7,350.91
	12.76	4 X 10	510.48	1 1/4	51.05	8 X 20	8,167.68
	12.76	4 X 8	408.38	1 3/8	56.15	8 X 20	8,984.45
	12.76	4 X 10	510.48	1 1/2	61.26	8 X 20	9,801.22
	12.76	5 X 10	638.10	1 5/8	66.36	8 X 20	10,617.98
	12.76	6 X 10	765.72	1 3/4	71.47	8 X 20	11,434.75
	12.76	8 X 20	2,041.92	2	81.68	8 X 20	13,068.29
	3/8	15.31	4 X 8	490.06	2 1/2	102.10	8 X 20
15.31		4 X 10	612.58	2 3/4	112.31	8 X 20	17,968.90
15.31		5 X 10	765.72	3	122.52	8 X 20	19,602.43

HOT ROLLED STEEL PLATE

TECHNICAL INFORMATION

ASTM A36 - Carbon Steel Plate

A36 TYPICAL CHEMICAL PROPERTIES					
Thickness (inches)	up to ¾	> ¾ to 1½	> 1½ to 2½	> 2½ to 4	over 4
Carbon, max %	0.25	0.25	0.26	0.27	0.29
Manganese, max %	-	0.80/1.20	0.80/1.20	0.85/1.20	0.85/1.20
Phosphorus, max %	0.03	0.03	0.03	0.03	0.03
Sulfur, max %	0.03	0.03	0.03	0.03	0.03
Silicon, max %	0.40	0.40	0.15/0.40	0.15/0.40	0.15/0.40
Copper, max %	0.20 Min.	0.20 Min.	0.20 Min.	0.20 Min.	0.20 Min.
For each reduction of 0.01% below the carbon maximum, an increase of 0.06% manganese above the specified maximum is permitted, up to 1.35%.					
A36 TYPICAL PHYSICAL PROPERTIES					
Tensile Strength, psi	58,000 - 80,000				
Yield Point, min. psi (up to 8" thickness)	36,000				
Elongation in 8", min. percent	20				
Elongation in 2", min. percent	23				

Abrasion Resistant (AR Plate)

AR PLATE TYPICAL CHEMICAL PROPERTIES				
Specification	AR235	AR400F	AR450F	AR500
Carbon, max %	0.40/0.50	0.12/0.16	0.21/0.23	0.27/0.34
Manganese, max %	0.60/0.90	1.55	1.60	0.35/0.60
Phosphorus, max %	0.040	0.025	0.025	0.035
Sulfur, max %	0.050	0.005	0.010	0.010
Silicon, max %	0.10/0.40	0.35/0.55	0.70	0.15/0.40
Chromium, max %	-	0.55	0.30/1.00	0.80/1.15
Nickel, max%	-	1.00	0.30	-
Molybdenum, max %	-	0.55	0.25	0.15/0.25
Boron, max %	-	0.0005/0.005	0.0005	0.0005 (min %)
AR PLATE TYPICAL PHYSICAL PROPERTIES				
Surface Brinell Hardness	~ 235 nominal	360/444	409/492	444 (min)

HOT ROLLED STEEL PLATE

TECHNICAL INFORMATION

ASTM A516 - Pressure Vessel Steel Plate for Moderate and Lower Temperature Use

A516-70 TYPICAL CHEMICAL PROPERTIES				
Thickness (inches)	up to ½	> ½ to 2	> 2 to 4	over 4
Carbon, max %	0.27	0.28	0.30	0.31
Manganese, max %	0.85/1.20	0.85/1.20	0.85/1.20	0.85/1.20
Phosphorus, max %	0.035	0.035	0.035	0.035
Sulfur, max %	0.035	0.035	0.035	0.035
Silicon, max %	0.15/0.40	0.15/0.40	0.15/0.40	0.15/0.40
For each reduction of 0.01% below the carbon maximum, an increase of 0.06% manganese above the specified maximum is permitted, up to 1.50%.				
A516-70 TYPICAL PHYSICAL PROPERTIES				
Tensile Strength, psi	70,000 - 90,000			
Yield Point, min. psi (up to 8" thickness)	38,000			
Elongation in 8", min. percent	17			
Elongation in 2", min. percent	21			

ASTM A572 - High-Strength Low-Alloy Steel Plate

A572-50 TYPICAL CHEMICAL PROPERTIES		
Thickness (inches)	up to 1½	over 1½
Carbon, max %	0.23	0.23
Manganese, max %	1.35	1.35
Phosphorus, max %	0.04	0.04
Sulfur, max %	0.05	0.05
Silicon, max %	0.40	.15/.40
Other Elements	0.01/0.15 V	0.01/0.15 V
For each 0.01% reduction below carbon maximum for carbon, an increase of 0.06% manganese above the specified maximum is permitted up to 1.60%.		
A572-50 TYPICAL PHYSICAL PROPERTIES		
Tensile Strength, psi	65,000	
Yield Point, min. psi	50,000	
Elongation in 2", min. percent	21	

ASTM A588 - High-Strength Low-Alloy Steel Plate

A588 Grade A/B steel plate offers similar characteristics as A572-50 plate, but exhibits greater corrosion resistance due to higher copper content.

