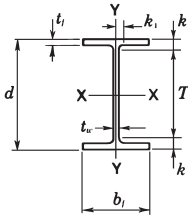


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January 2008

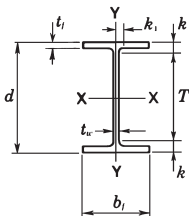


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web			Flange				Distance		
				Thickness t_w	$\frac{t_w}{2}$	Width b_f	Thickness t_f	T	k	k_f			
											In.	In.	In.
W 4x13	3.83	4.16	4%	0.280	$\frac{1}{4}$	$\frac{1}{8}$	4.060	4	0.345	$\frac{3}{8}$	2 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
W 5x16 x19	4.71	5.01	5	0.240	$\frac{1}{4}$	$\frac{1}{8}$	5.000	5	0.360	$\frac{3}{8}$	3 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{16}$
	5.56	5.15	5%	0.270	$\frac{1}{4}$	$\frac{1}{8}$	5.030	5	0.430	$\frac{7}{16}$	3 $\frac{1}{2}$	1 $\frac{3}{16}$	$\frac{7}{16}$
W 6x9 x12 x16	2.68	5.90	5%	0.170	$\frac{3}{16}$	$\frac{1}{8}$	3.940	4	0.215	$\frac{3}{16}$	4 $\frac{1}{2}$	1 $\frac{1}{16}$	$\frac{1}{2}$
	3.55	6.03	6	0.230	$\frac{1}{4}$	$\frac{1}{8}$	4.000	4	0.280	$\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{9}{16}$
	4.74	6.28	6%	0.260	$\frac{1}{4}$	$\frac{1}{8}$	4.030	4	0.405	$\frac{3}{8}$	4 $\frac{1}{2}$	$\frac{7}{8}$	$\frac{9}{16}$
W 6x15 x20 x25	4.45	5.99	6	0.230	$\frac{1}{4}$	$\frac{1}{8}$	5.990	6	0.260	$\frac{1}{4}$	4 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{9}{16}$
	5.89	6.20	6%	0.260	$\frac{1}{4}$	$\frac{1}{8}$	6.020	6	0.365	$\frac{3}{8}$	4 $\frac{1}{2}$	$\frac{7}{8}$	$\frac{9}{16}$
	7.36	6.38	6%	0.320	$\frac{5}{16}$	$\frac{3}{16}$	6.080	6%	0.455	$\frac{7}{16}$	4 $\frac{1}{2}$	1 $\frac{5}{16}$	$\frac{9}{16}$
W 8x10 x13 x15	2.96	7.89	7%	0.170	$\frac{3}{16}$	$\frac{1}{8}$	3.940	4	0.205	$\frac{3}{16}$	6 $\frac{1}{2}$	1 $\frac{1}{16}$	$\frac{1}{2}$
	3.84	7.99	8	0.230	$\frac{1}{4}$	$\frac{1}{8}$	4.000	4	0.255	$\frac{1}{4}$	6 $\frac{1}{2}$	$\frac{3}{4}$	$\frac{9}{16}$
	4.44	8.11	8%	0.245	$\frac{1}{4}$	$\frac{1}{8}$	4.015	4	0.315	$\frac{5}{16}$	6 $\frac{1}{2}$	1 $\frac{3}{16}$	$\frac{9}{16}$
W 8x18 x21	5.26	8.14	8%	0.230	$\frac{1}{4}$	$\frac{1}{8}$	5.250	5%	0.330	$\frac{5}{16}$	6 $\frac{1}{2}$	1 $\frac{3}{16}$	$\frac{9}{16}$
	6.16	8.28	8%	0.250	$\frac{1}{4}$	$\frac{1}{8}$	5.270	5%	0.400	$\frac{3}{8}$	6 $\frac{1}{2}$	$\frac{7}{8}$	$\frac{9}{16}$
W 8x24 x28	7.08	7.93	7%	0.245	$\frac{1}{4}$	$\frac{1}{8}$	6.495	6%	0.400	$\frac{3}{8}$	6%	$\frac{7}{8}$	$\frac{9}{16}$
	8.24	8.06	8	0.285	$\frac{5}{16}$	$\frac{3}{16}$	6.535	6%	0.465	$\frac{7}{16}$	6%	1 $\frac{5}{16}$	$\frac{5}{8}$
W 8x31 x35 x40 x48 x58 x67	9.12	8.00	8	0.285	$\frac{5}{16}$	$\frac{3}{16}$	7.995	8	0.435	$\frac{7}{16}$	5 $\frac{3}{4}$	1 $\frac{1}{8}$	$\frac{3}{4}$
	10.3	8.12	8%	0.310	$\frac{5}{16}$	$\frac{3}{16}$	8.020	8	0.495	$\frac{1}{2}$	5 $\frac{3}{4}$	1 $\frac{3}{16}$	1 $\frac{3}{16}$
	11.7	8.25	8%	0.360	$\frac{3}{8}$	$\frac{3}{16}$	8.070	8%	0.560	$\frac{9}{16}$	5 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{16}$
	14.1	8.50	8%	0.400	$\frac{3}{8}$	$\frac{3}{16}$	8.110	8%	0.685	1 $\frac{1}{16}$	5 $\frac{3}{4}$	1%	1 $\frac{3}{16}$
	17.1	8.75	8%	0.510	$\frac{1}{2}$	$\frac{1}{4}$	8.220	8%	0.810	1 $\frac{3}{16}$	5 $\frac{3}{4}$	1 $\frac{1}{2}$	$\frac{7}{8}$
	19.7	9.00	9	0.570	$\frac{9}{16}$	$\frac{5}{16}$	8.280	8%	0.935	1 $\frac{5}{16}$	5 $\frac{3}{4}$	1%	1 $\frac{5}{16}$

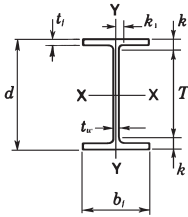


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d	Web			Flange				Distance				
			Thickness t_w		$\frac{t_w}{2}$	Width b_f		Thickness t_f		T	k	k_1		
			In.	In.		In.	In.	In.	In.				In.	In.
W 10x 12	3.54	9.87	9%	0.190	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	3.960	4	0.210	$\frac{3}{16}$	8%	$\frac{3}{8}$	$\frac{9}{16}$
x 15	4.41	9.99	10	0.230	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	4.000	4	0.270	$\frac{1}{4}$	8%	$\frac{13}{16}$	$\frac{9}{16}$
x 17	4.99	10.11	10%	0.240	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	4.010	4	0.330	$\frac{5}{16}$	8%	$\frac{7}{8}$	$\frac{9}{16}$
x 19	5.62	10.24	10%	0.250	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	4.020	4	0.395	$\frac{3}{8}$	8%	$\frac{15}{16}$	$\frac{5}{8}$
W 10x 22	6.49	10.17	10%	0.240	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	5.750	5%	0.360	$\frac{3}{8}$	8%	$\frac{15}{16}$	$\frac{5}{8}$
x 26	7.61	10.33	10%	0.260	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	5.770	5%	0.440	$\frac{7}{16}$	8%	$1\frac{1}{16}$	$1\frac{1}{16}$
x 30	8.84	10.47	10%	0.300	$\frac{3}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	5.810	5%	0.510	$\frac{1}{2}$	8%	$1\frac{1}{8}$	$1\frac{1}{16}$
W 10x 33	9.71	9.73	9%	0.290	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	7.960	8	0.435	$\frac{7}{16}$	7%	$1\frac{1}{8}$	$\frac{3}{4}$
x 39	11.5	9.92	9%	0.315	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	7.985	8	0.530	$\frac{1}{2}$	7%	$1\frac{3}{16}$	$1\frac{3}{16}$
x 45	13.3	10.10	10%	0.350	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{3}{16}$	8.020	8	0.620	$\frac{5}{8}$	7%	$1\frac{5}{16}$	$1\frac{3}{16}$
W 10x 49	14.4	9.98	10	0.340	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	10.000	10	0.560	$\frac{9}{16}$	7%	$1\frac{1}{4}$	$1\frac{3}{16}$
x 54	15.8	10.09	10%	0.370	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{3}{16}$	10.030	10	0.615	$\frac{5}{8}$	7%	$1\frac{5}{16}$	$1\frac{3}{16}$
x 60	17.6	10.22	10%	0.420	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	10.080	10%	0.680	$1\frac{1}{16}$	7%	$1\frac{1}{8}$	$1\frac{3}{16}$
x 68	20.0	10.40	10%	0.470	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	10.130	10%	0.770	$\frac{3}{4}$	7%	$1\frac{7}{16}$	$\frac{7}{8}$
x 77	22.6	10.60	10%	0.530	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	10.190	10%	0.870	$\frac{7}{8}$	7%	$1\frac{1}{8}$	$\frac{7}{8}$
x 88	25.9	10.84	10%	0.605	$\frac{5}{8}$	$\frac{5}{16}$	$\frac{5}{16}$	10.265	10%	0.990	1	7%	$1\frac{11}{16}$	$1\frac{5}{16}$
x100	29.4	11.10	11%	0.680	$1\frac{1}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	10.340	10%	1.120	$1\frac{1}{8}$	7%	$1\frac{13}{16}$	1
x112	32.9	11.36	11%	0.755	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	10.415	10%	1.250	$1\frac{1}{4}$	7%	$1\frac{15}{16}$	1

