

GUIDE TO SELECTION Structural Shapes

HOT ROLLED STRUCTURAL QUALITY

ASTM A-36

Intermediate tensile strength carbon steel for use in riveted, bolted or welded construction of bridges and buildings, and for general structural use. A-36 is one of the most widely used carbon steels for construction purposes. It is weldable, formable, and machinable. The minimum yield point is 36,000 psi and the tensile strength is 58,000 psi to 80,000 psi. Shapes over 426 lbs. per foot are silicon killed to insure uniform properties.

HIGH STRENGTH LOW ALLOY (HSLA)

ASTM A-572 Grade 50

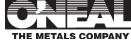
A HSLA columbium-vanadium steel with a higher yield and tensile strength as compared to ASTM A-36. It is used in bridges, buildings, construction equipment, freight cars, machinery, truck parts, and other applications. These stronger steels permit the reduction of section thickness and weight, providing added payload capacity in transportation applications as well as material cost savings. ASTM A-572 Grade 50 is weldable, formable, and machinable when using appropriate techniques. For Grade 50, the minimum yield point is 50,000 psi and the minimum tensile strength is 65,000 psi. Shapes over 426 lbs. per foot are silicon killed to insure uniform properties. ASTM A-572 is also available in grades 42, 60, and 65. Some of the trade names associated with this grade are Ex-Ten, INX, and V-Steel.

ASTM A-588

AHSLA steel containing small additions of copper, chromium and nickel. For use in bridges, buildings, freight cars, construction equipment, smoke-stack liners, precipitators, transmission towers, and light poles where savings in weight and/or added durability are important. The atmospheric corrosion resistance of this steel is a minimum of four times that of regular carbon steel. These steels are often used unpainted and develop a weathered orange-brown surface that is resistant to corrosion. ASTM A-588 Grade A is weldable, formable, and machinable when using the appropriate techniques. The minimum yield point is 50,000 psi and minimum tensile strength is 70,000 psi. All sizes of ASTM A-588 are silicon killed. ASTM A-588 is also available in grades B, C, and K. Some of the trade names associated with this grade are Cor-Ten, Mayari, and Hi-Steel.

ASTM A-992

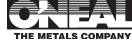
A structural steel containing small additions of vanadium or columbium, copper, nickel, chrome, and molybdenum. This specification covers structural shapes intended for use in building framing or bridges. The major advantage of A-992 is its better material definition. It has an upper limit on yield strength of 65 ksi, a minimum tensile strength of 65 ksi, a specified maximum yield-to-tensile ratio of 0.85 and a specified maximum carbon equivalent of 0.47%. This last property translates into excellent weldability. In most cases it can be dual certified to A-572 grade 50.



W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W4 x 13	4.16	4.060	0.345	0.280	X	X	X
W5 x 16	5.01	5.000	0.306	0.240	X		X
x 19	5.15	5.030	0.430	0.270	X		X
W6 x 9	5.90	3.940	0.215	0.170	X	X	X
x 12	6.03	4.000	0.280	0.230	X	X	X
x 15	5.99	5.990	0.260	0.230	X	X	X
x 16	6.28	4.030	0.405	0.260	X	X	X
x 20	6.20	6.020	0.365	0.260	X	X	X
x 25	6.38	6.080	0.455	0.320	X	X	X
W8 x 10	7.89	3.940	0.205	0.170	X	X	X
x 13	7.99	4.000	0.255	0.230	X	X	X
x 15	8.11	4.015	0.315	0.245	X	X	X
x 18	8.14	5.250	0.330	0.230	X	X	X
x 21	8.28	5.270	0.400	0.250	X	X	X
x 24	7.93	6.495	0.400	0.245	X	X	X
x 28	8.06	6.535	0.465	0.285	X	X	X
x 31	8.00	7.995	0.435	0.285	X	X	X
x 35	8.12	8.020	0.495	0.310	X	X	X
x 40	8.25	8.070	0.560	0.360	X	X	X
x 48	8.50	8.110	0.685	0.400	X	X	X
x 58	8.75	8.220	0.810	0.510	X	X	X
x 67	9.00	8.280	0.935	0.570	X	X	X
W10 x 12	9.87	3.960	0.210	0.190	X	X	X
x 15	9.99	4.000	0.270	0.230	X	X	X
x 17	10.11	4.010	0.330	0.240	X	X	X
x 19	10.24	4.020	0.395	0.250	X	X	X
x 22	10.17	5.750	0.360	0.240	X	X	X
x 26	10.33	5.770	0.440	0.260	X	X	X
x 30	10.47	5.810	0.510	0.300	X	X	X
x 33	9.73	7.960	0.435	0.290	X	X	X
x 39	9.92	7.985	0.530	0.315	X	X	X
x 45	10.10	8.020	0.620	0.350	X	X	X
x 49	9.98	10.000	0.560	0.340	X	X	X
x 54	10.09	10.030	0.615	0.370	X	X	X
x 60	10.22	10.080	0.680	0.420	X	X	X