HOT ROLLED STEEL PLATE

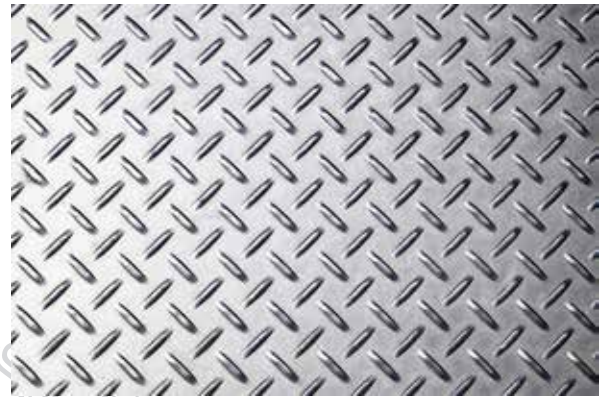
TECHNICAL INFORMATION

ASTM A514 - High-Strength Quenched and Tempered Steel Plate

A514 TYPICAL CHEMICAL PROPERTIES				
	Grade B *	Grade H *	Grade F *	Grade Q *
Thickness, max (Inches)	1 ¼	2	2 ½	6
Carbon, max %	0.12/0.21	0.12/0.21	0.10/0.20	0.14/0.21
Manganese, max %	0.70/1.00	0.95/1.30	0.60/1.00	0.95/1.30
Phosphorus, max %	0.03	0.03	0.03	0.03
Sulfur, max %	0.03	0.03	0.03	0.03
Silicon, max %	0.20/0.35	0.20/0.35	0.15/0.35	0.15/0.35
Chromium, max %	0.40/0.65	0.40/0.65	0.40/0.65	1.00/1.50
Nickel, max%	-	0.30/0.70	0.70/1.00	1.20/1.50
Molybdenum, max %	0.15/0.25	0.20/0.30	0.40/0.60	0.40/0.60
Copper, max %	-	-	0.15/0.50	-
Other Elements	0.03/0.08 V 0.01/0.10 Ti 0.0005/0.005 B"	0.03/0.08 V 0.0005/0.005 B	0.03/0.08 V 0.0005/0.005 B	0.03/0.08 V
A514 TYPICAL PHYSICAL PROPERTIES				
Tensile Strength (ksi)	110/130	110/130	110/130	100/130
Yield Strength (min. ksi)	100	100	100	90
Brinell Hardness (may be used in lieu of tensile test for plates with thickness of ¾ inch or less)	235 - 293 HBW	235 - 293 HBW	235 - 293 HBW	235 - 293 HBW
Heat Treatment Required	Q&T	Q&T	Q&T	Q&T
<p>* This grade of steel may be susceptible to cracking in the heat-affected zone of welds during post-weld heat treatment (stress relief). Careful consideration should be given by competent welding engineers before stress relieving is applied to weldments of this grade. Also, it is not recommended for service at temperatures lower than -50°F or higher than 800°F.</p>				

HOT ROLLED STEEL FLOOR PLATE

Hot rolled floor plate provides improved footing and traction in all directions compared to other metal plates. This floor plate is ideal for areas where foot traffic or wheeled industrial equipment traffic requires a skid-resistant surface. The unique design is easy to clean with a broom or running water, and the wear resistance causes minimal deterioration. It has a continuous pattern design which matches easily end to end, side to side, or end to side in a neat, inconspicuous manner at minimum cost. Note that the specific lug pattern varies between producing mills. Some dissimilar patterns will not mate cosmetically.



Thickness Inches	Weight per Square Foot Pounds	Plate Size (W X L) Ft. x Ft.	Weight per Plate Pounds
14 GA	3.75	4 X 8	120.00
	3.75	4 X 10	150.00
	3.75	5 X 10	187.50
12 GA	5.25	4 X 8	168.00
	5.25	4 X 10	210.00
	5.25	5 X 10	262.50
1/8	6.15	4 X 8	196.80
	6.15	4 X 10	246.00
	6.15	5 X 8	246.00
	6.15	5 X 10	307.50
	6.15	5 X 12	369.00
	6.15	6 X 10	369.00
3/16	6.15	6 X 12	442.80
	8.70	4 X 8	278.40
	8.70	4 X 10	348.00
	8.70	5 X 8	348.00
	8.70	5 X 10	435.00
	8.70	5 X 12	522.00
	8.70	6 X 10	522.00
	8.70	6 X 12	626.40
	8.70	8 X 20	1,392.00
	1/4	11.25	4 X 8
11.25		4 X 10	450.00
11.25		5 X 10	562.50

Thickness Inches	Weight per Square Foot Pounds	Plate Size (W X L) Ft. x Ft.	Weight per Plate Pounds
1/4	11.25	5 X 12	675.00
	11.25	6 X 10	675.00
	11.25	6 X 12	810.00
3/8	11.25	6 X 20	1,350.00
	11.25	8 X 20	1,800.00
	16.35	4 X 8	523.20
	16.35	4 X 10	654.00
	16.35	5 X 10	817.50
	16.35	5 X 12	981.00
	16.35	6 X 10	981.00
	16.35	6 X 12	1,177.20
	16.35	6 X 20	1,962.00
	16.35	8 X 20	2,616.00
1/2	21.45	4 X 8	686.40
	21.45	4 X 10	858.00
	21.45	5 X 10	1,072.50
	21.45	5 X 12	1,287.00
	21.45	6 X 10	1,287.00
	21.45	6 X 12	1,544.40
	21.45	6 X 20	2,574.00
	21.45	8 X 20	3,432.00
5/8	26.55	8 X 20	4,248.00
3/4	31.65	8 X 20	5,064.00
1	41.85	8 X 20	6,696.00

STEEL SHEETS

Hot Rolled Sheets are a cost efficient steel product that exhibits good forming and welding characteristics. These sheets are dry, not oiled. Hot Rolled Pickled & Oiled Sheets and Cold Rolled Sheets are also available upon request.

Generally sheets between 18 and 24 gauge are available only as Cold Rolled Sheets. All other gauges are stocked as Hot Rolled Sheets but may be available as Cold Rolled Sheets upon request.