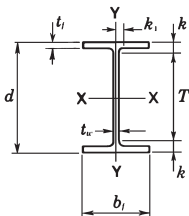


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web			Flange				Distance		
				Thickness t_w		Width b_f	Thickness t_f		T	k	k_i		
				In.	$\frac{t_w}{2}$		In.	In.				In.	
In. ²	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
W 12x 14	4.16	11.91	11 $\frac{1}{8}$	0.200	$\frac{3}{16}$	$\frac{1}{8}$	3.970	4	0.225	$\frac{1}{4}$	10 $\frac{1}{8}$	$\frac{3}{4}$	$\frac{9}{16}$
x 16	4.71	11.99	12	0.220	$\frac{1}{4}$	$\frac{1}{8}$	3.990	4	0.265	$\frac{1}{4}$	10 $\frac{1}{8}$	$1\frac{1}{16}$	$\frac{9}{16}$
x 19	5.57	12.16	12 $\frac{1}{2}$	0.235	$\frac{1}{4}$	$\frac{1}{8}$	4.005	4	0.350	$\frac{3}{8}$	10 $\frac{1}{8}$	$\frac{7}{8}$	$\frac{9}{16}$
x 22	6.48	12.31	12 $\frac{3}{4}$	0.260	$\frac{1}{4}$	$\frac{1}{8}$	4.030	4	0.425	$\frac{7}{16}$	10 $\frac{1}{8}$	$1\frac{1}{16}$	$\frac{5}{8}$
W 12x 26	7.65	12.22	12 $\frac{1}{2}$	0.230	$\frac{1}{4}$	$\frac{1}{8}$	6.490	6 $\frac{1}{2}$	0.380	$\frac{3}{8}$	10 $\frac{1}{8}$	1 $\frac{1}{16}$	$\frac{3}{4}$
x 30	8.79	12.34	12 $\frac{1}{2}$	0.260	$\frac{1}{4}$	$\frac{1}{8}$	6.520	6 $\frac{1}{2}$	0.440	$\frac{7}{16}$	10 $\frac{1}{8}$	1 $\frac{1}{8}$	$\frac{3}{4}$
x 35	10.3	12.50	12 $\frac{1}{2}$	0.300	$\frac{5}{16}$	$\frac{3}{16}$	6.560	6 $\frac{1}{2}$	0.520	$\frac{1}{2}$	10 $\frac{1}{8}$	1 $\frac{1}{16}$	$\frac{3}{4}$
W 12x 40	11.7	11.94	12	0.295	$\frac{5}{16}$	$\frac{3}{16}$	8.005	8	0.515	$\frac{1}{2}$	9 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{7}{8}$
x 45	13.1	12.06	12	0.335	$\frac{5}{16}$	$\frac{3}{16}$	8.045	8	0.575	$\frac{5}{16}$	9 $\frac{1}{4}$	1 $\frac{1}{8}$	$1\frac{15}{16}$
x 50	14.6	12.19	12 $\frac{1}{2}$	0.370	$\frac{3}{8}$	$\frac{3}{16}$	8.080	8 $\frac{1}{2}$	0.640	$\frac{5}{8}$	9 $\frac{1}{4}$	1 $\frac{1}{2}$	$1\frac{15}{16}$
W 12x 53	15.6	12.06	12	0.345	$\frac{3}{8}$	$\frac{3}{16}$	9.995	10	0.575	$\frac{9}{16}$	9 $\frac{1}{4}$	1 $\frac{1}{8}$	$1\frac{15}{16}$
x 58	17.0	12.19	12 $\frac{1}{2}$	0.360	$\frac{3}{8}$	$\frac{3}{16}$	10.010	10	0.640	$\frac{3}{8}$	9 $\frac{1}{4}$	1 $\frac{1}{2}$	$1\frac{15}{16}$
W 12x 65	19.1	12.12	12 $\frac{1}{2}$	0.390	$\frac{3}{8}$	$\frac{3}{16}$	12.000	12	0.605	$\frac{5}{8}$	9 $\frac{1}{4}$	1 $\frac{1}{2}$	1
x 72	21.1	12.25	12 $\frac{1}{2}$	0.430	$\frac{7}{16}$	$\frac{1}{4}$	12.040	12	0.670	$1\frac{1}{16}$	9 $\frac{1}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$
x 79	23.2	12.38	12 $\frac{1}{2}$	0.470	$\frac{1}{2}$	$\frac{1}{4}$	12.080	12 $\frac{1}{2}$	0.735	$\frac{3}{4}$	9 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{16}$
x 87	25.6	12.53	12 $\frac{1}{2}$	0.515	$\frac{1}{2}$	$\frac{1}{4}$	12.125	12 $\frac{1}{2}$	0.810	$1\frac{3}{16}$	9 $\frac{1}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{16}$
x 96	28.2	12.71	12 $\frac{1}{2}$	0.550	$\frac{5}{8}$	$\frac{5}{16}$	12.160	12 $\frac{1}{2}$	0.900	$\frac{7}{8}$	9 $\frac{1}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{8}$
x106	31.2	12.89	12 $\frac{1}{2}$	0.610	$\frac{3}{4}$	$\frac{5}{16}$	12.220	12 $\frac{1}{2}$	0.990	1	9 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
x120	35.3	13.12	13 $\frac{1}{8}$	0.710	$1\frac{1}{16}$	$\frac{3}{8}$	12.320	12 $\frac{1}{2}$	1.105	1 $\frac{1}{8}$	9 $\frac{1}{4}$	2	1 $\frac{1}{8}$
x136	39.9	13.41	13 $\frac{3}{8}$	0.790	$1\frac{3}{16}$	$\frac{7}{16}$	12.400	12 $\frac{3}{4}$	1.250	1 $\frac{1}{4}$	9 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$
x152	44.7	13.71	13 $\frac{3}{8}$	0.870	$\frac{7}{8}$	$\frac{3}{8}$	12.480	12 $\frac{3}{4}$	1.400	1 $\frac{1}{2}$	9 $\frac{1}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$
x170	50.0	14.03	14	0.960	$1\frac{1}{2}$	$\frac{1}{2}$	12.570	12 $\frac{3}{4}$	1.560	1 $\frac{5}{8}$	9 $\frac{1}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{8}$
x190	55.8	14.38	14 $\frac{1}{2}$	1.060	1 $\frac{5}{8}$	$\frac{9}{16}$	12.670	12 $\frac{3}{4}$	1.735	1 $\frac{3}{4}$	9 $\frac{1}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{8}$
x210	61.8	14.71	14 $\frac{3}{4}$	1.180	1 $\frac{7}{8}$	$\frac{5}{8}$	12.790	12 $\frac{3}{4}$	1.900	1 $\frac{7}{8}$	9 $\frac{1}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{8}$
x230	67.7	15.05	15	1.285	1 $\frac{7}{8}$	$1\frac{1}{16}$	12.895	12 $\frac{3}{4}$	2.070	2 $\frac{1}{8}$	9 $\frac{1}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{2}$
x252	74.0	15.41	15 $\frac{1}{2}$	1.395	1 $\frac{7}{8}$	$1\frac{1}{16}$	13.005	13	2.250	2 $\frac{1}{4}$	9 $\frac{1}{4}$	3 $\frac{1}{4}$	1 $\frac{1}{2}$
x279	81.9	15.85	15 $\frac{3}{4}$	1.530	1 $\frac{7}{8}$	$\frac{3}{4}$	13.140	13 $\frac{1}{2}$	2.470	2 $\frac{1}{2}$	9 $\frac{1}{4}$	3 $\frac{3}{8}$	1 $\frac{1}{2}$
x305	89.6	16.32	16 $\frac{1}{2}$	1.625	1 $\frac{7}{8}$	$1\frac{3}{16}$	13.235	13 $\frac{3}{4}$	2.705	2 $\frac{11}{16}$	9 $\frac{1}{4}$	3 $\frac{5}{8}$	1 $\frac{1}{2}$
x336	98.8	16.82	16 $\frac{3}{4}$	1.775	1 $\frac{7}{8}$	$\frac{7}{8}$	13.385	13 $\frac{3}{4}$	2.955	2 $\frac{15}{16}$	9 $\frac{1}{4}$	3 $\frac{3}{4}$	1 $\frac{1}{2}$

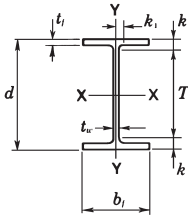


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web			Flange				Distance			
				Thickness t_w	$\frac{t_w}{2}$		Width b_f		Thickness t_f		T	k	k_1	
					In.	In.	In.	In.	In.	In.				In.
W 14x 22	6.49	13.74	13%	0.230	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	5.000	5	0.335	$\frac{5}{16}$	11%	1 $\frac{1}{16}$	$\frac{3}{4}$
x 26	7.69	13.91	13%	0.255	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	5.025	5	0.420	$\frac{7}{16}$	11%	1 $\frac{1}{8}$	$\frac{3}{4}$
W 14x 30	8.85	13.8	13%	0.270	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{8}$	6.730	6 $\frac{3}{4}$	0.385	$\frac{5}{16}$	11%	1 $\frac{1}{8}$	$\frac{3}{4}$
x 34	10.0	14.0	14	0.285	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	6.745	6 $\frac{3}{4}$	0.455	$\frac{7}{16}$	11%	1 $\frac{3}{16}$	$\frac{3}{4}$
x 38	11.2	14.1	14%	0.310	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	6.770	6 $\frac{3}{4}$	0.515	$\frac{1}{2}$	11%	1 $\frac{1}{4}$	1 $\frac{3}{16}$
W 14x 43	12.6	13.66	13%	0.305	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	7.995	8	0.530	$\frac{1}{2}$	10%	1 $\frac{1}{8}$	1
x 48	14.1	13.79	13%	0.340	$\frac{5}{16}$	$\frac{3}{16}$	$\frac{3}{16}$	8.030	8	0.595	$\frac{5}{8}$	10%	1 $\frac{7}{16}$	1
x 53	15.6	13.92	13%	0.370	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{3}{16}$	8.060	8	0.660	1 $\frac{1}{16}$	10%	1 $\frac{1}{2}$	1
W 14x 61	17.9	13.89	13%	0.375	$\frac{3}{8}$	$\frac{3}{16}$	$\frac{3}{16}$	9.995	10	0.645	$\frac{5}{8}$	10%	1 $\frac{1}{2}$	1
x 68	20.0	14.04	14	0.415	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	10.035	10	0.720	$\frac{3}{4}$	10%	1 $\frac{9}{16}$	1 $\frac{1}{16}$
x 74	21.8	14.17	14%	0.450	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	10.070	10%	0.785	1 $\frac{3}{16}$	10%	1 $\frac{1}{8}$	1 $\frac{1}{16}$
x 82	24.0	14.31	14%	0.510	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	10.130	10%	0.855	$\frac{7}{8}$	10%	1 $\frac{11}{16}$	1 $\frac{1}{16}$
W 14x 90	26.5	14.02	14	0.440	$\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	14.520	14 $\frac{1}{2}$	0.710	1 $\frac{1}{16}$	10	2	1 $\frac{1}{16}$
x 99	29.1	14.16	14%	0.485	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	14.565	14%	0.780	$\frac{3}{4}$	10	2 $\frac{1}{16}$	1 $\frac{1}{16}$
x109	32.0	14.32	14%	0.525	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	14.605	14%	0.860	$\frac{7}{8}$	10	2 $\frac{1}{8}$	1 $\frac{1}{2}$
x120	35.3	14.48	14 $\frac{1}{2}$	0.590	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	14.670	14%	0.940	1 $\frac{5}{16}$	10	2 $\frac{1}{4}$	1 $\frac{1}{2}$
x132	38.8	14.66	14%	0.645	$\frac{5}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	14.725	14%	1.030	1	10	2 $\frac{5}{16}$	1 $\frac{1}{16}$

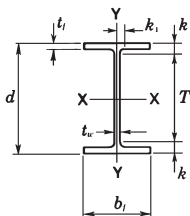


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web		Flange				Distance			
				Thickness t _w		Width b _f		Thickness t _f		T	k	k _i	
				In.	$\frac{t_w}{2}$	In.	In.	In.	In.	In.	In.	In.	
W 14x145	42.7	14.78	14%	0.680	$\frac{1}{8}$	$\frac{3}{8}$	15.500	15%	1.090	$\frac{1}{8}$	10	2%	$\frac{1}{16}$
x159	46.7	14.98	15	0.745	$\frac{3}{8}$	$\frac{3}{8}$	15.565	15%	1.190	$\frac{1}{8}$	10	2½	$\frac{1}{16}$
x176	51.8	15.22	15½	0.830	$\frac{13}{16}$	$\frac{7}{8}$	15.650	15%	1.310	$\frac{1}{8}$	10	2%	1%
x193	56.8	15.48	15½	0.890	$\frac{7}{8}$	$\frac{7}{8}$	15.710	15%	1.440	$\frac{1}{8}$	10	2¾	1½
x211	62.0	15.72	15½	0.980	1	$\frac{1}{2}$	15.800	15%	1.560	$\frac{1}{8}$	10	2%	1½
x233	68.5	16.04	16	1.070	$\frac{1}{8}$	$\frac{9}{16}$	15.890	15%	1.720	$\frac{1}{4}$	10	3	1%
x257	75.6	16.38	16%	1.175	$\frac{1}{8}$	$\frac{5}{8}$	15.995	16	1.890	$\frac{1}{8}$	10	3½	1½
x283	83.3	16.74	16%	1.290	$\frac{1}{8}$	$\frac{5}{8}$	16.110	16%	2.070	$\frac{2}{8}$	10	3%	1%
x311	91.4	17.12	17%	1.410	$\frac{1}{8}$	$\frac{3}{4}$	16.230	16%	2.260	$\frac{2}{4}$	10	3½	1½
x342	101.0	17.54	17½	1.540	$\frac{1}{8}$	$\frac{13}{16}$	16.360	16%	2.470	$\frac{2}{8}$	10	3¾	2
x370	109.0	17.92	17%	1.655	$\frac{1}{8}$	$\frac{13}{16}$	16.475	16%	2.660	$\frac{2}{16}$	10	3½	2½
x398	117.0	18.29	18%	1.770	$\frac{1}{4}$	$\frac{7}{8}$	16.590	16%	2.845	$\frac{2}{8}$	10	4%	2%
x426	125.0	18.67	18%	1.875	$\frac{1}{8}$	$\frac{15}{16}$	16.695	16%	3.035	$\frac{3}{8}$	10	4½	2½
W 14x455	134.0	19.02	19	2.015	2	1	16.835	16%	3.210	$\frac{3}{8}$	10	4½	2¼
x500	147.0	19.60	19%	2.190	$\frac{2}{8}$	$\frac{1}{8}$	17.010	17	3.500	$\frac{3}{2}$	10	4½	2½
x550	162.0	20.24	20%	2.380	2%	$\frac{1}{16}$	17.200	17%	3.820	$\frac{3}{16}$	10	5%	2%
x605	178.0	20.92	20%	2.595	2%	$\frac{1}{16}$	17.415	17%	4.160	$\frac{4}{8}$	10	5½	2½
x665	196.0	21.64	21%	2.830	$\frac{2}{16}$	$\frac{1}{16}$	17.650	17%	4.520	$\frac{4}{2}$	10	5½	2%
x730	215.0	22.42	22%	3.070	$\frac{3}{8}$	$\frac{1}{16}$	17.890	17%	4.910	$\frac{4}{16}$	10	6½	2%