STRUCTURAL SHAPES



W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W10 x 68	10.40	10.130	0.770	0.470	X	X	X
x 77	10.60	10.190	0.870	0.530	X	X	X
x 88	10.84	10.265	0.990	0.605	X	X	X
x 100	11.10	10.340	1.120	0.680	X	X	X
x 112	11.36	10.415	1.250	0.755	X	X	X
W12 x 14	11.91	3.970	0.225	0.200	X	X	X
x 16	11.99	3.990	0.265	0.220	X	X	X
x 19	12.16	4.005	0.350	0.235	X	X	X
x 22	12.31	4.030	0.425	0.260	X	X	X
x 26	12.22	6.490	0.380	0.230	X	X	X
x 30	12.34	6.520	0.440	0.260	X	X	X
x 35	12.50	6.560	0.520	0.300	X	X	X
x 40	11.94	8.005	0.515	0.295	X	X	X
x 45	12.06	8.045	0.575	0.335	X	X	X
x 50	12.19	8.080	0.640	0.370	X	X	X
x 53	12.06	9.995	0.575	0.345	X	X	X
x 58	12.19	10.010	0.640	0.360	X	X	X
x 65	12.12	12.000	0.605	0.390	X	X	X
x 72	12.25	12.040	0.670	0.430	X	X	X
x 79	12.38	12.080	0.735	0.470	X	X	X
x 87	12.53	12.125	0.810	0.515	X	X	X
x 96	12.71	12.160	0.900	0.550	X	X	X
x 106	12.89	12.220	0.990	0.610	X	X	X
x 120	13.12	12.320	1.105	0.710	X	X	X
x 136	13.41	12.400	1.250	0.790	X	X	X
x 153	13.71	12.480	1.400	0.870	X	X	X
x 170	14.03	12.570	1.560	0.960	X	X	X
x 190	14.38	12.670	1.735	1.060	X	X	X
x 210	14.71	12.790	1.900	1.180	X	X	X
x 230	15.05	12.895	2.070	1.285	X	X	X
x 252	15.41	13.005	2.250	1.395	X	X	X
x 279	15.85	13.140	2.470	1.530	X	X	X
x 305	16.32	13.235	2.705	1.625	X	X	X
x 336	16.82	13.385	2.955	1.775	X	X	X
W14 x 22	13.74	5.000	0.335	0.230	X	X	X
x 26	13.91	5.025	0.420	0.255	X	X	X
x 30	13.84	6.730	0.385	0.270	X	X	X

STRUCTURAL SHAPES



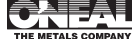


W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W14 x 34	13.98	6.745	0.455	0.285	X	X	X
x 38	14.10	6.770	0.515	0.310	X	X	X
x 43	13.66	7.995	0.530	0.305	X	X	X
x 48	13.79	8.030	0.595	0.340	X	X	X
x 53	13.92	8.060	0.660	0.370	X	X	X
x 61	13.89	9.995	0.645	0.375	X	X	X
x 68	14.04	10.035	0.720	0.415	X	X	X
x 74	14.17	10.070	0.785	0.450	X	X	X
x 82	14.31	10.130	0.855	0.510	X	X	X
x 90	14.02	14.250	0.710	0.440	X	X	X
x 99	14.16	14.565	0.780	0.485	X	X	X
x 109	14.32	14.605	0.860	0.525	X	X	X
x 120	14.48	14.670	0.940	0.590	X	X	X
x 132	14.66	14.725	1.030	0.645	X	X	X
x 145	14.78	15.500	1.090	0.680	X	X	X
x 159	14.98	15.656	1.190	0.745	X	X	X
x 176	15.22	15.650	1.310	0.830	X	X	X
x 193	15.48	15.710	1.440	0.890	X	X	X
x 211	15.72	15.800	1.560	0.980	X	X	X
x 233	16.04	15.890	1.720	1.070	X	X	X
x 257	16.38	15.995	1.890	1.175	X	X	X
x 283	16.74	16.110	2.070	1.290	X	X	X
x 311	17.12	16.230	2.260	1.410	X	X	X
x 342	17.54	16.360	2.470	1.540	X	X	X
x 370	17.92	16.475	2.660	1.655	X	X	X
x 398	18.29	16.590	2.845	1.770	X	X	X
x 426	18.67	16.695	3.035	1.875	X	X	X
x 455	19.02	16.835	3.210	2.015	X	X	X
x 500	19.60	17.010	3.500	2.190	X	X	X
x 550	20.24	17.200	3.820	2.380	X	X	X
x 650	20.92	17.415	4.160	2.595	X	X	X
x 665	21.64	17.650	4.520	2.830	X	X	X
x 730	22.42	17.890	4.910	3.070	X	X	X
x 808	22.84	18.560	5.120	3.740	X	X	X
x 873	23.62	18.757	5.510	3.937	X	X	X
W16 x 26	15.69	5.500	0.345	0.250	X	X	X
x 31	15.88	5.525	0.440	0.275	X	X	X
x 36	15.86	6.985	0.430	0.295	X	X	X