Gauge	Nominal Thickness Inches	Weight per Square Foot Pounds	Plate Size (W X L) Ft. x Ft.	Weight per Plate Pounds	Gauge	Nominal Thickness Inches	Weight per Square Foot Pounds	Plate Size (W X L) Ft. x Ft.	Weight per Plate Pounds	
10 GA	0.1345	5.625	4 X 8	180.00	14 GA	0.1046	4.380	6 X 12	315.36	
	0.1345	5.625	4 X 10	225.00		0.1046	4.380	6 X 20	525.60	
	0.1345	5.625	4 X 12	270.00		0.7470	3.125	4 X 8	100.00	
	0.1345	5.625	5 X 8	225.00		0.7470	3.125	4 X 10	125.00	
	0.1345	5.625	5 X 10	281.25		0.7470	3.125	4 X 12	150.00	
	0.1345	5.625	5 X 12	337.50		0.7470	3.125	5 X 8	125.00	
	0.1345	5.625	6 X 8	270.00		0.7470	3.125	5 X 10	156.25	
	0.1345	5.625	6 X 10	337.50		0.7470	3.125	5 X 12	187.50	
	0.1345	5.625	6 X 12	405.00		0.7470	3.125	6 X 8	150.00	
11 GA	0.1196	5.000	4 X 8	160.00	16 GA	0.0598	2.500	4 X 8	80.00	
	0.1196	5.000	4 X 10	200.00		0.0598	2.500	4 X 10	100.00	
	0.1196	5.000	4 X 12	240.00		0.0598	2.500	4 X 12	120.00	
	0.1196	5.000	5 X 8	200.00		0.0598	2.500	5 X 8	100.00	
	0.1196	5.000	5 X 10	250.00		0.0598	2.500	5 X 10	125.00	
	0.1196	5.000	5 X 12	300.00		0.0598	2.500	5 X 12	150.00	
	0.1196	5.000	6 X 8	240.00		18 GA	0.0478	2.000	4 X 8	64.00
	0.1196	5.000	6 X 10	300.00			0.0478	2.000	4 X 10	80.00
	0.1196	5.000	6 X 12	360.00			0.0478	2.000	4 X 12	96.00
12 GA	0.1046	4.380	4 X 8	140.16	20 GA	0.0359	1.500	4 X 8	48.00	
	0.1046	4.380	4 X 10	175.20		0.0359	1.500	4 X 10	60.00	
	0.1046	4.380	4 X 12	210.24		0.0359	1.500	5 X 10	75.00	
	0.1046	4.380	5 X 8	175.20	22 GA	0.0299	1.250	4 X 8	40.00	
	0.1046	4.380	5 X 10	219.00		0.0299	1.250	4 X 10	50.00	
	0.1046	4.380	5 X 12	262.80		24 GA	0.0239	1.000	4 X 8	32.00
	0.1046	4.380	6 X 8	210.24	0.0239		1.000	4 X 10	40.00	
	0.1046	4.380	6 X 10	262.80						

CARBON STEEL PIPE

Produced as a welded or seamless product, Carbon Steel Pipe is available as ASTM A53 “Black Pipe” and ASTM A500 Grade B “Bare Pipe”. ASTM A53 is a pipe specification intended for use in mechanical and pressure applications and is acceptable for ordinary uses in steam, water, gas and air lines. ASTM A53 pipe typically has a black lacquer coating. ASTM A500 is a structural specification for round, square, and rectangular Hollow Structural Shapes (HSS). Round HSS produced to the ASTM A500 specification is appropriate for structural applications and general construction use. It is also more appropriate for painted and welded applications because there is no lacquer coating which would have to be removed. Stock length is 21’.

Nominal Pipe Size	OD Inches	Schedule	Wall Thickness Inches	ID Inches	Weight Per Ft. Pounds	Specification Availability	
						A53	A500B
1/8	0.405	40	0.068	0.269	0.245	•	
	0.405	80	0.095	0.215	0.315	•	
1/4	0.540	40	0.088	0.364	0.425	•	
	0.540	80	0.119	0.302	0.535	•	
3/8	0.675	40	0.091	0.493	0.568	•	
	0.675	80	0.126	0.423	0.739	•	
1/2	0.840	10	0.083	0.674	0.670		•
	0.840	40	0.109	0.622	0.851	•	•
	0.840	80	0.147	0.546	1.088	•	
3/4	1.050	10	0.083	0.884	0.857		•
	1.050	40	0.113	0.824	1.131	•	•
	1.050	80	0.154	0.742	1.474	•	
1	1.315	10	0.109	1.097	1.410		•
	1.315	40	0.133	1.049	1.679	•	•
	1.315	80	0.179	0.957	2.172	•	
1 1/4	1.660	10	0.109	1.442	1.810		•
	1.660	40	0.140	1.380	2.273	•	•
	1.660	80	0.191	1.278	2.997	•	•
1 1/2	1.900	10	0.109	1.682	2.090		•
	1.900	40	0.145	1.610	2.718	•	•
	1.900	80	0.200	1.500	3.631	•	•
2	2.375	10	0.109	2.157	2.640		•

Nominal Pipe Size	OD Inches	Schedule	Wall Thickness Inches	ID Inches	Weight Per Ft. Pounds	Specification Availability	
						A53	A500B
	2.375	40	0.154	2.067	3.653	•	•
	2.375	80	0.218	1.939	5.022	•	•
2 1/2	2.875	40	0.203	2.469	5.793	•	•
	2.875	80	0.276	2.323	7.661	•	•
3	3.500	40	0.216	3.068	7.576	•	•
	3.500	80	0.300	2.900	10.250	•	•
3 1/2	4.000	40	0.226	3.548	9.109	•	•
	4.000	80	0.318	3.364	12.510	•	•
4	4.500	40	0.237	4.026	10.790	•	•
	4.500	80	0.337	3.826	14.997	•	•
5	5.563	40	0.258	5.047	14.620	•	•
	5.563	80	0.375	4.813	20.780	•	•
6	6.625	40	0.280	6.065	18.970	•	•
	6.625	80	0.432	5.761	28.570	•	•
8	8.625	40	0.322	7.981	28.550	•	•
	8.625	80	0.500	7.625	43.428	•	•
10	10.750	20	0.250	10.250	28.040		•
	10.750	40	0.365	10.020	40.480	•	
12	10.750	80	0.594	9.562	64.430		•
	12.750		0.250	12.250	33.406		•
	12.750		0.375	12.000	49.608		•
	12.750		0.500	11.750	65.476		•

HOT ROLLED STEEL TUBING

Steel Tubing is easily welded, formed, punched, and drilled. It is available in Mechanical (ASTM A513) and Structural (ASTM A500 Grade B) specifications. Mechanical Tubing is generally of sizes smaller than 2" x 2" or sections with a wall thickness of 11 gauge or less.