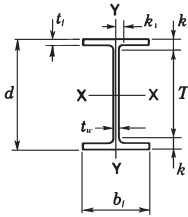


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web			Flange				Distance		
				Thickness t_w		Width b_f	Thickness t_f	T	k	k_1			
				In.	In.						In.	In.	In.
W 16x 26	7.68	15.69	15%	0.250	$\frac{1}{8}$	$\frac{3}{8}$	5.500	5½	0.345	$\frac{5}{16}$	13%	1½	$\frac{3}{8}$
x 31	9.12	15.88	15%	0.275	$\frac{1}{4}$	$\frac{3}{8}$	5.525	5½	0.440	$\frac{7}{16}$	13%	1½	$\frac{3}{8}$
W 16x 36	10.6	15.86	15%	0.295	$\frac{5}{16}$	$\frac{3}{8}$	6.985	7	0.430	$\frac{7}{16}$	13%	1½	$\frac{3}{8}$
x 40	11.8	16.01	16	0.305	$\frac{5}{16}$	$\frac{3}{8}$	6.995	7	0.505	$\frac{1}{2}$	13%	1½	$\frac{13}{16}$
x 45	13.3	16.13	16%	0.345	$\frac{3}{8}$	$\frac{3}{8}$	7.035	7	0.565	$\frac{5}{8}$	13%	1¼	$\frac{13}{16}$
x 50	14.7	16.26	16%	0.380	$\frac{3}{8}$	$\frac{3}{8}$	7.070	7½	0.630	$\frac{5}{8}$	13%	1½	$\frac{13}{16}$
x 57	16.8	16.43	16%	0.430	$\frac{7}{16}$	$\frac{1}{2}$	7.120	7½	0.715	$\frac{11}{16}$	13%	1½	$\frac{3}{8}$
W 16x 67	20.0	16.33	16%	0.395	$\frac{3}{8}$	$\frac{3}{8}$	10.235	10¼	0.665	$\frac{11}{16}$	13¼	1½	1
x 77	22.9	16.52	16½	0.455	$\frac{7}{16}$	$\frac{1}{2}$	10.295	10%	0.760	$\frac{3}{4}$	13¼	1½	1½
x 89	26.4	16.75	16%	0.525	$\frac{1}{2}$	$\frac{1}{2}$	10.365	10%	0.875	$\frac{7}{8}$	13¼	1½	1½
x100	29.7	16.97	17	0.585	$\frac{5}{8}$	$\frac{3}{8}$	10.425	10%	0.985	1	13¼	1½	1½
W 18x 35	10.3	17.70	17%	0.300	$\frac{5}{16}$	$\frac{3}{8}$	6.000	6	0.425	$\frac{7}{16}$	15½	1½	$\frac{3}{8}$
x 40	11.8	17.90	17%	0.315	$\frac{5}{16}$	$\frac{3}{8}$	6.015	6	0.525	$\frac{1}{2}$	15½	1½	$\frac{13}{16}$
x 46	13.5	18.06	18	0.360	$\frac{3}{8}$	$\frac{3}{8}$	6.060	6	0.605	$\frac{5}{8}$	15½	1¼	$\frac{13}{16}$
W 18x 50	14.7	17.99	18	0.355	$\frac{3}{8}$	$\frac{3}{8}$	7.495	7½	0.570	$\frac{5}{8}$	15½	1½	$\frac{13}{16}$
x 55	16.2	18.11	18%	0.390	$\frac{3}{8}$	$\frac{3}{8}$	7.530	7½	0.630	$\frac{5}{8}$	15½	1½	$\frac{13}{16}$
x 60	17.6	18.24	18¼	0.415	$\frac{7}{16}$	$\frac{1}{2}$	7.555	7½	0.695	$\frac{11}{16}$	15½	1½	$\frac{13}{16}$
x 65	19.1	18.35	18%	0.450	$\frac{7}{16}$	$\frac{1}{2}$	7.590	7½	0.750	$\frac{3}{4}$	15½	1½	$\frac{3}{8}$
x 71	20.8	18.47	18%	0.495	$\frac{1}{2}$	$\frac{1}{2}$	7.635	7½	0.810	$\frac{13}{16}$	15½	1½	$\frac{3}{8}$
W 18x 76	22.3	18.21	18¼	0.425	$\frac{7}{16}$	$\frac{1}{2}$	11.035	11	0.680	$\frac{11}{16}$	15½	1½	1½
x 86	25.3	18.39	18%	0.480	$\frac{1}{2}$	$\frac{1}{2}$	11.090	11½	0.770	$\frac{3}{4}$	15½	1½	1½
x 97	28.5	18.59	18%	0.535	$\frac{5}{8}$	$\frac{3}{8}$	11.145	11½	0.870	$\frac{7}{8}$	15½	1½	1½
x106	31.1	18.73	18%	0.590	$\frac{5}{8}$	$\frac{3}{8}$	11.200	11¼	0.940	$\frac{15}{16}$	15½	1½	1½
x119	35.1	18.97	19	0.655	$\frac{5}{8}$	$\frac{3}{8}$	11.265	11¼	1.060	1½	15½	1½	1½
x130	38.2	19.3	19¼	0.670	$\frac{11}{16}$	$\frac{3}{8}$	11.2	11½	1.20	1½	15½	2½	1½
x143	42.1	19.5	19½	0.73	$\frac{3}{4}$	$\frac{3}{8}$	11.2	11¼	1.32	$\frac{15}{16}$	15½	2½	1½
x158	46.3	19.7	19¾	0.810	$\frac{13}{16}$	$\frac{7}{16}$	11.3	11¼	1.44	1½	15½	2½	1¼

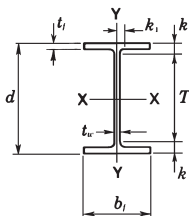


WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web		Flange				Distance			
				Thickness t_w	$\frac{t_w}{2}$	Width b_f		Thickness t_f		T	k	k_f	
						In.	In.	In.	In.				In.
W 21x 44	13.0	20.66	20%	0.350	$\frac{3}{8}$	$\frac{3}{8}$	6.500	6 $\frac{1}{2}$	0.450	$\frac{7}{16}$	18 $\frac{3}{8}$	1 $\frac{1}{8}$	$\frac{13}{16}$
x 50	14.7	20.83	20 $\frac{1}{2}$	0.380	$\frac{3}{8}$	$\frac{3}{8}$	6.530	6 $\frac{1}{2}$	0.535	$\frac{9}{16}$	18 $\frac{3}{8}$	1 $\frac{1}{4}$	$\frac{13}{16}$
x 57	16.7	21.06	21	0.405	$\frac{3}{8}$	$\frac{3}{8}$	6.555	6 $\frac{1}{2}$	0.650	$\frac{5}{8}$	18 $\frac{3}{8}$	1 $\frac{5}{16}$	$\frac{13}{16}$
W 21x 62	18.3	20.99	21	0.400	$\frac{3}{8}$	$\frac{3}{8}$	8.240	8 $\frac{1}{4}$	0.615	$\frac{5}{8}$	18 $\frac{3}{8}$	1 $\frac{5}{16}$	$\frac{13}{16}$
x 68	20.0	21.13	21 $\frac{1}{2}$	0.430	$\frac{7}{16}$	$\frac{1}{4}$	8.270	8 $\frac{1}{4}$	0.685	$\frac{1}{2}$	18 $\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{7}{8}$
x 73	21.5	21.24	21 $\frac{1}{2}$	0.455	$\frac{7}{16}$	$\frac{1}{4}$	8.295	8 $\frac{1}{4}$	0.740	$\frac{3}{8}$	18 $\frac{3}{8}$	1 $\frac{1}{8}$	$\frac{7}{8}$
x 83	24.3	21.43	21 $\frac{1}{2}$	0.515	$\frac{1}{2}$	$\frac{1}{4}$	8.355	8 $\frac{1}{2}$	0.835	$\frac{13}{16}$	18 $\frac{3}{8}$	1 $\frac{1}{2}$	$\frac{7}{8}$
x 93	27.3	21.62	21 $\frac{1}{2}$	0.580	$\frac{9}{16}$	$\frac{3}{8}$	8.420	8 $\frac{1}{2}$	0.930	$\frac{15}{16}$	18 $\frac{3}{8}$	1 $\frac{1}{8}$	$\frac{15}{16}$
W 21x101	29.8	21.36	21 $\frac{1}{2}$	0.500	$\frac{1}{2}$	$\frac{1}{4}$	12.290	12 $\frac{1}{2}$	0.800	$\frac{13}{16}$	18	1 $\frac{1}{16}$	1 $\frac{1}{8}$
x111	32.7	21.51	21 $\frac{1}{2}$	0.550	$\frac{9}{16}$	$\frac{3}{8}$	12.340	12 $\frac{1}{2}$	0.875	$\frac{1}{2}$	18	1 $\frac{3}{8}$	1 $\frac{1}{8}$
x122	35.9	21.68	21 $\frac{1}{2}$	0.600	$\frac{5}{8}$	$\frac{3}{8}$	12.390	12 $\frac{1}{2}$	0.960	$\frac{15}{16}$	18	1 $\frac{3}{16}$	1 $\frac{1}{8}$
x132	38.8	21.83	21 $\frac{1}{2}$	0.650	$\frac{3}{4}$	$\frac{3}{8}$	12.440	12 $\frac{1}{2}$	1.035	1 $\frac{1}{8}$	18	1 $\frac{15}{16}$	1 $\frac{1}{8}$
x147	43.2	22.06	22	0.720	$\frac{3}{4}$	$\frac{3}{8}$	12.510	12 $\frac{1}{2}$	1.150	1 $\frac{1}{8}$	18	2	1 $\frac{15}{16}$
x166	48.8	22.5	22 $\frac{1}{2}$	0.750	$\frac{3}{4}$	$\frac{3}{8}$	12.4	12 $\frac{1}{2}$	1.36	1 $\frac{1}{8}$	18	2 $\frac{1}{4}$	1 $\frac{15}{16}$
W 24x 55	16.3	23.57	23 $\frac{1}{2}$	0.395	$\frac{3}{8}$	$\frac{3}{8}$	7.005	7	0.505	$\frac{1}{2}$	20 $\frac{3}{4}$	1 $\frac{1}{8}$	1
x 62	18.3	23.74	23 $\frac{1}{2}$	0.430	$\frac{7}{16}$	$\frac{1}{4}$	7.040	7	0.590	$\frac{9}{16}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
W 24x 68	20.1	23.73	23 $\frac{1}{2}$	0.415	$\frac{7}{16}$	$\frac{1}{4}$	8.965	9	0.585	$\frac{9}{16}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x 76	22.4	23.92	23 $\frac{1}{2}$	0.440	$\frac{7}{16}$	$\frac{1}{4}$	8.990	9	0.680	$\frac{1}{2}$	20 $\frac{3}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
x 84	24.7	24.10	24 $\frac{1}{2}$	0.470	$\frac{1}{2}$	$\frac{1}{4}$	9.020	9	0.770	$\frac{3}{8}$	20 $\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{1}{8}$
x 94	27.7	24.31	24 $\frac{1}{2}$	0.515	$\frac{1}{2}$	$\frac{1}{4}$	9.065	9 $\frac{1}{2}$	0.875	$\frac{1}{2}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x103	30.3	24.5	24 $\frac{1}{2}$	0.550	$\frac{9}{16}$	$\frac{3}{8}$	9.00	9	0.980	1	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
W 24x104	30.6	24.06	24	0.500	$\frac{1}{2}$	$\frac{1}{4}$	12.750	12 $\frac{1}{2}$	0.750	$\frac{3}{8}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x117	34.4	24.26	24 $\frac{1}{2}$	0.550	$\frac{9}{16}$	$\frac{3}{8}$	12.800	12 $\frac{1}{2}$	0.850	$\frac{1}{2}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x131	38.5	24.48	24 $\frac{1}{2}$	0.605	$\frac{3}{4}$	$\frac{3}{8}$	12.855	12 $\frac{1}{2}$	0.960	$\frac{13}{16}$	20 $\frac{3}{4}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x146	43.0	24.74	24 $\frac{1}{2}$	0.650	$\frac{3}{4}$	$\frac{3}{8}$	12.900	12 $\frac{1}{2}$	1.090	1 $\frac{1}{8}$	20 $\frac{3}{4}$	2	1 $\frac{1}{8}$
x162	47.7	25.00	25	0.705	$\frac{15}{16}$	$\frac{3}{8}$	12.955	13	1.220	1 $\frac{1}{4}$	20 $\frac{3}{4}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$
x176	51.7	25.2	25 $\frac{1}{2}$	0.750	$\frac{3}{4}$	$\frac{1}{2}$	12.9	12 $\frac{1}{2}$	1.34	1 $\frac{1}{4}$	20 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{8}$
x192	56.3	25.5	25 $\frac{1}{2}$	0.810	$\frac{13}{16}$	$\frac{7}{16}$	13.0	13	1.46	1 $\frac{1}{2}$	20 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$
x207	60.7	25.7	25 $\frac{1}{2}$	0.870	$\frac{7}{8}$	$\frac{7}{16}$	13.0	13	1.57	1 $\frac{1}{2}$	20 $\frac{3}{4}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$
x229	67.2	26.0	26	0.960	$\frac{15}{16}$	$\frac{1}{2}$	13.1	13 $\frac{1}{2}$	1.73	1 $\frac{1}{2}$	20 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{8}$
x250	73.5	26.3	26 $\frac{1}{2}$	1.04	1 $\frac{1}{8}$	$\frac{9}{16}$	13.2	13 $\frac{1}{2}$	1.89	1 $\frac{3}{4}$	20 $\frac{3}{4}$	2 $\frac{3}{8}$	1 $\frac{1}{8}$
W 27x 84	24.8	26.71	26 $\frac{1}{2}$	0.460	$\frac{7}{16}$	$\frac{1}{4}$	9.960	10	0.640	$\frac{3}{8}$	23 $\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{1}{8}$
x 94	27.7	26.92	26 $\frac{1}{2}$	0.490	$\frac{1}{2}$	$\frac{1}{4}$	9.990	10	0.745	$\frac{3}{8}$	23 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x102	30.0	27.09	27 $\frac{1}{2}$	0.515	$\frac{1}{2}$	$\frac{1}{4}$	10.015	10	0.830	$\frac{13}{16}$	23 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x114	33.5	27.29	27 $\frac{1}{2}$	0.570	$\frac{9}{16}$	$\frac{3}{8}$	10.070	10 $\frac{1}{2}$	0.930	$\frac{15}{16}$	23 $\frac{3}{8}$	1 $\frac{15}{16}$	1 $\frac{1}{8}$
x129	37.8	27.6	27 $\frac{1}{2}$	0.610	$\frac{5}{8}$	$\frac{3}{8}$	10.0	10	1.10	1 $\frac{1}{2}$	23 $\frac{3}{8}$	2	1 $\frac{1}{8}$
W 27x146	43.1	27.38	27 $\frac{1}{2}$	0.605	$\frac{5}{8}$	$\frac{3}{8}$	13.965	14	0.975	1	23 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{8}$
x161	47.6	27.59	27 $\frac{1}{2}$	0.660	$\frac{13}{16}$	$\frac{3}{8}$	14.020	14	1.080	1 $\frac{1}{8}$	23 $\frac{3}{8}$	2	1 $\frac{1}{8}$
x178	52.5	27.81	27 $\frac{1}{2}$	0.725	$\frac{3}{4}$	$\frac{3}{8}$	14.085	14 $\frac{1}{2}$	1.190	1 $\frac{1}{8}$	23 $\frac{3}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{8}$
x194	57.2	28.1	28 $\frac{1}{2}$	0.750	$\frac{3}{4}$	$\frac{3}{8}$	14.0	14	1.34	1 $\frac{1}{8}$	23 $\frac{3}{8}$	2 $\frac{1}{4}$	1 $\frac{1}{8}$
x217	64.0	28.4	28 $\frac{1}{2}$	0.830	$\frac{15}{16}$	$\frac{7}{16}$	14.1	14 $\frac{1}{2}$	1.50	1 $\frac{1}{2}$	23 $\frac{3}{8}$	2 $\frac{1}{2}$	1 $\frac{1}{4}$
x235	69.4	28.7	28 $\frac{1}{2}$	0.910	$\frac{15}{16}$	$\frac{1}{2}$	14.2	14 $\frac{1}{2}$	1.61	1 $\frac{1}{2}$	23 $\frac{3}{8}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$
x258	76	29.0	29	0.98	1	$\frac{1}{2}$	14.3	14 $\frac{1}{2}$	1.77	1 $\frac{3}{4}$	23 $\frac{3}{8}$	2 $\frac{15}{16}$	1 $\frac{1}{8}$



WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation	Area A	Depth d		Web		Flange				Distance			
				Thickness t_w		Width b_f		Thickness t_f		T	k	k_1	
				In.	In.	In.	In.	In.	In.	In.	In.	In.	
W 30 x 90	26.4	29.5	29½	0.470	½	¾	10.4	10%	0.610	⅝	26½	1½	1⅞
x 99	29.1	29.65	29%	0.520	½	¾	10.450	10%	0.670	1⅞	26½	1⅞	1⅞
x108	31.7	29.83	29%	0.545	⅝	¾	10.475	10%	0.760	¾	26½	1⅞	1⅞
x116	34.2	30.1	30	0.565	⅝	¾	10.495	10%	0.850	¾	26½	1¾	1¾
x124	36.5	30.17	30%	0.585	⅝	¾	10.515	10%	0.930	1⅞	26½	1⅞	1⅞
x132	38.9	30.31	30%	0.615	⅝	¾	10.545	10%	1.000	1	26½	1¾	1¾
x148	43.5	30.7	30%	0.650	¾	¾	10.5	10%	1.18	1⅞	26½	2⅞	1¾
W 30x173	51.0	30.44	30%	0.655	¾	¾	14.985	15	1.065	1⅞	26½	2	1¾
x191	56.3	30.68	30%	0.710	1⅞	¾	15.040	15	1.185	1⅞	26½	2⅞	1¾
x211	62.2	30.94	31	0.775	¾	¾	15.105	15½	1.315	1⅞	26½	2¼	1¾
x235	69.2	31.3	31%	0.830	1⅞	¾	15.1	15	1.50	1½	26½	2%	1¾
x261	76.9	31.6	31%	0.930	1⅞	½	15.2	15%	1.65	1½	26½	2⅞	1¾
x292	85.9	32.0	32	1.02	1	½	15.3	15%	1.85	1½	26½	2¼	1⅞
x326	95.8	32.4	32%	1.14	1½	⅞	15.4	15%	2.05	2⅞	26½	2⅞	1¾
W 33x118	34.7	32.86	32%	0.550	⅞	¾	11.480	11½	0.740	¾	29%	1¾	1¾
x130	38.3	33.09	33%	0.580	⅞	¾	11.510	11½	0.855	¾	29%	1¾	1¾
x141	41.6	33.30	33%	0.605	¾	¾	11.535	11½	0.960	1⅞	29%	1⅞	1¾
x152	44.8	33.49	33%	0.635	¾	¾	11.565	11½	1.055	1⅞	29%	1⅞	1¾
x169	49.5	33.8	33%	0.670	1⅞	¾	11.5	11½	1.22	1¼	29%	2¼	1¾
W 33x201	59.2	33.68	33%	0.715	1⅞	¾	15.745	15%	1.150	1½	29%	2	1⅞
x221	65.2	33.93	33%	0.775	¾	¾	15.805	15%	1.275	1¼	29%	2¼	1⅞
x241	71.0	34.18	34%	0.830	1⅞	¾	15.860	15%	1.400	1½	29%	2¼	1¼
x263	77.5	34.5	34%	0.870	¾	¾	15.8	15%	1.57	1⅞	29%	2⅞	1¼
x291	85.7	34.8	34%	0.960	1⅞	½	15.9	15%	1.73	1¼	29%	2%	1⅞
W 36x135	39.7	35.6	35%	0.600	¾	¾	11.950	12	0.790	1⅞	32½	1⅞	1¾
x150	44.2	35.85	35%	0.625	¾	¾	11.975	12	0.940	1⅞	32½	1¾	1¾
x160	47.0	36.01	36	0.650	¾	¾	12.00	12	1.020	1	32½	1⅞	1¾
x170	50.0	36.17	36%	0.680	1⅞	¾	12.030	12	1.100	1½	32½	2	1¾
x182	53.6	36.33	36%	0.725	¾	¾	12.075	12%	1.180	1½	32½	2¼	1¾
x194	57.0	36.49	36%	0.765	¾	¾	12.115	12%	1.260	1¼	32½	2⅞	1¾
x210	61.8	36.69	36%	0.830	1⅞	¾	12.180	12%	1.360	1½	32½	2⅞	1¼
x232	68.1	37.1	37%	0.870	¾	¾	12.1	12%	1.57	1⅞	32½	2⅞	1¼
x256	75.4	37.4	37%	0.960	1⅞	½	12.2	12%	1.73	1¼	32½	2%	1⅞
W 36x230	67.6	35.90	35%	0.760	¾	¾	16.470	16%	1.260	1¼	30%	2¼	1⅞
x245	72.1	36.08	36%	0.800	1⅞	¾	16.510	16%	1.350	1½	30%	2%	1¾
x260	76.5	36.26	36%	0.840	1⅞	¾	16.550	16%	1.440	1⅞	30%	2⅞	1¾
x280	82.4	36.52	36%	0.885	¾	¾	16.595	16%	1.570	1⅞	30%	2⅞	1¾
x300	88.3	36.74	36%	0.945	1⅞	½	16.655	16%	1.680	1⅞	30%	2⅞	1⅞
x328	96.4	37.1	36%	1.02	1	½	16.6	16%	1.85	1½	30%	3¼	1¾
x359	105	37.4	33%	1.12	1½	⅞	16.7	16%	2.01	2	30%	3¼	1¼
x393	116	37.8	37%	1.22	1¼	¾	16.8	16%	2.20	2⅞	30%	3⅞	1⅞



WIDE FLANGE BEAMS

ASTM A36 & A992

W SHAPES Dimensions

Designation (Nominal Depth in Millimetres and Mass in Kilograms per Metre)	Area A in.	Depth d in.	Flange		Web Thick- ness tw in.
			Width bf, in.	Thick- ness, tf, in.	
W 40x149	43.8	38.20	11.810	0.830	0.630
x167	49.2	38.59	11.810	1.025	0.650
x183	53.8	38.98	11.810	1.220	0.650
W 40x211	62.0	39.37	11.810	1.415	0.750
x235	68.9	39.69	11.890	1.575	0.830
x264	77.6	40.00	11.930	1.730	0.960
W 40x278	81.8	40.16	11.969	1.811	1.024
x331	97.5	40.79	12.165	2.126	1.220
x392	115.3	41.57	12.362	2.520	1.417
W x372	109.4	40.63	16.063	2.047	1.161
x431	126.7	41.26	16.220	2.362	1.339
x503	147.8	42.05	16.417	2.756	1.535
W 40x199	58.5	38.67	15.750	1.065	0.650
x215	63.4	38.98	15.750	1.220	0.650
x249	73.3	39.38	15.750	1.420	0.750
x277	81.4	39.69	15.830	1.575	0.830
x297	87.4	39.84	15.825	1.650	0.930
x324	95.3	40.2	15.9	1.81	1.00
x362	107	40.6	16.0	2.01	1.12
x397	117	41.0	16.1	2.20	1.22
x593	174.0	42.99	16.690	3.230	1.790