4 STRUCTURAL SHAPES





W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W16 x 40	16.01	6.995	0.505	0.305	X	X	X
x 45	16.13	7.035	0.565	0.345	X	X	X
x 50	16.26	7.070	0.630	0.380	X	X	X
x 57	16.43	7.120	0.715	0.430	X	X	X
x 67	16.33	10.235	0.665	0.395	X	X	X
x 77	16.52	10.295	0.760	0.455	X	X	X
x 89	16.75	10.365	0.875	0.525	X	X	X
x 100	16.97	10.425	0.985	0.585	X	X	X
W18 x 35	17.70	6.000	0.425	0.300	X	X	X
x 40	17.90	6.015	0.525	0.315	X	X	X
x 46	18.06	6.060	0.605	0.360	X	X	X
x 50	17.99	7.495	0.570	0.355	X	X	X
x 55	18.11	7.530	0.630	0.390	X	X	X
x 60	18.24	7.555	0.695	0.415	X	X	X
x 65	18.35	7.590	0.750	0.450	X	X	X
x 71	18.47	7.635	0.810	0.495	X	X	X
x 76	18.21	11.035	0.680	0.425	X	X	X
x 86	18.39	11.090	0.770	0.480	X	X	X
x 97	18.59	11.145	0.870	0.535	X	X	X
x 106	18.73	11.200	0.940	0.590	X	X	X
x 119	18.97	11.265	1.060	0.655	X	X	X
x 130	19.25	11.160	1.200	0.670	X	X	X
x 143	19.49	11.220	1.320	0.730	X	X	X
x 158	19.72	11.300	1.440	0.810	X	X	X
x 175	20.04	11.375	1.590	0.890	X	X	X
x 192	20.35	11.455	1.750	0.960	X	X	X
x 211	20.67	11.555	1.910	1.060	X	X	X
x 234	21.06	11.650	2.110	1.160	X	X	X
x 258	21.46	11.770	2.300	1.280	X	X	X
x 283	21.85	11.890	2.500	1.400	X	X	X
x 311	22.32	12.005	2.740	1.520	X	X	X
W21 x 44	20.66	6.500	0.450	0.350	X	X	X
x 50	20.83	6.530	0.535	0.380	X	X	X
x 57	21.06	6.555	0.650	0.405	X	X	X
x 62	20.99	8.240	0.615	0.400	X	X	X
x 68	21.13	8.270	0.685	0.430	X	X	X
x 73	21.24	8.295	0.740	0.455	X	X	X

STRUCTURAL SHAPES



W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W21 x 83	21.43	8.355	0.835	0.515	X	X	X
x 93	21.62	8.420	0.940	0.580	X	X	X
x 101	21.36	12.290	0.800	0.500	X	X	X
x 111	21.51	12.340	0.875	0.550	X	X	X
x 122	21.68	12.390	0.960	0.660	X	X	X
x 132	21.83	12.440	1.035	0.650	X	X	X
x 147	22.06	12.510	1.150	0.720	X	X	X
x 166	22.48	12.420	1.360	0.750	X	X	X
x 182	22.72	12.500	1.480	0.830	X	X	X
x 248	23.74	12.775	1.990	1.110	X	X	X
x 275	24.13	12.890	2.190	1.220	X	X	X
x 300	24.53	12.990	2.380	1.320	X	X	X
W24 x 55	23.57	7.005	0.505	0.395	X	X	X
x 62	23.74	7.040	0.590	0.430	X	X	X
x 68	23.73	8.965	0.585	0.415	X	X	X
x 76	23.92	8.990	0.680	0.440	X	X	X
x 84	24.10	9.020	0.770	0.470	X	X	X
x 94	24.31	9.065	0.875	0.515	X	X	X
x 104	24.06	12.750	0.750	0.500	X	X	X
x 117	24.26	12.800	0.850	0.550	X	X	X
x 131	24.48	12.855	0.960	0.605	X	X	X
x 146	24.74	12.900	1.090	0.650	X	X	X
x 162	25.00	12.955	1.220	0.705	X	X	X
x 176	25.24	12.890	1.340	0.750	X	X	X
x 192	25.47	12.950	1.460	0.810	X	X	X
x 207	25.71	13.010	1.570	0.870	X	X	X
x 229	26.02	13.110	1.730	0.960	X	X	X
x 250	26.34	13.185	1.890	1.040	X	X	X
x 279	26.73	13.305	2.090	1.160	X	X	X
x 306	27.13	13.405	2.280	1.260	X	X	X
x 335	27.52	13.520	2.480	1.380	X	X	X
x 370	27.99	13.660	2.720	1.520	X	X	X
x 408	28.54	13.800	2.990	1.650	X	X	X
x 450	29.09	13.955	3.270	1.810	X	X	X
x 492	29.65	14.115	3.540	1.970	X	X	X
W27 x 84	26.71	9.960	0.640	0.460	X	X	X
x 94	26.92	9.990	0.745	0.490	X	X	X

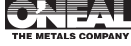
STRUCTURAL SHAPES



W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-992
W27 x 102	27.09	10.015	0.830	0.515	X	X	X
x 114	27.29	10.070	0.930	0.570	X	X	X
x 146	27.38	13.965	0.975	0.605	X	X	X
x 161	27.59	14.020	1.080	0.660	X	X	X
x 176	27.81	14.085	1.190	0.725	X	X	X
x 194	28.11	14.035	1.340	0.750	X	X	X
x 217	28.43	14.115	1.500	0.830	X	X	X
x 235	28.66	14.190	1.610	0.910	X	X	X
x 281	29.29	14.350	1.930	1.060	X	X	X
x 307	29.61	14.445	2.090	1.160	X	X	X
x 336	30.00	14.545	2.280	1.260	X	X	X
x 368	30.39	14.665	2.480	1.380	X	X	X
x 407	30.87	14.800	2.720	1.520	X	X	X
x 448	31.42	14.940	2.990	1.650	X	X	X
x 494	31.97	15.095	3.270	1.810	X	X	X
x 539	32.52	15.225	3.540	1.970	X	X	X
W30 x 90	29.53	10.400	0.610	0.470	X	X	X
x 99	29.65	10.450	0.670	0.520	X	X	X
x 108	29.83	10.475	0.760	0.545	X	X	X
x 116	30.01	10.495	0.850	0.565	X	X	X
x 124	30.17	10.515	0.930	0.585	X	X	X
x 132	30.31	10.545	1.000	0.615	X	X	X
x 173	30.44	14.985	1.065	0.655	X	X	X
x 191	30.68	15.040	1.185	0.710	X	X	X
x 211	30.94	15.105	1.315	0.775	X	X	X
x 235	31.30	15.055	1.500	0.830	X	X	X
x 261	31.61	15.155	1.650	0.930	X	X	X
x 292	32.01	15.255	1.850	1.020	X	X	X
x 326	32.40	15.370	2.050	1.140	X	X	X
x 357	32.80	15.470	2.240	1.240	X	X	X
x 391	33.19	15.590	2.440	1.360	X	X	X
x 433	33.66	15.725	2.680	1.500	X	X	X
x 477	34.21	15.865	2.950	1.630	X	X	X
x 526	34.76	16.020	2.230	1.790	X	X	X
x 581	35.39	16.200	3.540	1.970	X	X	X
W33 x 118	32.86	11.480	0.740	0.550	X	X	X
x 130	33.09	11.510	0.855	0.580	X	X	X