Structural Steel Tubing is especially suited for a wide variety of applications where the surface finish is not of primary importance. Stock lengths are primarily 24 feet, with some availability of 20 and 40 foot lengths.

HOT ROLLED SQUARE TUBING

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds	Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds	Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
1/2 x 1/2	18 ga	0.049	0.301	1-3/4 x 1-3/4	13 ga	0.095	1.815	3 x 3	8 ga	0.165	5.240
	16 ga	0.065	0.385		12 ga	0.109	2.062		7 ga	0.188	5.590
5/8 x 5/8	18 ga	0.049	0.400		11 ga	0.120	2.252		1/4	0.250	7.110
	16 ga	0.065	0.495		10 ga	0.134	2.489		5/16	0.312	8.440
3/4 x 3/4	18 ga	0.049	0.467		8 ga	0.165	2.760		14 ga	0.083	3.240
	16 ga	0.065	0.606		7 ga	0.188	3.040		11 ga	0.125	4.750
	14 ga	0.083	0.753		1/4	0.250	4.250		10 ga	0.134	5.223
7/8 x 7/8	11 ga	0.120	1.028		16 ga	0.065	1.490		8 ga	0.165	6.130
	18 ga	0.049	0.550		14 ga	0.083	1.882		7 ga	0.188	6.870
	16 ga	0.065	0.716		12 ga	0.109	2.433		1/4	0.250	8.810
1 x 1	14 ga	0.083	0.894		11 ga	0.120	2.660		5/16	0.312	10.580
	18 ga	0.049	0.634		7 ga	0.188	3.680		3/8	0.375	12.170
	16 ga	0.065	0.827	2 x 2	18 ga	0.049	1.283	11 ga	0.125	5.610	
1-1/4 x 1-1/4	15 ga	0.072	0.909	16 ga	0.065	1.710	10 ga	0.134	6.134		
	14 ga	0.083	1.035	14 ga	0.083	2.160	8 ga	0.165	7.250		
	13 ga	0.095	1.169	13 ga	0.095	2.461	7 ga	0.188	8.150		
	12 ga	0.109	1.321	12 ga	0.109	2.803	1/4	0.250	10.510		
	11 ga	0.120	1.436	11 ga	0.125	3.060	5/16	0.312	12.710		
	18 ga	0.049	0.780	10 ga	0.134	3.400	3/8	0.375	14.710		
1-1/2 x 1-1/2	16 ga	0.065	1.048	8 ga	0.165	4.120	4 x 4	14 ga	0.083	4.320	
	14 ga	0.083	1.317	7 ga	0.188	4.320	11 ga	0.125	6.460		
	13 ga	0.095	1.492	1/4	0.250	5.410	10 ga	0.134	7.045		
	12 ga	0.109	1.691	2-1/2 x 2-1/2	16 ga	0.065	2.120	8 ga	0.165	8.730	
	11 ga	0.120	1.844	14 ga	0.083	2.728	7 ga	0.188	9.420		
	3/16	0.188	2.400	12 ga	0.109	3.544	1/4	0.250	12.210		
1-1/2 x 1-1/2	16 ga	0.065	1.269	11 ga	0.125	3.900	5/16	0.313	14.830		
	14 ga	0.083	1.600	10 ga	0.134	4.312	3/8	0.375	17.270		

HOT ROLLED STEEL TUBING

HOT ROLLED SQUARE TUBING (continued)

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
4-1/2 x 4-1/2	1/2	0.500	21.630
	11 ga	0.125	7.310
	10 ga	0.134	7.790
	8 ga	0.165	9.500
	7 ga	0.188	10.700
	1/4	0.250	13.910
	5/16	0.313	16.960
5 x 5	3/8	0.375	19.820
	1/2	0.500	25.030
	11 ga	0.125	8.160
	10 ga	0.134	8.710
	8 ga	0.165	10.610
	7 ga	0.188	11.970
	1/4	0.250	15.620
6 x 6	5/16	0.313	19.080
	3/8	0.375	22.370
	1/2	0.500	28.430
	11 ga	0.125	9.860
	10 ga	0.134	10.530

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
7 x 7	8 ga	0.165	12.870
	7 ga	0.188	14.530
	1/4	0.250	19.020
	5/16	0.312	23.340
	3/8	0.375	27.480
	1/2	0.500	35.240
	5/8	0.625	42.300
8 x 8	7 ga	0.188	17.080
	1/4	0.250	22.420
	5/16	0.313	27.600
	3/8	0.375	32.580
	1/2	0.500	42.050
	5/8	0.625	50.810
	7 ga	0.188	19.630
8 x 8	1/4	0.250	25.820
	5/16	0.313	31.840
	3/8	0.375	37.690
	1/2	0.500	48.850
	5/8	0.625	59.320

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
10 x 10	7 ga	0.188	24.730
	1/4	0.250	32.630
	5/16	0.313	40.350
	3/8	0.375	47.900
	1/2	0.500	62.460
	5/8	0.625	76.330
	12 x 12	1/4	0.250
14 x 14	5/16	0.313	48.860
	3/8	0.375	58.100
	1/2	0.500	76.070
	5/8	0.625	93.340
	5/16	0.313	57.360
	3/8	0.375	68.310
	1/2	0.500	89.680
16 x 16	5/8	0.625	110.360
	5/16	0.313	65.870
	3/8	0.375	78.520
	1/2	0.500	103.300
	5/8	0.625	127.370