MISCELLANEOUS BEAMS

M SHAPES Dimensions

ZX Designation	Area A	Depth d	Web		Flange		Distance		Grip	Max. Flge. Fas- ten- er				
			Thickness t _w	t _w / 2	Width b _f	Thickness t _f	T	k						
			In. ²	In.	In.	In.	In.	In.			In.	In.		
M 4x13	3.81	4.00	4	0.254	¼	¾	3.940	4	0.371	⅜	2½	1⅜	⅜	¾
M 5x18.9	5.55	5.00	5	0.316	⅝	⅝	5.003	5	0.416	⅞	3⅝	1⅝	⅞	⅞
M 6x4.4	1.29	6.00	6	0.114	⅜	⅞	1.844	1⅝	0.171	⅝	5¼	⅜	⅝	—
M 6x20	5.89	6.00	6	0.250	¼	⅝	5.938	6	0.379	⅝	4¼	⅞	⅝	⅞
M 8x6.5	1.92	8.00	8	0.135	⅜	⅞	2.281	2¼	0.189	⅝	6⅝	⅞	⅝	—
M10x9	2.65	10.00	10	0.157	⅝	⅞	2.690	2½	0.206	⅝	8⅝	⅞	⅝	—
M12x11.8	3.47	12.00	12	0.177	⅝	⅞	3.065	3⅝	0.225	¼	10⅝	⅞	¼	—
M14x18	5.10	14.00	14	0.215	⅝	⅞	4.000	4	0.270	¼	12¾	⅞	¼	⅝ _{xxx}

STANDARD BEAMS

(S SHAPES)

Dimensions

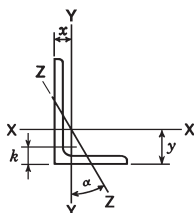
ASTM-A36 & A992



Designation	Area A	Depth d		Web			Flange			Distance		Grip	Max. Flge. Fas- ten- er	
				Thickness t _w	t _w 2	Width b _f	Thickness t _f	T	k					
										In.	In.			In.
S 3x5.7 x7.5	1.67	3.00	3	0.170	3/16	1/8	2.330	2%	0.260	1/4	1 3/4	5/8	1/4	—
	2.21	3.00	3	0.349	3/8	3/8	2.509	2 1/2	0.260	1/4	1 3/4	5/8	1/4	—
S 4x7.7 x9.5	2.26	4.00	4	0.193	3/16	1/8	2.663	2%	0.293	5/16	2 1/2	3/4	5/8	—
	2.79	4.00	4	0.326	5/16	3/8	2.796	2 3/4	0.293	5/16	2 1/2	3/4	5/8	—
S 5x10	2.94	5.00	5	0.214	3/16	1/8	3.004	3	0.326	5/16	3 1/2	3/4	5/8	—
S 6x12.5 x17.25	3.66	6.00	6	0.232	1/4	1/8	3.332	3%	0.359	3/8	4 1/4	7/8	3/4	—
	5.06	6.00	6	0.465	7/16	1/4	3.565	3%	0.359	3/8	4 1/4	7/8	3/4	5/8
S 7x15.3 x20	4.50	7.00	7	0.252	1/4	1/8	3.662	3%	0.392	3/8	5 1/2	1 5/8	3/4	5/8
	5.88	7.00	7	0.45	7/16	1/4	3.860	3 3/4	0.392	3/8	5 1/2	1 5/8	3/4	5/8
S 8x18.4 x23	5.41	8.00	8	0.271	1/4	1/8	4.001	4	0.426	7/16	6	1	7/8	3/4
	6.76	8.00	8	0.441	7/16	1/4	4.171	4 1/4	0.426	7/16	6	1	7/8	3/4
S10x25.4 x35	7.45	10.00	10	0.311	5/16	3/8	4.661	4 3/4	0.491	1/2	7 3/4	1 1/8	1/2	3/4
	10.3	10.00	10	0.594	3/4	5/8	4.944	5	0.491	1/2	7 3/4	1 1/8	1/2	3/4
S12x31.8 x 35	9.31	12.00	12	0.350	3/8	3/8	5.00	5	0.544	5/8	9 1/8	1 3/8	1/2	3/4
	10.2	12.00	12	0.428	7/16	1/4	5.078	5 1/4	0.544	5/8	9 1/8	1 3/8	1/2	3/4
S12x40.8 x50	11.9	12.00	12	0.462	7/16	1/4	5.252	5 1/4	0.659	1 1/16	9 1/8	1 7/8	5/8	3/4
	14.6	12.00	12	0.687	1 1/16	3/8	5.477	5 1/2	0.659	1 1/16	9 1/8	1 7/8	1 1/16	3/4
S15x42.9 x50	12.6	15.00	15	0.411	7/16	1/4	5.501	5 1/2	0.622	5/8	12 1/4	1 3/8	5/8	3/4
	14.7	15.00	15	0.550	5/8	5/8	5.640	5 3/4	0.622	5/8	12 1/4	1 3/8	5/8	3/4
S18x54.7 x70	16.0	18.00	18	0.461	7/16	1/4	6.001	6	0.691	1 1/16	15	1 1/2	1 1/16	7/8
	20.5	18.00	18	0.711	1 1/16	3/8	6.251	6 1/4	0.691	1 1/16	15	1 1/2	1 1/16	7/8
S20x66 x75	19.4	20.00	20	0.505	1/2	1/4	6.255	6 1/4	0.795	1 3/16	16 3/4	1 5/8	1 3/16	7/8
	22.0	20.00	20	0.635	3/4	5/8	6.385	6 3/4	0.795	1 3/16	16 3/4	1 5/8	1 3/16	7/8
S20x86 x96	25.3	20.30	20 1/4	0.660	1 1/16	3/8	7.060	7	0.920	1 5/8	16 3/4	1 5/8	1 5/16	1
	28.2	20.30	20 1/4	0.800	1 3/8	7/8	7.200	7 1/4	0.920	1 5/8	16 3/4	1 5/8	1 5/16	1
S24x80 x90 x100	23.5	24.00	24	0.500	1/2	1/4	7.00	7	0.870	7/8	20 1/2	1 3/4	7/8	1
	26.5	24.00	24	0.625	3/4	5/8	7.125	7 1/8	0.870	7/8	20 1/2	1 3/4	7/8	1
	29.3	24.00	24	0.745	3/4	3/4	7.245	7 3/4	0.870	7/8	20 1/2	1 3/4	7/8	1
S24x106 x121	31.1	24.50	24 1/2	0.620	3/4	5/8	7.870	7 7/8	1.090	1 1/16	20 1/2	2	1 1/8	1
	35.5	24.50	24 1/2	0.800	1 3/8	7/8	8.050	8	1.090	1 1/16	20 1/2	2	1 1/8	1

ANGLES-BAR SIZE**ASTM A36
ASTM M1020**

Size In.	Weight Per Foot Lbs.	In Lengths Up To Feet
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{8}$	.38	20
$\frac{5}{8}$ x $\frac{5}{8}$ x $\frac{1}{8}$	.48	20
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{8}$	.59	20
x $\frac{3}{16}$	.84	20
$\frac{7}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$	.70	20
1 x $\frac{5}{8}$ x $\frac{1}{8}$	.64	20
1 x $\frac{3}{4}$ x $\frac{1}{8}$	.70	20
1 x 1 x $\frac{1}{8}$	.80	40
x $\frac{3}{16}$	1.16	40
x $\frac{1}{4}$	1.49	40
1 $\frac{1}{4}$ x 1 $\frac{1}{4}$ x $\frac{1}{8}$	1.01	40
x $\frac{3}{16}$	1.48	40
x $\frac{1}{4}$	1.92	40
1 $\frac{3}{8}$ x $\frac{7}{8}$ x $\frac{1}{8}$	.91	20
x $\frac{3}{16}$	1.32	20
1 $\frac{1}{2}$ x 1 $\frac{1}{4}$ x $\frac{3}{16}$	1.64	20
1 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x $\frac{1}{8}$	1.23	40
x $\frac{3}{16}$	1.80	40
x $\frac{1}{4}$	2.34	40
1 $\frac{3}{4}$ x 1 $\frac{1}{4}$ x $\frac{1}{8}$	1.23	40
x $\frac{3}{16}$	1.80	40
x $\frac{1}{4}$	2.34	40
1 $\frac{3}{4}$ x 1 $\frac{3}{4}$ x $\frac{1}{8}$	1.44	40
x $\frac{3}{16}$	2.12	40
x $\frac{1}{4}$	2.77	40
2 x 1 $\frac{1}{4}$ x $\frac{3}{16}$	1.96	20
x $\frac{1}{4}$	2.55	20
2 x 1 $\frac{1}{2}$ x $\frac{1}{8}$	1.44	40
x $\frac{3}{16}$	2.12	40
x $\frac{1}{4}$	2.77	40
2 x 2 x $\frac{1}{8}$	1.65	40
x $\frac{3}{16}$	2.44	40
x $\frac{1}{4}$	3.19	40
x $\frac{5}{16}$	3.92	40
x $\frac{3}{8}$	4.70	40
2 $\frac{1}{4}$ x 1 $\frac{1}{2}$ x $\frac{3}{16}$	2.28	40
2 $\frac{1}{2}$ x 1 $\frac{1}{2}$ x $\frac{3}{16}$	2.44	40
x $\frac{1}{4}$	3.19	40
x $\frac{3}{16}$	3.92	40
2 $\frac{1}{2}$ x 2 x $\frac{3}{16}$	2.75	40
x $\frac{1}{4}$	3.62	40
x $\frac{3}{16}$	4.50	40
x $\frac{3}{8}$	5.30	40
2 $\frac{1}{2}$ x 2 $\frac{1}{2}$ x $\frac{3}{16}$	3.07	40
x $\frac{1}{4}$	4.10	40
x $\frac{3}{16}$	5.00	40
x $\frac{3}{8}$	5.90	40
x $\frac{1}{2}$	7.70	40