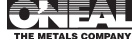
STRUCTURAL SHAPES



W BEAMS – Wide Flange

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W33 x 141	33.30	11.535	0.960	0.605	X	X	X
x 152	33.49	11.565	1.055	0.635	X	X	X
x 201	33.68	15.745	1.150	0.715	X	X	X
x 221	33.93	15.805	1.275	0.775	X	X	X
x 241	34.18	15.860	1.400	0.830	X	X	X
x 263	34.52	15.805	1.570	0.870	X	X	X
x 291	34.84	15.905	1.740	0.960	X	X	X
x 318	35.16	15.985	1.890	1.040	X	X	X
x 354	35.55	16.100	2.090	1.160	X	X	X
x 387	35.95	16.200	2.280	1.260	X	X	X
x 424	36.24	16.315	2.480	1.380	X	X	X
x 468	36.81	16.455	2.720	1.520	X	X	X
x 515	37.36	16.590	2.990	1.650	X	X	X
x 567	37.91	16.750	3.270	1.810	X	X	X
x 619	38.47	16.910	3.540	1.970	X	X	X
W36 x 135	35.55	11.950	0.790	0.600	X	X	X
x 150	35.85	11.975	0.940	0.625	X	X	X
x 160	36.01	12.000	1.020	0.650	X	X	X
x 170	36.17	12.030	1.100	0.680	X	X	X
x 182	36.33	12.075	1.180	0.725	X	X	X
x 194	36.49	12.115	1.260	0.765	X	X	X
x 210	36.99	12.180	1.360	0.830	X	X	X
x 230	35.90	16.470	1.260	0.760	X	X	X
x 245	36.08	16.510	1.350	0.800	X	X	X
x 260	36.36	16.550	1.440	0.840	X	X	X
x 280	36.52	16.595	1.570	0.885	X	X	X
x 300	36.74	16.655	1.680	0.945	X	X	X
x 328	37.09	16.630	1.850	1.020	X	X	X
x 359	37.40	16.730	2.010	1.120	X	X	X
x 439	38.26	16.965	2.440	1.360	X	X	X
x 485	38.74	17.105	2.680	1.500	X	X	X
W36 x 527	39.21	17.220	2.910	1.610	X	X	X
x 588	39.84	17.400	3.230	1.790	X	X	X
x 650	40.47	17.575	3.540	1.970	X	X	X
x 720	41.19	17.775	3.900	2.165	X	X	X
x 798	41.97	17.990	4.290	2.380	X	X	X
x 848	42.45	18.130	4.530	2.520	X	X	X

STRUCTURAL SHAPES



W BEAMS – Wide Flange

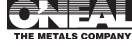
Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-588 GRB	ASTM A-992
W40 x 149	38.20	11.810	0.830	0.630	X	X	X
x 167	38.59	11.810	1.025	0.650	X	X	X
x 183	38.98	11.810	1.220	0.650	X	X	X
x 192	38.20	17.710	0.830	0.710	X	X	X
x 199	38.67	15.750	1.065	0.650	X	X	X
x 215	38.98	15.750	1.220	0.650	X	X	X
x 221	38.67	17.710	1.065	0.710	X	X	X
x 244	39.06	17.710	1.260	0.710	X	X	X
x 249	39.38	15.750	1.420	0.750	X	X	X
x 268	39.37	17.750	1.415	0.750	X	X	X
x 277	39.69	15.830	1.575	0.830	X	X	X
x 297	39.84	15.825	1.650	0.930	X	X	X
x 298	39.69	17.830	1.575	0.830	X	X	X
x 324	40.16	15.905	1.810	1.000	X	X	X
x 328	40.00	17.910	1.730	0.910	X	X	X
x 362	40.55	16.020	2.010	1.120	X	X	X
x 397	40.95	16.120	2.200	1.220	X	X	X
x 436	41.34	16.240	2.400	1.340	X	X	X
x 480	41.81	16.360	2.640	1.460	X	X	X
x 531	42.34	16.510	2.910	1.610	X	X	X
x 593	42.99	16.690	3.230	1.790	X	X	X
x 655	43.62	16.870	3.540	1.970	X	X	X