HOT ROLLED RECTANGULAR TUBING

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
1 x 1/2	16 ga	0.065	0.606
1-1/2 x 1/2	16 ga	0.065	0.827
1-1/2 x 3/4	16 ga	0.065	0.937
	14 ga	0.083	1.176
	11 ga	0.120	1.601
1-1/2 x 1	16 ga	0.065	1.048
	14 ga	0.083	1.317
	11 ga	0.120	1.844

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
2 x 1	10 ga	0.134	2.134
	18 ga	0.049	0.956
	16 ga	0.065	1.269
	14 ga	0.083	1.600
	11 ga	0.120	2.252
	10 ga	0.134	2.489
	8 ga	0.165	2.760
7 ga	0.188	3.040	

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
2 x 1-1/4	14 ga	0.083	1.741
	11 ga	0.120	2.456
2 x 1-1/2	16 ga	0.065	1.500
	14 ga	0.083	1.882
	11 ga	0.120	2.660
	10 ga	0.134	2.945
	8 ga	0.165	3.320
7 ga	0.188	3.680	

HOT ROLLED STEEL TUBING

HOT ROLLED RECTANGULAR TUBING (continued)

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
2-1/2 x 1	16 ga	0.065	1.489
	14 ga	0.083	1.882
	11 ga	0.120	2.660
	10 ga	0.134	2.950
	8 ga	0.165	3.320
	7 ga	0.188	3.680
	2-1/2 x 1-1/2	16 ga	0.065
14 ga		0.083	2.160
11 ga		0.125	3.070
10 ga		0.134	3.401
8 ga		0.165	4.118
7 ga		0.188	4.320
1/4		0.250	5.410
2-1/2 x 2	11 ga	0.125	3.480
	10 ga	0.134	3.856
	8 ga	0.165	4.440
	7 ga	0.188	4.960
3 x 1	16 ga	0.065	1.710
	14 ga	0.083	2.160
	12 ga	0.109	2.803
	11 ga	0.125	3.070
	10 ga	0.134	3.401
	8 ga	0.165	4.118
	7 ga	0.188	4.320
3 x 1-1/2	16 ga	0.065	1.932
	14 ga	0.083	2.390
	11 ga	0.125	3.480
	10 ga	0.134	3.856
	8 ga	0.165	4.440
	7 ga	0.188	4.960
	1/4	0.250	6.250
3 x 2	16 ga	0.065	2.140
	14 ga	0.083	2.728
	13 ga	0.095	3.107
	11 ga	0.125	3.900

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
3-1/2 x 1-1/2	10 ga	0.134	4.312
	8 ga	0.165	5.239
	7 ga	0.188	5.590
	1/4	0.250	7.110
	5/16	0.313	8.450
	11 ga	0.125	3.900
	10 ga	0.134	4.312
3-1/2 x 2-1/2	8 ga	0.165	5.239
	7 ga	0.188	5.600
	11 ga	0.125	4.750
	10 ga	0.134	5.070
	8 ga	0.165	6.130
4 x 1-1/2	7 ga	0.188	6.870
	1/4	0.250	8.810
	11 ga	0.125	4.330
4 x 2	7 ga	0.188	6.230
	14 ga	0.083	3.293
	11 ga	0.125	4.750
4 x 2	10 ga	0.134	5.070
	8 ga	0.165	6.130
	7 ga	0.188	6.870
	1/4	0.250	8.810
	5/16	0.313	10.580
	3/8	0.375	12.170
	11 ga	0.125	5.180
4 x 2-1/2	7 ga	0.188	7.482
	11 ga	0.125	5.610
	10 ga	0.134	6.134
4 x 3	8 ga	0.165	7.250
	7 ga	0.188	8.150
	1/4	0.250	10.510
	5/16	0.313	12.700
	3/8	0.375	14.720
4-1/2 x 3	11 ga	0.125	6.030
	10 ga	0.134	6.589

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
5 x 2	8 ga	0.165	8.045
	7 ga	0.188	8.780
	1/4	0.250	11.360
	11 ga	0.125	5.610
	10 ga	0.134	6.134
	8 ga	0.165	7.250
	7 ga	0.188	8.150
5 x 2-1/2	1/4	0.250	10.510
	5/16	0.313	12.700
	3/8	0.375	14.720
	11 ga	0.125	6.030
	10 ga	0.134	6.589
5 x 3	8 ga	0.165	8.045
	7 ga	0.188	8.780
	1/4	0.250	11.360
	11 ga	0.125	6.460
5 x 3	10 ga	0.134	7.045
	8 ga	0.165	8.370
	7 ga	0.188	9.420
	1/4	0.250	12.210
	5/16	0.313	14.840
	3/8	0.375	17.270
	1/2	0.500	21.630
5 x 4	11 ga	0.125	7.310
	10 ga	0.134	7.790
	8 ga	0.165	9.500
5 x 4	7 ga	0.188	10.700
	1/4	0.250	13.910
	5/16	0.313	16.960
	3/8	0.375	19.820
	1/2	0.500	25.030
6 x 2	11 ga	0.125	6.460
	10 ga	0.134	7.045
	8 ga	0.165	8.370
	7 ga	0.188	9.420

HOT ROLLED STEEL TUBING

HOT ROLLED RECTANGULAR TUBING (continued)