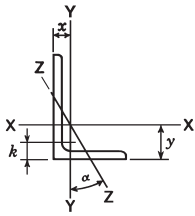


STRUCTURAL ANGLES

Equal legs and unequal legs
Properties for designing

ASTM-A36

Size and Thickness	Weight per Foot	Area	AXIS X-X				AXIS Y-Y				AXIS Z-Z			
			<i>l</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>l</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan ok		
In.	Ln.	Lb.	In. ²	In. ⁴	In. ³	In.	In.	In. ⁴	In. ³	In.	In.	In.	In.	
L3 x2	x 5/16	3.12	0.917	0.847	0.414	0.961	0.952	0.305	0.198	0.577	0.462	0.435	0.442	
	x 1/4	4.09	1.20	1.09	0.541	0.953	0.980	0.390	0.258	0.569	0.487	0.431	0.437	
	x 3/8	5.03	1.48	1.32	0.662	0.945	1.1010	0.467	0.314	0.562	0.511	0.428	0.432	
	x 1/2	5.95	1.75	1.54	0.779	0.937	1.03	0.539	0.368	0.555	0.535	0.426	0.426	
	x 5/8	7.7	2.26	1.92	1.00	0.922	1.08	0.667	0.470	0.543	0.580	0.425	0.413	
L3 x2 1/2	x 5/16	3.41	1.00	0.899	0.423	0.947	0.874	0.568	0.303	0.753	0.627	0.521	0.687	
	x 1/4	4.49	1.32	1.16	0.555	0.940	0.900	0.734	0.397	0.746	0.653	0.520	0.683	
	x 3/8	5.54	1.63	1.41	0.681	0.932	0.925	0.888	0.487	0.739	0.677	0.518	0.680	
	x 1/2	6.56	1.93	1.65	0.803	0.924	0.949	1.03	0.573	0.731	0.701	0.517	0.675	
	x 5/8	7.56	2.22	1.87	0.921	0.917	0.972	1.17	0.656	0.224	0.724	0.516	0.671	
	x 3/4	8.53	2.51	2.07	1.03	0.910	0.995	1.29	0.736	0.718	0.746	0.516	0.666	
L3 X3	x 5/16	3.70	1.09	0.948	0.433	0.933	0.812	0.948	0.433	0.933	0.812	0.586	1.000	
	x 1/4	4.89	1.44	1.23	0.569	0.926	0.836	1.23	0.569	0.926	0.836	.585	1.000	
	x 3/8	6.04	1.78	1.50	0.699	0.918	0.860	1.50	0.699	0.918	0.860	0.583	1.000	
	x 1/2	7.17	2.11	1.75	0.825	0.910	0.884	1.75	0.825	0.910	0.884	0.581	1.000	
	x 5/8	8.28	2.43	1.98	0.946	0.903	0.907	1.98	0.946	0.903	0.907	0.580	1.000	
	x 3/4	9.35	2.75	2.20	1.06	0.895	0.929	2.20	1.06	0.895	0.929	0.580	1.000	
L3 1/2 x 2 1/2	x 1/4	4.94	1.45	1.81	0.753	1.12	1.10	0.775	0.410	0.731	0.607	0.541	0.504	
	x 3/8	6.10	1.79	2.20	0.925	1.11	1.13	0.937	0.501	0.723	0.632	0.538	0.500	
	x 1/2	7.23	2.12	2.56	1.09	1.10	1.15	1.09	0.589	0.716	0.655	0.535	0.495	
	x 5/8	9.41	2.76	3.24	1.41	1.08	1.20	1.36	0.756	0.701	0.701	0.532	0.485	
L3 1/2 x 3	x 1/4	5.38	1.58	1.92	0.773	1.10	1.02	1.30	0.585	0.908	0.773	0.628	0.725	
	x 3/8	6.65	1.95	2.33	0.95	1.09	1.05	1.58	0.718	0.900	0.798	0.624	0.722	
	x 1/2	7.88	2.32	2.73	1.12	1.09	1.07	1.84	0.847	0.892	0.823	0.622	0.720	
	x 5/8	9.09	2.67	3.10	1.29	1.08	1.09	2.09	0.971	0.885	0.846	0.620	0.717	
	x 3/4	10.3	3.02	3.45	1.45	1.07	1.12	2.32	1.09	0.877	0.869	0.618	0.713	
L3 1/2 x 3 1/2	x 1/4	5.79	1.70	2.00	0.787	1.09	0.954	2.00	0.787	1.09	0.954	0.688	1.000	
	x 3/8	7.16	2.10	2.44	0.969	1.08	0.979	2.44	0.969	1.08	0.979	0.685	1.000	
	x 1/2	8.51	2.50	2.86	1.15	1.07	1.00	2.86	1.15	1.07	1.00	0.683	1.000	
	x 5/8	9.82	2.89	3.25	1.32	1.06	1.03	3.25	1.32	1.06	1.03	0.681	1.000	
	x 3/4	11.1	3.27	3.63	1.48	1.05	1.05	3.63	1.48	1.05	1.05	0.679	1.000	
	x 5/8	13.6	3.99	6.01	2.28	1.23	1.37	2.85	1.34	0.845	0.867	0.639	0.534	
L4 x3	x 1/4	5.75	1.69	2.75	0.988	1.27	1.22	1.33	0.585	0.887	0.725	0.631	0.558	
	x 3/8	7.12	2.09	3.36	1.22	1.27	1.25	1.62	0.721	0.880	0.750	0.633	0.554	
	x 1/2	8.47	2.49	3.94	1.44	1.26	1.27	1.89	0.851	0.873	0.775	0.636	0.551	
	x 5/8	11.1	3.25	5.02	1.87	1.24	1.32	2.40	1.10	0.858	0.822	0.638	0.543	
	x 3/4	13.6	3.99	6.01	2.28	1.23	1.37	2.85	1.34	0.845	0.867	0.639	0.534	

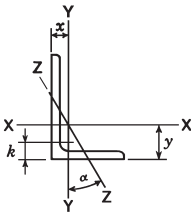


STRUCTURAL ANGLES

Equal legs and unequal legs
Properties for designing

ASTM-A36

Size and Thickness	K	Weight per Foot	Area	AXIS X-X				AXIS Y-Y				AXIS Z-Z		
				<i>l</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>l</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan ok	
In.	In.	Lb.	In. ²	In. ⁴	In. ³	In.	In.	In. ⁴	In. ³	In.	In.	In.	In.	
L4 x3½ x ¼	¼	6.2	1.82	2.89	1.01	1.26	1.14	2.07	0.794	1.07	0.897	0.723	0.759	
	⅜	7.7	2.25	3.53	1.25	1.25	1.17	2.52	0.980	1.06	0.923	0.721	0.757	
	½	9.1	2.68	4.15	1.48	1.25	1.20	2.96	1.16	1.05	0.947	0.719	0.755	
	⅝	11.9	3.50	5.30	1.92	1.23	1.24	3.76	1.50	1.04	0.994	0.716	0.750	
L4 x4	x ¼	⅝	6.6	1.93	3.00	1.03	1.25	1.08	3.00	1.03	1.25	1.08	0.783	1.000
	x ⅜	¾	8.2	2.40	3.67	1.27	1.24	1.11	3.67	1.27	1.24	1.11	0.781	1.000
	x ½	¾	9.72	2.86	4.32	1.5	1.23	1.13	4.32	1.50	1.23	1.13	0.779	1.000
	x ⅝	¾	11.2	3.30	4.93	1.73	1.22	1.15	4.93	1.73	1.22	1.15	0.777	1.000
	x ¾	¾	12.7	3.75	5.52	1.96	1.21	1.18	5.52	1.96	1.21	1.18	0.776	1.000
	x ⅞	1	15.7	4.61	6.62	2.38	1.20	1.22	6.62	2.38	1.20	1.22	0.774	1.000
L5 x3	x ¼	⅝	6.6	1.94	5.09	1.51	1.62	1.64	1.41	0.600	0.853	0.648	0.652	0.371
	x ⅜	¾	8.2	2.41	6.24	1.87	1.61	1.67	1.72	0.739	0.846	0.673	0.649	0.368
	x ½	¾	9.8	2.86	7.35	2.22	1.60	1.69	2.01	0.874	0.838	0.698	0.646	0.364
	x ⅝	¾	11.3	3.31	8.41	2.56	1.59	1.72	2.29	1.00	0.831	0.722	0.644	0.361
	x ¾	¾	12.8	3.75	9.43	2.89	1.58	1.74	2.55	1.13	0.824	0.746	0.642	0.357
L5 x3½ x ¼	¼	7.03	2.07	5.36	1.55	1.61	1.55	2.20	0.816	1.03	0.804	0.761	0.491	
	⅜	8.72	2.56	6.58	1.92	1.60	1.57	2.69	1.01	1.02	0.829	0.758	0.489	
	½	10.4	3.05	7.75	2.28	1.59	1.60	3.15	1.19	1.02	0.854	0.755	0.486	
	⅝	13.6	4.00	9.96	2.97	1.58	1.65	4.02	1.55	1.00	0.901	0.750	0.479	
	x ¾	1½	16.8	4.93	12.0	3.63	1.56	1.69	4.80	1.88	0.987	0.947	0.746	0.472
	x ⅞	1¾	19.8	5.82	13.9	4.26	1.55	1.74	5.52	2.20	0.974	0.993	0.744	0.464

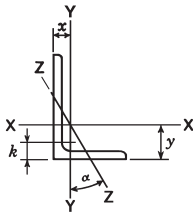


STRUCTURAL ANGLES

Equal legs and unequal legs
Properties for designing

ASTM-A36

Size and Thickness	Weight per Foot	Area	AXIS X-X				AXIS Y-Y				AXIS Z-Z			
			<i>l</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>l</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan ok		
In.	In.	Lb.	In. ²	In. ⁴	In. ³	In.	In.	In. ⁴	In. ³	In.	In.	In.	In.	
L5 x 5	x ⁵ / ₁₆	¹³ / ₁₆	10.4	3.07	7.44	2.04	1.56	1.35	7.44	2.04	1.56	1.35	0.990	1.000
	x ³ / ₈	⁷ / ₈	12.4	3.65	8.76	2.41	1.55	1.37	8.76	2.41	1.55	1.37	0.986	1.000
	x ¹ / ₂	¹¹ / ₁₆	14.4	4.22	10.0	2.78	1.54	1.40	10.0	2.78	1.54	1.40	0.983	1.000
	x ¹ / ₂	1	16.3	4.79	11.3	3.15	1.53	1.42	11.3	3.15	1.53	1.42	0.980	1.000
	x ³ / ₈	¹ / ₂	20.1	5.90	13.6	3.85	1.52	1.47	13.6	3.85	1.52	1.47	0.975	1.000
	x ¹ / ₄	¹ / ₂	23.7	6.98	15.7	4.52	1.50	1.52	15.7	4.52	1.50	1.52	0.972	1.000
	x ¹ / ₄	¹ / ₂	27.3	8.02	17.8	5.16	1.49	1.56	17.8	5.16	1.49	1.56	0.971	1.000
L6 x 3½	x ⁵ / ₁₆	¹³ / ₁₆	9.72	2.86	10.9	2.72	1.95	2.02	2.83	1.03	0.995	0.763	0.768	0.353
	x ³ / ₈	⁷ / ₈	11.6	3.41	12.8	3.24	1.94	2.04	3.32	1.22	0.987	0.786	0.764	0.350
	x ¹ / ₂	1	15.3	4.48	16.6	4.23	1.92	2.08	4.23	1.58	0.971	0.833	0.757	0.344
L6 x 4	x ⁵ / ₁₆	¹³ / ₁₆	10.2	2.99	11.3	2.77	1.94	1.92	4.11	1.33	1.17	0.916	0.874	0.450
	x ³ / ₈	⁷ / ₈	12.2	3.58	13.4	3.3	1.93	1.94	4.84	1.58	1.16	0.94	0.871	0.447
	x ¹ / ₂	¹¹ / ₁₆	14.1	4.15	15.4	3.81	1.92	1.97	5.54	1.82	1.16	0.963	0.868	0.444
	x ¹ / ₂	1	16.0	4.72	17.3	4.31	1.92	1.99	6.21	2.06	1.15	0.986	0.865	0.441
	x ⁵ / ₁₆	¹ / ₂	17.9	5.27	19.2	4.81	1.91	2.01	6.85	2.29	1.14	1.01	0.862	0.438
	x ³ / ₈	¹ / ₂	19.8	5.83	21.0	5.29	1.90	2.03	7.47	2.52	1.13	1.03	0.860	0.435
	x ¹ / ₄	¹ / ₂	23.5	6.90	24.4	6.23	1.88	2.08	8.63	2.95	1.12	1.08	0.857	0.429
	x ¹ / ₄	¹ / ₂	27.1	7.95	27.6	7.13	1.86	2.12	9.70	3.37	1.10	1.12	0.855	0.422
L6 x 6	x ⁵ / ₁₆	¹³ / ₁₆	12.5	3.67	13.0	2.95	1.88	1.60	13.0	2.95	1.88	1.60	1.19	1.000
	x ³ / ₈	⁷ / ₈	14.9	4.38	15.4	3.51	1.87	1.62	15.4	3.51	1.87	1.62	1.19	1.000
	x ¹ / ₂	¹¹ / ₁₆	17.3	5.08	17.6	4.06	1.86	1.65	17.6	4.06	1.86	1.65	1.18	1.000
	x ¹ / ₂	1	19.6	5.77	19.9	4.59	1.86	1.67	19.9	4.59	1.86	1.67	1.18	1.000
	x ⁵ / ₁₆	¹ / ₂	22.0	6.45	22.0	5.12	1.85	1.70	22.0	5.12	1.85	1.70	1.18	1.000
	x ³ / ₈	¹ / ₂	24.3	7.13	24.1	5.64	1.84	1.72	24.1	5.64	1.84	1.72	1.17	1.000
	x ¹ / ₄	¹ / ₂	28.8	8.40	28.1	6.64	1.82	1.77	28.1	6.64	1.82	1.77	1.17	1.000
	x ¹ / ₄	¹ / ₂	33.2	9.75	31.9	7.61	1.81	1.81	31.9	7.61	1.81	1.81	1.17	1.000
	x 1	¹ / ₂	37.5	11.0	35.4	8.55	1.79	1.86	35.4	8.55	1.79	1.86	1.17	1.000