S BEAMS – Standard

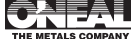
Depth Inches x Lbs./Ft.	Depth of Section In.	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-992
S3 x 5.7	3.00	2.330	0.260	0.170	X	X	X
7.5	3.00	2.509	0.260	0.349	X	X	X
S4 x 7.7	4.00	2.660	0.293	0.193	X	X	X
9.5	4.00	2.796	0.293	0.326	X	X	X
S5 x 10	5.00	3.000	0.326	0.214	X	X	
X							
S6 x 12.5	6.00	3.332	0.359	0.232	X	X	X
17.25	6.00	3.563	0.359	0.464	X	X	X
S7 x 15.3	7.00	3.662	0.392	0.252	X	X	X
20	7.00	3.860	0.392	0.450	X	X	X
S8 x 18.4	8.00	4.001	0.425	0.271	X	X	X
23	8.00	4.171	0.425	0.441	X	X	X
S10 x 25.4	10.00	4.661	0.491	0.311	X	X	X
35	10.00	4.944	0.491	0.594	X	X	X
S12 x 31.8	12.00	5.000	0.544	0.350	X	X	X
35	12.00	5.078	0.544	0.428	X	X	X
40.8	12.00	5.252	0.659	0.462	X	X	X
50	12.00	5.477	0.659	0.687	X	X	X
S15 x 42.9	15.00	5.501	0.622	0.411	X	X	X
50	15.00	5.640	0.622	0.550	X	X	X
S18 x 54.7	18.00	6.001	0.691	0.461	X	X	X
70	18.00	6.251	0.691	0.711	X	X	X
S20 x 66	20.00	6.255	0.795	0.505	X	X	X
75	20.00	6.385	0.795	0.635	X	X	X
86	20.30	7.060	0.920	0.660	X	X	X
96	20.30	7.200	0.920	0.800	X	X	X
S24 x 80	24.00	7.000	0.870	0.500	X	X	X
90	24.00	7.125	0.870	0.625	X	X	X
100	24.00	7.245	0.870	0.745	X	X	X
106	24.50	7.870	1.090	0.620	X	X	X
121	24.50	8.050	1.090	0.800	X	X	X

STRUCTURAL SHAPES



M BEAMS – Miscellaneous

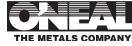
Depth Inches x Lbs./Ft.	Depth of Section In.	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-992
M5 x 18.9	5.00	5.003	0.416	0.316	X	X	X
M6 x 4.4	6.00	1.844	0.171	0.114	X	X	X
M8 x 6.5	8.00	2.281	0.189	0.135	X	X	X
M10 x 8 9	9.95	2.690	0.182	0.141	X	X	X
	10.00	2.690	0.206	0.157	X	X	X
M12 x 10.8 11.8	11.97	3.065	0.210	0.160	X	X	X
	12.00	3.065	0.255	0.177	X	X	X



C CHANNELS – Standard

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-529 Gr. 50
C3 x 4.1	3.00	1.410	0.273	0.170	X	X	X
5	3.00	1.498	0.273	0.258	X	X	X
6	3.00	1.596	0.273	0.356	X	X	X
C4 x 5.4	4.00	1.580	0.296	0.184	X	X	X
7.25	4.00	1.721	0.296	0.321	X	X	X
C5 x 6.7	5.00	1.750	0.320	0.190	X	X	X
9	5.00	1.885	0.320	0.325	X	X	X
C6 x 8.2	6.00	1.920	0.343	0.200	X	X	X
10.5	6.00	2.034	0.343	0.314	X	X	X
13	6.00	2.157	0.343	0.437	X	X	X
C7 x 9.8	7.00	2.090	0.366	0.210	X	X	X
12.25	7.00	2.194	0.366	0.314	X	X	X
14.75	7.00	2.299	0.366	0.419	X	X	X
C8 x 11.5	8.00	2.260	0.390	0.220	X	X	X
13.75	8.00	2.343	0.390	0.303	X	X	X
18.75	8.00	2.527	0.390	0.487	X	X	X
C9 X 13.4	9.00	2.433	0.413	0.233	X	X	X
15	9.00	2.485	0.413	0.285	X	X	X
20	9.00	2.648	0.413	0.448	X	X	X
C10 x 15.3	10.00	2.600	0.436	0.240	X	X	X
20	10.00	2.739	0.436	0.379	X	X	X
25	10.0	2.886	0.436	0.526	X	X	X
30	10.00	3.033	0.436	0.673	X	X	X
C12 x 20.7	12.00	2.942	0.501	0.282	X	X	X
25	12.00	3.047	0.501	0.387	X	X	X
30	12.00	3.170	0.501	0.510	X	X	X
C15 x 33.9	15.00	3.400	0.650	0.400	X	X	X
40	15.00	3.520	0.650	0.520	X	X	X
50	15.00	3.716	0.650	0.716	X	X	X

