

Product Specifications

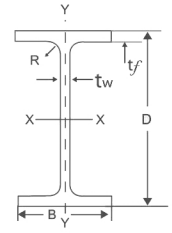
(Structural Steel and Sheet Pile)

Chemical Compositions (ladle analysis), %											
c (max.)	Si (max.)	Mn (max.)	P (max.)	S (max.)	CE ^E (max.)	SW ^E (max.)	Nb (max.)	V (max.)	N (max.)	Classifications	
-	-	-	0.050	0.050	-	-	-	-	-	SS400	JIS G 3101 : 2004
-	-	-	0.050	0.050	-	-	-	-	-	SS490	
0.30	-	1.60	0.040	0.040	-	-	-	-	-	SS540	
0.23	-	250xC min.	0.035	0.035	-	-	-	-	-	SM400 A	JIS G 3106 : 2004
0.20	0.35	0.60-1.40	0.035	0.035	-	-	-	-	-	SM400 B	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	SM490 A	
0.18	0.55	1.60	0.035	0.035	-	-	-	-	-	SM490 B	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	SM490 YA	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	SM490 YB	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	SM520 B	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	SM520 C	
0.24	-	-	0.050	0.050	-	-	-	-	-	SN400 A	JIS G 3136 : 2005
0.20	0.35	0.60-1.40	0.030	0.015	0.36	0.36	-	-	-	SN400 B	
0.18	0.55	1.60	0.030	0.015	0.44	0.44	-	-	-	SN490 B	
0.25	0.50	1.60	0.050	0.050	-	-	-	-	-	43A	BS 4360 : 1986
0.21	0.50	1.50	0.050	0.050	-	-	-	-	-	43B	
0.18	0.50	1.50	0.050	0.050	-	-	-	-	-	43C	
0.18	0.50	1.50	0.050	0.050	-	-	-	-	-	43D	
0.23	0.50	1.60	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-	50A	
0.20 ^A	0.50	1.50 ^A	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-	50B	
0.20 ^A	0.50	1.50 ^A	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-	50C	
0.18 ^A	0.50	1.50 ^A	0.040	0.040	-	-	0.003-0.100	0.003-0.100	-	50D	
0.21	-	1.50	0.035	0.035	-	-	-	-	0.009 ^C	S275JR	BS EN 10025 : 1993/2004^H
0.18	-	1.50	0.030	0.030	-	-	-	-	0.009 ^C	S275JO	
0.18	-	1.50	0.025	0.025	-	-	-	-	-	S275J2	
0.18	-	1.50	0.035	0.035	-	-	-	-	-	S275J2G3 ^G	
0.24	0.55	1.60	0.035	0.035	-	-	-	-	0.009 ^C	S355JR	
0.20	0.55	1.60	0.030	0.030	-	-	-	-	0.009 ^C	S355JO	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	S355J2	
0.20	0.55	1.60	0.035	0.035	-	-	-	-	-	S355J2G3 ^G	
0.26	0.40	-	0.040	0.050	-	-	-	-	-	A36	ASTM : 2003
0.21	0.40	1.35 ^B	0.040	0.050	-	-	-	0.010-0.150	-	A 572 Gr.42	
0.23	0.40	1.35 ^B	0.040	0.050	-	-	-	0.010-0.150	-	A 572 Gr.50	
0.23	0.10-0.40	0.50-1.50	0.035	0.045	0.45	-	-	0.11	0.012	A 992 ^D	
-	-	-	-	-	-	-	0.05	-	-	St-33	DIN 17100
0.17	-	-	0.050	0.050	-	-	-	-	0.009 ^C	St 37-2	
0.21	-	-	0.050	0.050	-	-	-	-	0.009 ^C	St 44-2	
-	-	-	0.050	0.050	-	-	-	-	0.009 ^C	St 50-2	
0.2	-	-	0.040	0.040	-	-	-	-	-	St 52-3	
0.25	0.40	-	0.040	0.040	0.43	0.43	-	-	-	250	AS/NZS 3679.1 : 1996
0.20	0.40	1.50	0.040	0.040	0.42	0.42	-	-	-	250L0	
0.22	0.50	1.60	0.040	0.040	0.45	0.45	-	-	-	350	
0.22	0.50	1.60	0.040	0.040	0.45	0.45	-	-	-	350L0	
0.22	0.50	1.60	0.040	0.040	0.44	0.44	-	-	-	300	
0.22	0.50	1.60	0.040	0.040	0.44	0.44	-	-	-	300L0	
-	-	-	0.040	0.040	-	-	-	-	-	SY295	JIS A 5528 : 2000
-	-	-	0.040	0.040	-	-	-	-	-	SY390	