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
6 x 3	1/4	0.250	12.210
	5/16	0.313	14.830
	3/8	0.375	17.270
	11 ga	0.125	7.300
	10 ga	0.134	7.790
	8 ga	0.165	9.500
	7 ga	0.188	10.700
	1/4	0.250	13.910
6 x 4	5/16	0.313	16.960
	3/8	0.375	19.820
	1/2	0.500	25.030
	11 ga	0.125	8.160
	10 ga	0.134	8.710
	8 ga	0.165	10.610
	7 ga	0.188	11.970
	1/4	0.250	15.620
7 x 3	5/16	0.313	19.080
	3/8	0.375	22.370
	1/2	0.500	28.430
	11 ga	0.125	8.160
	10 ga	0.134	8.710
	8 ga	0.165	10.610
	7 ga	0.188	11.970
	1/4	0.250	15.620
7 x 4	5/16	0.313	19.090
	3/8	0.375	22.370
	1/2	0.500	28.430
	11 ga	0.125	9.010
	10 ga	0.134	9.620
	8 ga	0.165	11.740
	7 ga	0.188	13.300
	1/4	0.250	17.320
7 x 4	5/16	0.313	21.220
	3/8	0.375	24.930
	1/2	0.500	31.840

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds
7 x 5	11 ga	0.125	9.860
	10 ga	0.134	10.530
	8 ga	0.165	12.870
	7 ga	0.188	14.530
	1/4	0.250	19.020
	5/16	0.313	23.340
	3/8	0.375	27.480
	1/2	0.500	35.240
8 x 2	11 ga	0.125	8.160
	10 ga	0.134	8.710
	8 ga	0.165	10.610
	7 ga	0.188	11.970
	1/4	0.250	15.620
	5/16	0.313	19.080
	3/8	0.375	22.370
	1/2	0.500	28.430
10 x 3	11 ga	0.125	10.710
	10 ga	0.134	11.440
	8 ga	0.165	13.990
	7 ga	0.188	15.840
	1/4	0.250	20.720
	5/16	0.313	25.460
	3/8	0.375	30.030
	1/2	0.500	38.430
10 x 3-1/2	11 ga	0.125	11.130
	10 ga	0.134	12.000
	8 ga	0.165	14.550
	7 ga	0.188	16.440
	1/4	0.250	21.570
	5/16	0.313	26.530
	3/8	0.375	31.310
	1/2	0.500	40.050
10 x 4	7 ga	0.188	17.080
	1/4	0.250	22.420
	5/16	0.313	27.590
	3/8	0.375	32.580
	1/2	0.500	42.050
	1/4	0.250	24.120

Outside Dimensions (W x L) Inches	Gauge	Wall Thickness Inches	Weight per Foot Pounds	
10 x 6	3/8	0.375	35.140	
	7 ga	0.188	19.630	
	1/4	0.250	25.820	
	5/16	0.313	31.840	
	3/8	0.375	37.690	
	1/2	0.500	48.850	
	5/8	0.625	59.320	
	10 x 8	7 ga	0.188	22.180
10 x 8	1/4	0.250	29.230	
	5/16	0.313	36.100	
	3/8	0.375	42.790	
	1/2	0.500	55.660	
	5/8	0.625	67.820	
	12 x 2	7 ga	0.188	17.080
	1/4	0.250	22.420	
	12 x 3	7 ga	0.188	18.400
12 x 3	1/4	0.250	24.120	
	12 x 4	7 ga	0.188	19.630
	1/4	0.250	25.820	
	5/16	0.313	31.840	
	3/8	0.375	37.690	
	1/2	0.500	48.850	
	12 x 6	7 ga	0.188	22.180
	1/4	0.250	29.230	
12 x 6	5/16	0.313	36.100	
	3/8	0.375	42.790	
	1/2	0.500	55.660	
	5/8	0.625	67.820	
	12 x 8	7 ga	0.188	24.730
	1/4	0.250	32.630	
	5/16	0.313	40.350	
	3/8	0.375	47.900	
12 x 8	1/2	0.500	62.460	
	5/8	0.625	76.330	

STANDARD EXPANDED METALS

Expanded Metal is produced by slitting and expanding solid sheet steel up to ten times its original width. This process results in a product which is stronger and more rigid than the original sheet. In Standard Expanded Metal, the strands are set in a sharp angle to the plane of the sheet. It can be formed, welded, or cut without raveling. Standard Expanded Metal is ideally suited for window or machine guards, partitions, non-skid surfacing, or grillwork.

CARBON STEEL STANDARD EXPANDED METAL ¼" - 2" DIAMOND

Style	Weight per 100 Sq. Ft.	Standard Sheet Size (Feet)		Design Size (Inches)		Opening Size (Inches)		Strand Size (Inches)		Overall Thickness Inches
	Pounds	Width SWD	Length LWD	SWD	LWD	SWO	LWO	Width	Thickness	
¼"-#20	86	4	8	0.250	1.00	0.125	0.718	0.072	0.036	0.135
¼"-#18	114	4	8	0.250	1.00	0.110	0.718	0.072	0.048	0.147
½"-#20	43	4	8	0.500	1.00	0.438	0.938	0.072	0.036	0.140
½"-#18	70	4&6	8&10	0.500	1.20	0.438	0.938	0.088	0.048	0.172
½"-#16	86	4	8	0.500	1.00	0.375	0.938	0.087	0.060	0.175
½"-#13	147	4&6	8&10	0.500	1.20	0.312	0.938	0.096	0.092	0.204
¾"-#16	54	4&6	8&10	0.923	2.00	0.813	1.750	0.101	0.060	0.210
¾"-#13	80	4&6	8&10	0.923	2.00	0.750	1.688	0.096	0.092	0.205
¾"-#10 (13 ga.)	120	4&6	8&10	0.923	2.00	0.750	1.625	0.144	0.092	0.290
¾"-#9 (10 ga.)	180	4&6	8,10&12	0.923	2.00	0.688	1.562	0.150	0.134	0.312
1"-#16	44	4	8	1.000	2.40	0.938	2.062	0.087	0.060	0.192
1½"-#18	20	4	8	1.330	3.00	1.313	2.625	0.068	0.048	0.140
1½"-#16	40	4	8	1.330	3.00	1.250	2.625	0.108	0.060	0.230
1½"-#13	60	4&6	8&10	1.330	3.00	1.188	2.500	0.105	0.092	0.242
1½"-#10 (13 ga.)	79	4&6	8&10	1.330	3.00	1.188	2.500	0.138	0.092	0.284
1½"-#9 (10 ga.)	120	4&6	8,10&12	1.330	3.00	1.125	2.375	0.144	0.134	0.312
1½"-#6 (6 ga.)	250	4&6	8	1.330	3.00	1.110	2.313	0.203	0.198	0.433
2"-#10 (13 ga.)	68	6	12	1.850	4.00	1.625	3.438	0.164	0.092	0.327
2"-#9 (10 ga.)	90	4	8	1.850	4.00	1.563	3.375	0.149	0.134	0.312