STRUCTURAL SHAPES



MC CHANNELS – Ship and Car

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thkns Inches	Web Thkns Inches	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-529 Gr. 50
MC3 x 7.1	2.93	1.938	0.351	0.312	X	X	X
MC4 x 13.8	4.00	2.500	0.500	0.500	X	X	X
MC6 x 6.5	6.00	1.840	0.189	0.155	X	X	X
7	6.00	1.870	0.189	0.179	X	X	X
12	6.00	2.497	0.375	0.310	X	X	X
15.1	6.00	2.941	0.475	0.316	X	X	X
15.3	6.00	3.500	0.385	0.340	X	X	X
16.3	6.00	3.000	0.475	0.375	X	X	X
18	6.00	3.504	0.475	0.379	X	X	X
MC7 x 17.6	7.00	3.000	0.475	0.375	X	X	X
19.1	7.00	3.452	0.500	0.352	X	X	X
22.7	7.00	3.603	0.500	0.503	X	X	X
MC8 x 6.6	8.00	1.075	0.159	0.138	X	X	X
8.5	8.00	1.874	0.311	0.179	X	X	X
18.7	8.00	2.978	0.500	0.353	X	X	X
20	8.00	3.025	0.500	0.400	X	X	X
21.4	8.00	3.450	0.525	0.375	X	X	X
22.8	8.00	3.502	0.525	0.427	X	X	X
MC9 x 23.9	9.00	3.450	0.550	0.400	X	X	X
25.4	9.00	3.500	0.550	0.450	X	X	X
MC10 x 6.5	10.00	1.127	0.202	0.152	X	X	X
8.4	10.00	1.500	0.280	0.170	X	X	X
22	10.00	3.315	0.575	0.290	X	X	X
25	10.00	3.405	0.575	0.380	X	X	X
28.5	10.00	3.950	0.575	0.425	X	X	X
33.6	10.00	4.100	0.575	0.575	X	X	X
41.1	10.00	4.321	0.575	0.796	X	X	X
MC12 x 10.6	12.00	1.500	0.309	0.190	X	X	X
31	12.00	3.670	0.700	0.370	X	X	X
35	12.00	3.767	0.700	0.467	X	X	X
40	12.00	3.890	0.700	0.590	X	X	X
45	12.00	4.012	0.700	0.712	X	X	X
50	12.00	4.135	0.700	0.835	X	X	X

STRUCTURAL SHAPES



MC CHANNELS – Ship and Car

Depth Inches x Lbs./Ft.	Depth of Section Inches	Flange Width Inches	Flange Thickness Inches	Web Thickness Inches	ASTM A-36	ASTM A-572 Gr. 50
MC13 x 31.8	13.00	4.000	0.610	0.375	X	X
35	13.00	4.072	0.610	0.447	X	X
40	13.00	4.185	0.610	0.560	X	X
50	13.00	4.412	0.610	0.787	X	X
MC18 x 42.7	18.00	3.950	0.625	0.450	X	X
45.8	18.00	4.000	0.625	0.500	X	X
51.9	18.00	4.100	0.625	0.600	X	X
58	18.00	4.200	0.625	0.700	X	X

CHANNELS – Bar Size

ASTM A-36

Size	Est. Wt. Per Ft.	Size	Est. Wt. Per Ft.
3/4 x 3/8 x 1/8	.56	2 x 1/2 x 1/8	1.47
7/8 x 3/8 x 1/8	.61	2 x 5/8 x 1/4	2.28
1 x 3/8 x 1/8	.68	2 x 1 x 1/8	1.78
1 x 1/2 x 1/8	.84	2 x 1 x 3/16	2.57
1-1/4 x 1/2 x 1/8	1.01	2-1/2 x 5/8 x 3/16	2.27
1-1/2 x 1/2 x 1/8	1.12		
1-1/2 x 3/4 x 1/8	1.17		

STRUCTURAL SHAPES



ANGLES – Bar Size

ASTM A-36

Size In Inches	Est. Lbs./Ft.	Size In Inches	Est. Lbs./Ft.
1/2 x 1/2 x 1/8	.38	2 x 2 x 1/8	1.65
5/8 x 5/8 x 1/8	.48	3/16	2.44
3/4 x 3/4 x 1/8	.59	1/4	3.19
7/8 x 7/8 x 1/8	.70	5/16	3.92
1 x 5/8 x 1/8	.64	3/8	4.70
1 x 1 x 1/8	.80	2-1/2 x 1-1/2 x 3/16	2.44
3/16	1.16	1/4	3.19
1/4	1.49	5/16	3.92
1-1/8 x 1-1/8 x 1/8	.90	2-1/2 x 2 x 3/16	2.75
1-1/4 x 1-1/4 x 1/8	1.01	1/4	3.62
3/16	1.48	5/16	4.50
1/4	1.92	3/8	5.30
1-1/2 x 1-1/4 x 3/16	1.65	2-1/2 x 2-1/2 x 3/16	3.07
1-1/2 x 1-1/2 x 1/8	1.23	1/4	4.10
3/16	1.80	5/16	5.00
1/4	2.34	3/8	5.90
3/8	3.42	1/2	7.70
1-3/4 x 1-1/4 x 1/8	1.23		
3/16	1.80		
1/4	2.34		
1-3/4 x 1-3/4 x 1/8	1.44		
3/16	2.12		
1/4	2.77		
2 x 1-1/4 x 2/16	1.96		
1/4	2.55		
2 x 1-1/2 x 1/8	1.44		
3/16	2.12		
1/4	2.77		

STRUCTURAL SHAPES



ANGLES – Structural

Size In inches	Est. Lbs./Ft.	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-588 Gr. A
3 x 2 x 3/16	3.07	X	X	X
1/4	4.10	X	X	X
5/16	5.00	X	X	X
3/8	5.90	X	X	X
1/2	7.70	X	X	X
3 x 2-1/2 x 3/16	3.39	X	X	X
1/4	4.50	X	X	X
5/16	5.60	X	X	X
3/8	6.60	X	X	X
1/2	8.50	X	X	X
3 x 3 x 3/16	3.71	X	X	X
1/4	4.90	X	X	X
5/16	6.10	X	X	X
3/8	7.20	X	X	X
1/2	9.40	X	X	X
3-1/2 x 2-1/2 x 1/4	4.90	X	X	X
4/16	6.10	X	X	X
3/8	7.20	X	X	X
1/2	9.40	X	X	X
3-1/2 x 3 x 1/4	5.40	X	X	X
5/16	6.60	X	X	X
3/8	7.90	X	X	X
1/2	10.20	X	X	X
3-1/2 x 3-1/2 x 1/4	5.80	X	X	X
5/16	7.20	X	X	X
3/8	8.50	X	X	X
1/2	11.10	X	X	X
4 x 3 x 1/4	5.80	X	X	X
5/16	7.20	X	X	X
3/8	8.50	X	X	X
1/2	11.10	X	X	X
5/8	13.60	X	X	X