STRUCTURAL ANGLES

Equal legs and unequal legs
Properties for designing

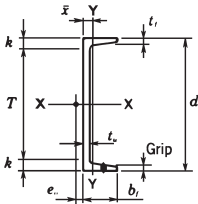
ASTM-A36

Size and Thickness	Weight per Foot	Area	AXIS X-X				AXIS Y-Y				AXIS Z-Z			
			<i>l</i>	<i>S</i>	<i>r</i>	<i>y</i>	<i>l</i>	<i>S</i>	<i>r</i>	<i>x</i>	<i>r</i>	Tan ok		
In.	In.	Lb.	In. ²	In. ⁴	In. ³	In.	In.	In. ⁴	In. ³	In.	In.	In.	In.	
L7 x4	x 3/8	3/8	13.6	4.00	20.5	4.42	2.27	2.35	5.06	1.61	1.12	0.861	0.873	0.339
	x 7/16	7/16	15.8	4.63	23.6	5.11	2.26	2.38	5.79	1.86	1.12	0.886	0.869	0.337
	x 1/2	1	17.9	5.26	26.6	5.79	2.25	2.40	6.48	2.10	1.11	0.910	0.866	0.334
	x 5/8	1 1/8	22.1	6.50	32.4	7.12	2.23	2.45	7.79	2.56	1.10	0.958	0.860	0.329
	x 3/4	1 1/4	26.2	7.70	37.8	8.39	2.21	2.50	9.00	3.01	1.08	1.00	0.855	0.324
L8 x4	x 3/8	3/8	17.4	5.11	34.2	6.59	2.59	2.81	6.03	1.90	1.09	0.829	0.867	0.268
	x 1/2	1	19.7	5.80	38.6	7.48	2.58	2.84	6.75	2.15	1.08	0.854	0.863	0.266
	x 5/8	1 1/8	22.1	6.49	42.9	8.34	2.57	2.86	7.44	2.38	1.07	0.878	0.859	0.264
	x 3/4	1 1/4	28.9	8.49	55.0	10.9	2.55	2.94	9.37	3.07	1.05	0.949	0.850	0.257
	x 1	1 1/2	37.6	11.1	69.7	14.0	2.51	3.03	11.6	3.94	1.03	1.04	0.844	0.247
L8 x6	x 3/8	3/8	20.4	5.99	39.3	7.06	2.56	2.43	19.3	4.23	1.80	1.44	1.31	0.559
	x 1/2	1	23.2	6.80	44.4	8.01	2.55	2.46	21.7	4.79	1.79	1.46	1.30	0.557
	x 5/8	1 1/8	25.9	7.61	49.4	8.94	2.55	2.48	24.1	5.34	1.78	1.49	1.30	0.556
	x 3/4	1 1/4	28.6	8.41	54.2	9.86	2.54	2.50	26.4	5.88	1.77	1.51	1.29	0.554
	x 5/8	1 1/4	34.0	9.99	63.5	11.7	2.52	2.55	30.8	6.92	1.75	1.56	1.29	0.550
	x 3/4	1 1/4	39.3	11.5	72.4	13.4	2.50	2.60	34.9	7.94	1.74	1.60	1.28	0.546
	x 1	1 1/2	44.4	13.1	80.9	15.1	2.49	2.65	38.8	8.92	1.72	1.65	1.28	0.542
L8 x8	x 1/2	1 1/8	26.7	7.84	48.8	8.36	2.49	2.17	48.8	8.36	2.49	2.17	1.59	1.000
	x 5/8	1 1/4	29.8	8.77	54.1	9.33	2.49	2.19	54.2	9.33	2.49	2.19	1.58	1.000
	x 3/4	1 1/2	33.0	9.69	59.6	10.3	2.48	2.21	59.6	10.3	2.48	2.21	1.58	1.000
	x 5/8	1 1/4	39.2	11.5	69.9	12.2	2.46	2.26	69.9	12.2	2.46	2.26	1.57	1.000
	x 3/4	1 1/2	45.3	13.3	79.7	14.0	2.45	2.31	79.7	14.0	2.45	2.31	1.57	1.000
	x 1	1 1/2	51.3	15.1	89.1	15.8	2.43	2.36	89.1	15.8	2.43	2.36	1.56	1.000
	x 1 1/8	1 3/4	57.2	16.8	98.1	17.5	2.41	2.40	98.1	17.5	2.41	2.40	1.56	1.000

CHANNELS—BAR SIZE

ASTM A36

Size In.	Weight Per Foot Lbs.	In Lengths Up To Feet
$\frac{3}{4}$ x $\frac{3}{8}$ x $\frac{1}{8}$	.56	20
$\frac{7}{8}$ x $\frac{3}{8}$ x $\frac{1}{8}$	.65	20
1 x $\frac{3}{8}$ x $\frac{1}{8}$	.68	20
1 x $\frac{1}{2}$ x $\frac{1}{8}$	.83	20
$1\frac{1}{4}$ x $\frac{1}{2}$ x $\frac{1}{8}$	1.01	20
$1\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{8}$	1.12	20
$1\frac{1}{2}$ x $\frac{5}{16}$ x $\frac{3}{16}$	1.44	20
$1\frac{1}{2}$ x $\frac{3}{4}$ x $\frac{1}{8}$	1.17	20
$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{16}$	2.65	20
$1\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{3}{16}$	1.55	20
2 x $\frac{1}{2}$ x $\frac{1}{8}$	1.33	20
2 x $\frac{5}{16}$ x $\frac{3}{16}$	1.76	20
2 x $\frac{5}{8}$ x $\frac{1}{4}$	2.18	20
2 x 1 x $\frac{1}{8}$	1.78	20
2 x 1 x $\frac{3}{16}$	2.32	20
$2\frac{1}{2}$ x $\frac{5}{8}$ x $\frac{3}{16}$	2.27	20

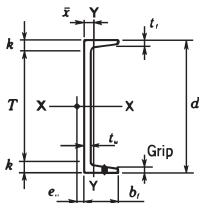


STRUCTURAL CHANNELS

AMERICAN STANDARD

Dimensions ASTM-A36

Designation	Area A	Depth d	Web			Flange				Distance		Max. Flge. Fastener	
			Thickness t_w	$\frac{t_w}{2}$	Width b_f	Thickness t_f	T	k	Grip				
										In.	In.		In.
C 3x 4.1 x 5 x 6	1.20	3.00	0.170	$\frac{3}{16}$	$\frac{1}{8}$	1.410	1%	0.273	$\frac{1}{4}$	1%	$\frac{1}{16}$	—	—
	1.47	3.00	0.258	$\frac{1}{4}$	$\frac{1}{8}$	1.498	1½%	0.273	$\frac{1}{4}$	1%	$\frac{1}{16}$	—	—
	1.76	3.00	0.356	$\frac{3}{8}$	$\frac{3}{16}$	1.596	1%	0.273	$\frac{1}{4}$	1%	$\frac{1}{16}$	—	—
C 4x 5.4 x 7.25	1.58	4.00	0.184	$\frac{3}{16}$	$\frac{1}{8}$	1.584	1%	0.296	$\frac{5}{16}$	2½%	$\frac{3}{4}$	—	—
	2.13	4.00	0.321	$\frac{5}{16}$	$\frac{3}{16}$	1.721	1%	0.296	$\frac{5}{16}$	2½%	$\frac{3}{4}$	$\frac{5}{16}$	$\frac{5}{16}$
C 5x 6.7 x 9	1.97	5.00	0.190	$\frac{3}{16}$	$\frac{1}{8}$	1.750	1%	0.320	$\frac{5}{16}$	3%	$\frac{3}{4}$	—	—
	2.64	5.00	0.325	$\frac{5}{16}$	$\frac{3}{16}$	1.885	1%	0.320	$\frac{5}{16}$	3%	$\frac{3}{4}$	$\frac{5}{16}$	$\frac{5}{16}$
C 6x 8.2 x10.5 x13	2.39	6.00	0.200	$\frac{3}{16}$	$\frac{1}{8}$	1.920	1%	0.343	$\frac{5}{16}$	4%	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$
	3.08	6.00	0.314	$\frac{5}{16}$	$\frac{3}{16}$	2.034	2%	0.343	$\frac{5}{16}$	4%	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$
	3.81	6.00	0.437	$\frac{7}{16}$	$\frac{1}{4}$	2.157	2%	0.343	$\frac{5}{16}$	4%	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$
C 7x9.8 x12.25 x14.75	2.87	7.00	0.210	$\frac{3}{16}$	$\frac{1}{8}$	2.090	2%	0.366	$\frac{3}{8}$	5%	$\frac{7}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
	3.60	7.00	0.314	$\frac{5}{16}$	$\frac{3}{16}$	2.194	2½%	0.366	$\frac{3}{8}$	5%	$\frac{7}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
	4.33	7.00	0.419	$\frac{7}{16}$	$\frac{1}{4}$	2.299	2½%	0.366	$\frac{3}{8}$	5%	$\frac{7}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
C 8x11.5 x13.75 x18.75	3.37	8.00	0.220	$\frac{1}{4}$	$\frac{1}{8}$	2.260	2½%	0.390	$\frac{3}{8}$	6%	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
	4.04	8.00	0.303	$\frac{5}{16}$	$\frac{3}{16}$	2.343	2%	0.390	$\frac{3}{8}$	6%	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
	5.51	8.00	0.487	$\frac{1}{2}$	$\frac{1}{4}$	2.527	2½%	0.390	$\frac{3}{8}$	6%	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{8}$
C 9x13.4 x15 x20	3.94	9.00	0.233	$\frac{1}{4}$	$\frac{1}{8}$	2.433	2%	0.413	$\frac{7}{16}$	7	1	$\frac{7}{16}$	$\frac{3}{4}$
	4.41	9.00	0.285	$\frac{5}{16}$	$\frac{3}{16}$	2.485	2½%	0.413	$\frac{7}{16}$	7	1	$\frac{7}{16}$	$\frac{3}{4}$
	5.87	9.00	0.448	$\frac{7}{16}$	$\frac{1}{4}$	2.648	2%	0.413	$\frac{7}{16}$	7	1	$\frac{7}{16}$	$\frac{3}{4}$
C10x15.3 x20 x25 x30	4.48	10.00	0.240	$\frac{1}{4}$	$\frac{1}{8}$	2.60	2%	0.436	$\frac{7}{16}$	8	1	$\frac{7}{16}$	$\frac{3}{4}$
	5.87	10.00	0.379	$\frac{3}{8}$	$\frac{3}{16}$	2.74	2%	0.436	$\frac{7}{16}$	8	1	$\frac{7}{16}$	$\frac{3}{4}$
	7.34	10.00	0.526	$\frac{1}{2}$	$\frac{1}{4}$	2.89	2%	0.436	$\frac{7}{16}$	8	1	$\frac{7}{16}$	$\frac{3}{4}$
	8.81	10.00	0.673	$\frac{1}{16}$	$\frac{3}{8}$	3.03	3	0.436	$\frac{7}{16}$	8	1	$\frac{7}{16}$	$\frac{3}{4}$
C12x20.7 x25 x30	6.08	12.00	0.282	$\frac{5}{16}$	$\frac{3}{16}$	2.94	3	0.501	$\frac{1}{2}$	9%	1%	$\frac{1}{2}$	$\frac{7}{8}$
	7.34	12.00	0.387	$\frac{3}{8}$	$\frac{3}{16}$	3.05	3	0.501	$\frac{1}{2}$	9%	1%	$\frac{1}{2}$	$\frac{7}{8}$
	8.81	12.00	0.510	$\frac{1}{2}$	$\frac{1}{4}$	3.170	3%	0.501	$\frac{1}{2}$	9%	1%	$\frac{1}{2}$	$\frac{7}{8}$
C15x33.9 x40 x50	9.96	15.00	0.400	$\frac{3}{8}$	$\frac{3}{16}$	3.400	3%	0.650	$\frac{5}{8}$	12½%	1½%	$\frac{5}{8}$	1
	11.8	15.00	0.520	$\frac{1}{2}$	$\frac{1}{4}$	3.520	3½%	0.650	$\frac{5}{8}$	12½%	1½%	$\frac{5}{8}$	1
	14.7	15.00	0.716	$\frac{1}{16}$	$\frac{3}{8}$	3.72	3%	0.650	$\frac{5}{8}$	12½%	1½%	$\frac{5}{8}$	1