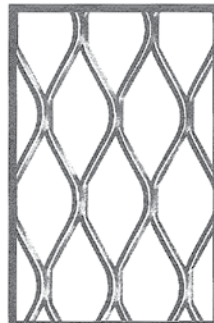
Standard 1 ½" - #9



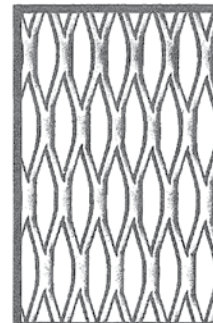
Standard ¾" - #13



Standard ½" - #16



Standard ¼" - #18



FLATTENED EXPANDED METALS

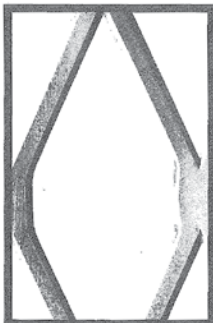
Flattened Expanded Metal is manufactured by passing the standard expanded metal between pressure rolls. This process turns the strands and bonds down to provide a flattened surface. It has no sharp edges which makes it ideal for trays, shelves, baskets, screens, and metal furniture.

CARBON STEEL FLATTENED EXPANDED METAL ¼" - 1½" DIAMOND

Style	Weight per 100 Sq. Ft.	Standard Sheet Size (Feet)		Design Size (Inches)		Opening Size (Inches)		Strand Size (Inches)		Overall Thickness
	Pounds	Width SWD	Length LWD	SWD	LWD	SWO	LWO	Width	Thickness	Inches
¼" - #20	82	3&4	8	0.250	1.05	0.084	0.715	0.079	0.030	0.030
¼" - #18	108	3&4	8	0.250	1.05	0.075	0.715	0.080	0.040	0.040
½" - #20	40	3&4	8	0.500	1.25	0.375	1.000	0.079	0.029	0.029
½" - #18	66	3&4	8&10	0.500	1.25	0.312	1.000	0.097	0.039	0.039
½" - #16	82	3&4	8&10	0.500	1.25	0.312	1.000	0.096	0.050	0.050
½" - #13	140	3&4	8&10	0.500	1.25	0.265	1.000	0.107	0.070	0.070
¾" - #16	51	3&4	8&10	0.923	2.10	0.750	1.750	0.111	0.048	0.048
¾" - #14	63	3&4	8&10	0.923	2.10	0.688	1.813	0.105	0.061	0.061
¾" - #13	75	3&4	8,10&12	0.923	2.10	0.688	1.781	0.106	0.070	0.070
¾" - #10 (13 ga.)	114	4	8	0.923	2.10	0.637	1.755	0.160	0.070	0.070
¾" - #9 (10 ga.)	171	3&4	8,10&12	0.923	2.10	0.563	1.688	0.165	0.120	0.120
1" - #16	41	3&4	8	1.000	2.50	0.813	2.250	0.098	0.050	0.050
1½" - #16 (Lt.)	29	4	8	1.330	3.20	1.175	2.620	0.093	0.050	0.050
1½" - #16	38	3&4	8	1.330	3.20	1.062	2.750	0.119	0.048	0.048
1½" - #14	46	3&4	8	1.330	3.20	1.062	2.750	0.134	0.060	0.060
1½" - #13	57	3&4	8&10	1.330	3.20	1.062	2.750	0.116	0.070	0.070
1½" - #9 (10 ga.)	114	3&4-4	8&10-12	1.330	3.20	1.000	2.563	0.158	0.110	0.110

Since 1899

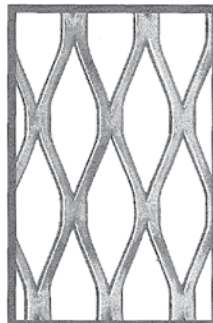
Flattened 1 ½" - #9



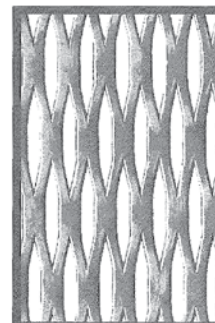
Flattened ¾" - #13



Flattened ½" - #16



Flattened ¼" - #18



EXPANDED METAL GRATING

Structural Grating is designed primarily for use in catwalks and walkways. It is also ideal for installation directly on top of concrete or wood floors as a non-slip surface. This product is available in both flattened and standard patterns, and is easily sheared, hacksawed, or cut by a torch to fit various shapes and irregular outlines.