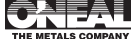
STRUCTURAL SHAPES



ANGLES – Structural

Size In inches	Est. Lbs./Ft.	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-588 Gr. A
4 x 3-1/2 x 1/4	6.20	X	X	X
5/16	7.70	X	X	X
3/8	9.10	X	X	X
1/2	11.90	X	X	X
4 x 4 x 1/4	6.60	X	X	X
5/16	8.20	X	X	X
3/8	9.80	X	X	X
1/2	12.80	X	X	X
5/8	15.70	X	X	X
3/4	18.50	X	X	X
5 x 3 x 1/4	6.60	X	X	X
5/16	8.20	X	X	X
3/8	9.80	X	X	X
1/2	12.80	X	X	X
5 x 3-1/2 x 1/4	7.00	X	X	X
5/16	8.70	X	X	X
3/8	10.40	X	X	X
1/2	13.60	X	X	X
5/8	16.80	X	X	X
3/4	19.80	X	X	X
5 x 5 x 5/16	10.30	X	X	X
3/8	12.30	X	X	X
1/2	16.20	X	X	X
5/8	20.00	X	X	X
3/4	23.60	X	X	X
7/8	27.20	X	X	X
6 x 3-12 x 5/16	9.80	X	X	X
3/8	11.70	X	X	X
1/2	15.30	X	X	X
5/8	18.80	X	X	X
6 x 4 x 5/16	10.30	X	X	X
3/8	12.30	X	X	X
1/2	16.20	X	X	X

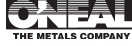
STRUCTURAL SHAPES



ANGLES – Structural

Size In inches	Est. Lbs./Ft.	ASTM A-36	ASTM A-572 Gr. 50	ASTM A-588 Gr. A
6 x 4 x 5/8	20.00	X	X	X
3/4	23.60	X	X	X
6 x 6 x 5/16	12.50	X	X	X
3/8	14.90	X	X	X
1/2	19.60	X	X	X
5/8	24.20	X	X	X
3/4	28.70	X	X	X
7/8	33.10	X	X	X
1	37.40	X	X	X
7 x 4 x 3/8	13.60	X	X	X
1/2	17.90	X	X	X
5/8	22.10	X	X	X
3/4	26.20	X	X	X
8 x 4 x 1/2	19.60	X	X	X
5/8	24.20	X	X	X
3/4	28.70	X	X	X
1	37.40	X	X	X
8 x 6 x 1/2	23.00	X	X	X
3/4	33.80	X	X	X
1	44.20	X	X	X
8 x 8 x 1/2	26.40	X	X	X
5/8	32.70	X	X	X
3/4	38.90	X	X	X
1	51.00	X	X	X
1-1/8	56.90	X	X	X

STRUCTURAL SHAPES



TEES

ASTM A-36

Size In Inches	Est. Lbs./Ft.	Size In Inches	Est. Lbs./Ft.
3/4 x 3/4 x 1/2	.61	1-3/4 x 1-3/4 x 3/16	2.26
		1/4	2.90
1 x 1 x 1/8	.85		
3/16	1.20	2 x 2 x 1/4	3.62
			4.30
1-1/4 x 1-1/4 x 1/8	1.09		
3/16	1.55	2-1/2 x 2-1/2 x 1/4	3.07
		5/16	5.53
1-1/2 x 1-1/2 x 1/8	1.37	3/8	6.40
3/16	1.90		
1/4	2.43		



ALLOY STEEL ROUNDS

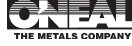
MEDIUM CARBON – ANNEALED*

STOCK LENGTHS – HOT ROLLED - 20 FT. RANDOM

COLD FINISHED - 12 FT. RANDOM

Size In Inches	Weight Per Ft. In Lbs.	STOCK SIZES	
		8620 HR (As Rolled)	8620 CF
2-5/8	18.400		X
2-3/4	20.190	X	X
2-15/16	23.040		X
3	24.030	X	X
3-1/8	26.080		X
3-1/4	28.210	X	X
3-3/8	31.420		X
3-7/16	31.550		X
3-1/2	32.710	X	X
3-3/4	37.550	X	X
3-15/16	41.400	X	X
4	42.730	X	X
4-1/4	48.230	X	
4-1/2	54.080	X	
4-3/4	60.250	X	
5	66.760	X	
5-1/4	73.600	X	
5-1/2	80.780	X	
5-3/4	88.290	X	

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – ANNEALED*

STOCK LENGTHS – HOT ROLLED - 20 FT. RANDOM

COLD FINISHED - 12 FT. RANDOM

Size In Inches	Weight Per Ft. In Lbs.	STOCK SIZES	
		4140/42 HR	4140/42 CF
6	96.130	X	
6-1/4	104.300	X	
6-1/2	112.820	X	
6-3/4	121.700	X	
7	130.900	X	
7-1/2	150.200	X	
8	170.900	X	
8-1/2	192.930	X	
9	216.300	X	
9-1/2	241.000	X	
10	267.000	X	

*All 4140/42 annealed furnished to special straightness tolerances.