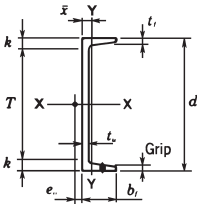


STRUCTURAL CHANNELS

MISCELLANEOUS

Dimensions
ASTM-A36

Designation	Area <i>A</i>	Depth <i>d</i>	Web		Flange				Distance		Grip	Max. Flge. Fas- ten- er	
			Thickness <i>t_w</i>	$\frac{t_w}{2}$	Width <i>b_f</i>	Thickness <i>t_f</i>	<i>T</i>	<i>k</i>					
									In.	In.			In.
MC 3x 7.1	2.11	3.00	0.312	$\frac{5}{16}$	$\frac{3}{16}$	1.94	2	0.351	$\frac{3}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	—	—
MC 4x13.8	4.03	4.00	0.500	$\frac{1}{2}$	$\frac{3}{4}$	2.500	2 $\frac{1}{2}$	0.500	$\frac{1}{2}$	2	1	—	—
MC 6x 12	2.09	6.00	0.310	$\frac{5}{16}$	$\frac{3}{16}$	2.500	2 $\frac{1}{2}$	0.375	$\frac{3}{8}$	4 $\frac{1}{4}$	$\frac{7}{8}$	—	—
MC 6x15.1 x16.3	4.44	6.00	0.316	$\frac{5}{16}$	$\frac{3}{16}$	2.941	3	0.475	$\frac{1}{2}$	3 $\frac{3}{8}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{3}{4}$
	4.79	6.00	0.375	$\frac{3}{8}$	$\frac{3}{8}$	3.000	3	0.475	$\frac{1}{2}$	3 $\frac{3}{8}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{3}{4}$
MC 6x15.3 x18	4.49	6.00	0.340	$\frac{5}{16}$	$\frac{3}{16}$	3.500	3 $\frac{1}{2}$	0.385	$\frac{3}{8}$	4 $\frac{1}{4}$	$\frac{7}{8}$	$\frac{3}{8}$	$\frac{7}{8}$
	5.29	6.00	0.379	$\frac{3}{8}$	$\frac{3}{8}$	3.500	3 $\frac{1}{2}$	0.475	$\frac{1}{2}$	3 $\frac{3}{8}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{7}{8}$
MC 7x19.1 x22.7	5.61	7.00	0.352	$\frac{3}{8}$	$\frac{3}{8}$	3.45	3 $\frac{1}{2}$	0.500	$\frac{1}{2}$	4 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{1}{2}$	$\frac{7}{8}$
	6.67	7.00	0.503	$\frac{1}{2}$	$\frac{1}{4}$	3.60	3 $\frac{3}{8}$	0.500	$\frac{1}{2}$	4 $\frac{1}{4}$	1 $\frac{1}{8}$	$\frac{1}{2}$	$\frac{7}{8}$
MC 8x 8.5	2.50	8.00	0.179	$\frac{3}{16}$	$\frac{1}{8}$	1.87	1 $\frac{1}{8}$	0.311	$\frac{5}{16}$	6 $\frac{3}{8}$	1 $\frac{3}{16}$	$\frac{5}{16}$	$\frac{5}{8}$
MC 8x18.7 x20	5.50	8.00	0.353	$\frac{3}{8}$	$\frac{3}{16}$	2.98	3	0.500	$\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{8}$	$\frac{1}{2}$	$\frac{7}{8}$
	5.88	8.00	0.400	$\frac{3}{8}$	$\frac{3}{16}$	3.03	3	0.500	$\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{8}$	$\frac{1}{2}$	$\frac{7}{8}$
MC 8x21.4 x22.8	6.28	8.00	0.375	$\frac{3}{8}$	$\frac{3}{16}$	3.450	3 $\frac{1}{2}$	0.525	$\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{7}{8}$
	6.70	8.00	0.427	$\frac{7}{16}$	$\frac{1}{4}$	3.502	3 $\frac{1}{2}$	0.525	$\frac{1}{2}$	5 $\frac{1}{2}$	1 $\frac{1}{16}$	$\frac{1}{2}$	$\frac{7}{8}$
MC 9x23.9 x25.4	7.02	9.00	0.400	$\frac{3}{8}$	$\frac{3}{16}$	3.450	3 $\frac{1}{2}$	0.550	$\frac{9}{16}$	6 $\frac{1}{2}$	1 $\frac{1}{4}$	$\frac{9}{16}$	$\frac{7}{8}$
	7.47	9.00	0.450	$\frac{7}{16}$	$\frac{1}{4}$	3.500	3 $\frac{1}{2}$	0.550	$\frac{9}{16}$	6 $\frac{1}{2}$	1 $\frac{1}{4}$	$\frac{9}{16}$	$\frac{7}{8}$



STRUCTURAL CHANNELS

MISCELLANEOUS

Dimensions ASTM-A36

Designation	Area A	Depth d	Web			Flange				Distance		Grip	Max. Flge. Fastener
			Thickness t_w	$\frac{t_w}{2}$	Width b_f	Thickness t_f	T	k	In.	In.			
											In.		
MC10x 8.4	2.46	10.00	0.170	$\frac{3}{16}$	$\frac{1}{8}$	1.500	1½	0.280	$\frac{1}{4}$	8½	$\frac{3}{4}$	—	—
MC10x22 x25	6.45	10.00	0.290	$\frac{5}{16}$	$\frac{3}{16}$	3.32	3%	0.575	$\frac{5}{16}$	7%	1½	$\frac{5}{16}$	$\frac{7}{16}$
	7.35	10.00	0.380	$\frac{3}{8}$	$\frac{3}{16}$	3.41	3%	0.575	$\frac{5}{16}$	7%	1½	$\frac{5}{16}$	$\frac{7}{16}$
MC10x28.5 x33.6 x41.1	8.37	10.00	0.425	$\frac{7}{16}$	$\frac{1}{4}$	3.950	4	0.575	$\frac{5}{16}$	7%	1½	$\frac{5}{16}$	$\frac{7}{16}$
	9.87	10.00	0.575	$\frac{5}{8}$	$\frac{3}{8}$	4.100	4%	0.575	$\frac{5}{16}$	7%	1½	$\frac{5}{16}$	$\frac{7}{16}$
	12.1	10.00	0.796	$\frac{1}{2}$	$\frac{7}{16}$	4.321	4%	0.575	$\frac{5}{16}$	7%	1½	$\frac{5}{16}$	$\frac{7}{16}$
MC12x10.6	3.10	12.00	0.190	$\frac{3}{16}$	$\frac{1}{8}$	1.500	1½	0.309	$\frac{5}{16}$	10½	$\frac{3}{4}$	—	—
MC12x31 12x35 x40 x45 x50	9.12	12.00	0.370	$\frac{3}{8}$	$\frac{3}{16}$	3.670	3%	0.700	$\frac{1}{2}$	9%	1½	$\frac{1}{2}$	1
	10.3	12.00	0.467	$\frac{7}{16}$	$\frac{1}{4}$	3.77	3%	0.700	$\frac{1}{2}$	9%	1½	$\frac{1}{2}$	1
	11.8	12.00	0.590	$\frac{9}{16}$	$\frac{5}{16}$	3.89	3%	0.700	$\frac{1}{2}$	9%	1½	$\frac{1}{2}$	1
	13.2	12.00	0.712	$\frac{1}{2}$	$\frac{3}{8}$	4.01	4	0.700	$\frac{1}{2}$	9%	1½	$\frac{1}{2}$	1
	14.7	12.00	0.835	$\frac{13}{16}$	$\frac{7}{16}$	4.14	4%	0.700	$\frac{1}{2}$	9%	1½	$\frac{1}{2}$	1
MC13x31.8 x35 x40 x50	9.35	13.00	0.375	$\frac{3}{8}$	$\frac{3}{16}$	4.00	4	0.610	$\frac{5}{16}$	10%	1½	$\frac{5}{16}$	1
	10.3	13.00	0.447	$\frac{7}{16}$	$\frac{1}{4}$	4.07	4%	0.610	$\frac{5}{16}$	10%	1½	$\frac{5}{16}$	1
	11.8	13.00	0.560	$\frac{9}{16}$	$\frac{5}{16}$	4.18	4%	0.610	$\frac{5}{16}$	10%	1½	$\frac{5}{16}$	1
	14.7	13.00	0.787	$\frac{1}{2}$	$\frac{7}{16}$	4.41	4%	0.610	$\frac{5}{16}$	10%	1½	$\frac{5}{16}$	1
MC18x42.7 x45.8 x51.9 x58	12.6	18.00	0.450	$\frac{7}{16}$	$\frac{1}{4}$	3.950	4	0.625	$\frac{5}{16}$	15%	1½	$\frac{5}{16}$	1
	13.5	18.00	0.500	$\frac{1}{2}$	$\frac{1}{4}$	4.000	4	0.625	$\frac{5}{16}$	15%	1½	$\frac{5}{16}$	1
	15.3	18.00	0.600	$\frac{3}{8}$	$\frac{3}{16}$	4.100	4%	0.625	$\frac{5}{16}$	15%	1½	$\frac{5}{16}$	1
	17.1	18.00	0.700	$\frac{1}{2}$	$\frac{3}{8}$	4.200	4%	0.625	$\frac{5}{16}$	15%	1½	$\frac{5}{16}$	1

TEES—BAR SIZE

Web x Stem x Thickness In. In. In.	Weight Up To Lbs.	In Lengths Feet
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{8}$	.60	20
1 x 1 x $\frac{1}{8}$	.81	20
x 1 x $\frac{3}{16}$	1.20	20
$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{8}$	1.09	20
x $\frac{3}{16}$	1.55	20
$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{16}$	1.90	20
x $\frac{1}{4}$	2.43	20
$1\frac{3}{4}$ x $1\frac{3}{4}$ x $\frac{3}{16}$	2.26	20
x $\frac{1}{4}$	2.90	20
2 x $1\frac{1}{2}$ x $\frac{1}{4}$	3.10	20
2 x 2 x $\frac{1}{4}$	3.62	20
x $\frac{5}{16}$	4.30	20
$2\frac{1}{4}$ x $2\frac{1}{4}$ x $\frac{1}{4}$	4.10	20
x $\frac{5}{16}$	5.50	20
x $\frac{3}{8}$	6.40	20

STRUCTURAL TEES AVAILABLE UPON REQUEST

ZEES-STRUCTURAL

ASTM A-36

Size In.	Weight Per Foot Lbs.	In Lengths Up To Feet
3 x $2\frac{1}{16}$ x $\frac{1}{4}$	6.7	60
x $2\frac{1}{16}$ x $\frac{3}{8}$	9.8	60
x $2\frac{1}{16}$ x $\frac{1}{2}$	12.6	60
4 x $3\frac{1}{16}$ x $\frac{1}{4}$	8.2	60
x $3\frac{1}{8}$ x $\frac{5}{16}$	10.3	60
x $3\frac{1}{16}$ x $\frac{3}{8}$	12.5	60
x $3\frac{1}{8}$ x $\frac{1}{2}$	15.9	60
5 x $3\frac{3}{4}$ x $\frac{5}{16}$	11.6	60
x $3\frac{3}{16}$ x $\frac{3}{8}$	14.0	60
x $3\frac{3}{4}$ x $\frac{1}{2}$	17.9	60
6 x $3\frac{1}{2}$ x $\frac{3}{8}$	15.7	60
6 x $3\frac{3}{8}$ x $\frac{1}{2}$	21.1	60