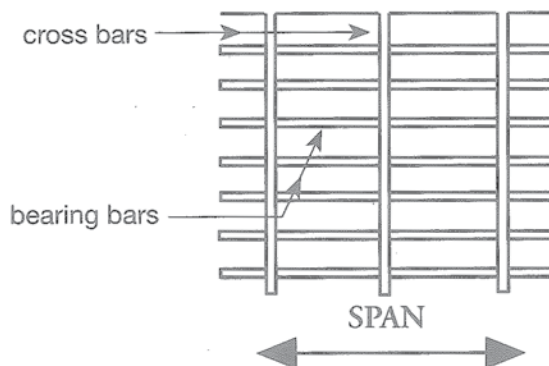
CARBON STEEL STANDARD EXPANDED METAL GRATING

Style	Weight per 100 Sq. Ft. Pounds	Standard Sheet Size (Feet)		Design Size (Inches)		Opening Size (Inches)		Strand Size (Inches)		Overall Thickness Inches
		Width SWD	Length LWD	SWD	LWD	SWO	LWO	Width	Thickness	
3.0 lbs	3.00	4&6	8,10&12	1.330	5.33	0.940	3.440	0.264	0.183	0.540
3.14 lbs	3.14	4-4&6	8&10	2.000	6.00	1.625	4.880	0.312	0.250	0.656
4.0 lbs	4.00	4,5&6	8&10	1.330	5.33	0.940	3.440	0.300	0.215	0.618
4.27 lbs	4.27	4&6	8&10	1.410	4.00	1.000	2.880	0.300	0.250	0.625
5.0 lbs	5.00	4,5&6	8&10	1.330	5.33	0.813	3.380	0.331	0.250	0.655
6.25 lbs	6.25	4&6	8&12	1.410	5.33	0.813	3.380	0.350	0.312	0.715
7.0 lbs	7.00	4	8	1.410	5.33	0.813	3.380	0.391	0.312	0.740

BAR GRATING

Stock size of Bar Grating Panels is 3' x 24'. Other sizes available upon request.

Main Bar Size	Standard Mesh		Close Mesh	
	19W4	19W2	15W4	15W2
	Lbs. per Sq. Ft.	Lbs. per Sq. Ft.	Lbs. per Sq. Ft.	Lbs. per Sq. Ft.
3/16" x 1"	7.2	7.8	8.9	9.6
3/16" x 1 1/4"	8.9	9.5	11.0	11.6
3/16" x 1 1/2"	10.5	11.2	13.1	13.7



PROCESSING CAPABILITIES

PLASMA CUTTING

High Definition Plasma Plate Cutting up to 1½" thickness

- Superior cutting quality and consistency
- Tighter tolerances and greater precision
- Ability to cut holes with Bolt Hole Quality



FLAME CUTTING

Plate Flame Cutting available for cutting plate to size or standard or custom shapes. Flame cutting has the advantage of the capability to cut thicker plate material.

PLATE SHEARING

Steel plates and sheets can be sheared to size up to ½" thickness.

SAW CUTTING

Most bar and structural long products can be cut to any length, saving you time and money.

MISCELLANEOUS METAL PRODUCTS

WIRE MESH

Available in flat mats as 5' x 10' and 8' x 20' panel sizes, or rolls 60" wide x 150' length. Stocked as 6" x 6" 10 gauge, with a weight of 21 pounds per 100 sq. ft.

TIE WIRE

Available as 16 gauge annealed approximately 3 ½" pound coils, packed 20 coils to the carton. Other gauges, annealed or soft galvanized, can be furnished on special order. All fit standard belt dispensers.

NOTES

A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.

REFERENCE

DECIMAL EQUIVALENTS TABLE

FRACTION (Inches)	DECIMAL EQUIVALENT (Inches)	DECIMAL EQUIVALENT (Millimeters)	FRACTION (Inches)	DECIMAL EQUIVALENT (Inches)	DECIMAL EQUIVALENT (Millimeters)		
1/16	1/64	0.015625	0.3969	9/16	33/64	0.515625	13.0969
	1/32	0.031250	0.7938		17/32	0.531250	13.4938
	3/64	0.046875	1.1906		35/64	0.546875	13.8906
		0.062500	1.5875			0.562500	14.2875
	5/64	0.078125	1.9844		37/64	0.578125	14.6844
	3/32	0.093750	2.3813		19/32	0.593750	15.0813
	7/64	0.109375	2.7781		39/64	0.609375	15.4781
1/8		0.125000	3.1750	5/8		0.625000	15.8750
	9/64	0.140625	3.5719		41/64	0.640625	16.2719
	5/32	0.156250	3.9688		21/32	0.656250	16.6688
	11/64	0.171875	4.3656		43/64	0.671875	17.0656
3/16		0.187500	4.7625	11/16		0.687500	17.4625
	13/64	0.203125	5.1594		45/64	0.703125	17.8594
	7/32	0.218750	5.5563		23/32	0.718750	18.2563
	15/64	0.234375	5.9531		47/64	0.734375	18.6531
1/4		0.250000	6.3500	3/4		0.750000	19.0500
	17/64	0.265625	6.7469		49/64	0.765625	19.4469
	9/32	0.281250	7.1438		25/32	0.781250	19.8438
	19/64	0.296875	7.5406		51/64	0.796875	20.2406
5/16		0.312500	7.9375	13/16		0.812500	20.6375
	21/64	0.328125	8.3344		53/64	0.828125	21.0344
	11/32	0.343750	8.7313		27/32	0.843750	21.4313
	23/64	0.359375	9.1281		55/64	0.859375	21.8281
3/8		0.375000	9.5250	7/8		0.875000	22.2250
	25/64	0.390625	9.9219		57/64	0.890625	22.6219
	13/32	0.406250	10.3188		29/32	0.906250	23.0188
	27/64	0.421875	10.7156		59/64	0.921875	23.4156
7/16		0.437500	11.1125	15/16		0.937500	23.8125
	29/64	0.453125	11.5094		61/64	0.953125	24.2094
	15/32	0.468750	11.9063		31/32	0.968750	24.6063
	31/64	0.484375	12.3031		63/64	0.984375	25.0031
1/2		0.500000	12.7000	1		1.000000	25.4000

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