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED

STOCK LENGTHS – 12 - 20 FT. RANDOM –

HR 4140/42, CF 4140/42, E.T.D. 150®,
4140 ALL THREAD, A193-B7

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL
STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140/42 HR	4140/42 CF	ETD 150® CF	4140 All Thread	A193 B7
3/8	.344				X	
1/2	.668		X	X	X	
5/8	1.044		X	X	X	
3/4	1.502	X	X	X	X	
7/8	2.045		X	X	X	
1	2.670	X	X	X	X	X
1-1/8	3.380		X	X	X	X
1-3/16	3.770			X		
1-1/4	4.172	X	X	X	X	X
1-5/16	4.600					
1-3/8	5.050	X	X	X		X
1-7/16	5.520		X			X
1-1/2	6.010	X	X	X	X	X
1-5/8	7.052		X	X		
1-3/4	8.180	X	X	X		X
1-7/8	9.390			X		
1-15/16	10.020					

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED

STOCK LENGTHS – 12 - 20 FT. RANDOM –

HR 4140/42, CF 4140/42, E.T.D. 150®,

4140 ALL THREAD, A193-B7

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140/42 HR	4140/42 CF	ETD 150® CF	4140 All Thread	A193 B7
2	10.680	X	X	X	X	X
2-1/8	12.060		X	X		
2-3/16	12.780					
2-1/4	13.520	X	X	X		
2-3/8	15.060	X	X			X
2-7/16	15.870		X			
2-1/2	16.690	X	X	X		X
2-5/8	18.400		X			
2-3/4	20.190	X	X	X		X
2-15/16	23.040		X			
3	24.030	X	X	X		X
3-1/8	26.080	X	X	X		X
3-1/4	28.210	X	X			
3-3/8	31.420		X			
3-7/16	31.550		X			X
3-1/2	32.710	X	X			X
3-5/8	35.090					

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED

STOCK LENGTHS – 12 - 20 FT. RANDOM –

HR 4140/42, CF 4140/42, E.T.D. 150®,
4140 ALL THREAD, A193-B7

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL
STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140/42 HR	4140/42 CF	ETD 150® CF	4140 All Thread	A193 B7
3-3/4	37.550	X	X			X
3-15/16	41.400		X	X	X	X
4	42.730	X	X			X
4-1/4	48.230	X				X
4-7/16	52.580					
4-1/2	54.080	X				X
4-3/4	60.250	X				
4-15/16	65.100					
5	66.760	X				X
5-1/4	73.600	X				
5-1/2	80.780	X				X
5-3/4	88.290	X				X
6	96.130	X				X
6-1/4	104.300	X				
6-1/2	112.820	X				X
6-5/8	117.200					
6-3/4	121.700	X				X

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED

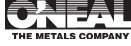
STOCK LENGTHS – 12 - 20 FT. RANDOM –

HR 4140/42, CF 4140/42, E.T.D. 150®,
4140 ALL THREAD, A193-B7

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL
STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140/42 HR	4140/42 CF	ETD 150® CF	4140 All Thread	A193 B7
7	130.900	X				X
7-1/4	140.400					
7-1/2	150.200	X				X
8	170.900	X				
8-1/2	192.930	X				
9	216.300	X				X
9-1/2	241.000	X				
10	267.000	X				
12	395.833	X				
13	469.000	X				
14	520.000	X				
15	610.800	X				
16	685.714					
20	1067.000	X				

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED
 STOCK LENGTHS – 20 FT. RANDOM –
 ALL ITEMS,
 HR 4340, 4340 RT FORGINGS

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL
 STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140 & 4150 Mod RS HR	4140 & 4150 Mod RS CF *	4140 & 4150 Mod RS CF-TG&P	4340 HR	RT Forging 4340
3/8	.344					
1/2	.668					
5/8	1.044		X			
3/4	1.502	X	X			
7/8	2.045	X	X			
1	2.670	X	X	X		
1-1/8	3.380	X	X			
1-3/16	3.770			X		
1-1/4	4.172	X	X	X		
1-5/16	4.600		X			
1-3/8	5.050	X	X			
1-7/16	5.520	X	X	X		
1-1/2	6.010	X	X	X		
1-5/8	7.052	X	X	X		
1-3/4	8.180	X	X	X		
1-7/8	9.390	X	X			
1-15/16	10.020		X	X		

STRUCTURAL SHAPES



ALLOY STEEL ROUNDS

MEDIUM CARBON – HEAT TREATED
 STOCK LENGTHS – 20 FT. RANDOM –
 ALL ITEMS,
 HR 4340, 4340 RT FORGINGS

QUENCHED, TEMPERED, STRESS RELIEVED, SPECIAL
 STRAIGHTNESS

Size In Inches	Wt. Per Ft. In Lbs.	STOCK SIZES				
		4140 & 4150 Mod RS HR	4140 & 4150 Mod RS CF *	4140 & 4150 Mod RS CF-TG&P	4340 HR	RT Forging 4340
2	10.680	X	X	X		
2-1/8	12.060		X			
2-3/16	12.780	X	X	X		
2-1/4	13.520	X	X	X		
2-3/8	15.060	X	X			
2-7/16	15.870		X	X		
2-1/2	16.690	X	X	X	X	
2-5/8	18.400	X				
2-3/4	20.190	X	X	X	X	
2-15/16	23.040		X	X		
3	24.030	X	X	X	X	
3-1/8	26.080	X				
3-1/4	28.210	X	X	X	X	
3-3/8	31.420					
3-7/16	31.550		X	X		
3-1/2	32.710	X	X	X	X	
3-5/8	35.090	X				

STRUCTURAL SHAPES

STRUCTURAL SHAPES

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