Remark

- A:** It is permissible to vary the carbon and manganese contents (ladle analysis) for grades 50B, 50C, and 50D on the basis of an increase of 0.06% manganese content for each decrease of 0.01% carbon, or vice versa up to maximum manganese content of 1.6% and maximum carbon content of 0.22% for grades 50B and 50C and 0.20% for grade 50D
- B:** A maximum of manganese of 1.50% is permissible, with an associated reduction of the carbon maximum of 0.03%.
- C:** Nitrogen control excluded.
- D:** Additional chemical composition contro grade A992 : Ni (max.) = 0.45, Co (max.) = 0.05, Cr (max.) = 0.35, Cu (max.) = 0.60, Mo (max.) = 0.15, Co +V (max.) = 0.15, and Mn/S (min.) = 20, Mn/S (min.) = 20.
- E:** Carbon Equivalent : (JIS Standard) CE = C + Mn/6 + Si/24 + Ni/40 + Cr/5 + Mo/4 + V/14 (AS, ASTM Standard) CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15.
- F:** Chmical Composition on sensitivity of welding crack = C + Si/30 + Mn/20 + Cu/20 + Ni/60 + Cr/20 + Mo/15 + V/10 + 5B.
- G:** Only in 1993 version.
- H:** For 2004 version, Cu (max.) = 0.55%

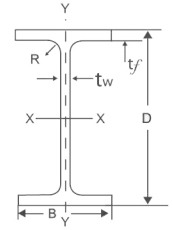
Universal Beams And Columns



IMPERIAL UNITS

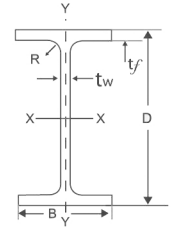
Section Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in. ²	cm ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W4 102 x 102 (4 x 4)	16.3 13.8 13	24.0 21.0 19.35	4.79 4.05 3.83	30.9 26.1 24.71	4.21 4.02 4.16	107.0 102.0 105.7	3.937 4.016 4.060	100.0 102.0 103.1	0.472 0.370 0.345	12.0 9.4 8.76	0.311 0.315 0.280	7.9 8.0 7.11	0.236 0.236 0.25	6.0 6.0 6.35
W5 127 x 76 (5 x 3)	9	13.00	2.60	16.80	5.00	127.0	3.000	76.2	0.299	7.60	0.165	4.20	0.30	6.35
W5 127 x 127 (5 x 5)	19 16	28.28 23.81	5.56 4.71	35.87 30.39	5.15 5.01	130.8 127.3	5.030 5.000	127.8 127.0	0.430 0.360	10.90 9.14	0.270 0.240	6.86 6.10	0.30 0.30	7.62 7.62
W6 152 x 76 (6 x 3)	12 9	18.0 14.0	3.35 2.76	21.6 17.8	6.10 5.91	155.0 150.0	2.953 2.953	75.0 75.0	0.335 0.276	8.5 7.0	0.236 0.197	6.0 5.0	0.315 0.315	8.0 8.0
W6 152 x 89 (6 x 3½)	11	16.00	3.18	20.50	6.00	152.4	3.500	88.9	0.303	7.70	0.181	4.60	0.25	6.35
W6 152 x 102 (6 x 4)	16 12 9	23.81 17.86 13.39	4.74 3.55 2.68	30.58 22.90 17.29	6.28 6.03 5.90	159.5 153.2 149.9	4.030 4.000 3.940	102.4 101.6 100.1	0.405 0.280 0.215	10.20 7.11 5.46	0.260 0.230 0.170	6.60 5.84 4.32	0.25 0.25 0.25	6.35 6.35 6.35
W6 152 x 152 (6 x 6)	25 20 15.7 15	37.20 30.00 23.00 22.50	7.34 5.87 4.62 4.43	47.35 37.87 29.80 28.58	6.38 6.20 6.00 5.99	162.1 157.5 152.4 152.1	6.080 6.020 6.000 5.990	154.4 152.9 152.4 152.1	0.455 0.365 0.269 0.260	11.50 9.27 6.80 6.60	0.320 0.260 0.240 0.230	8.13 6.60 6.10 5.84	0.25 0.25 0.25 0.25	6.35 6.35 6.35 6.35
W7 178 x 89 (7 x 3½)	15 12 11	22.2 18.1 16.1	4.37 3.56 3.16	28.2 23.0 20.4	7.05 6.89 6.81	179.0 175.0 173.0	3.543 3.543 3.543	90.0 90.0 90.0	0.394 0.315 0.276	10.0 8.0 7.0	0.236 0.197 0.177	6.0 5.0 4.5	0.35 0.35 0.35	8.9 8.9 8.9
W7 178 x 102 (7x4)	13	19.00	3.75	24.20	7.00	177.8	4.000	101.6	0.311	7.90	0.185	4.70	0.30	7.62
W8 203 x 102 (8 x 4)	15.5 15 13 10	23.00 22.32 19.35 14.88	4.50 4.44 3.84 2.96	29.00 28.65 24.77 19.10	8.00 8.11 7.99 7.89	203.2 206.0 202.9 200.4	4.000 4.015 4.000 3.940	101.6 102.0 101.6 100.1	0.368 0.315 0.255 0.205	9.30 8.00 6.48 5.21	0.205 0.245 0.230 0.170	5.20 6.22 5.84 4.32	0.30 0.30 0.30 0.30	7.62 7.62 7.62 7.62
W8 203 x 133 (8 x 5¼)	21 20 18 17 15 14	31.30 30.00 26.79 25.30 22.3 21.0	6.16 5.89 5.26 5.01 4.45 4.20	39.74 38.00 33.94 32.30 28.7 27.1	8.28 8.14 8.14 8.00 7.95 7.99	210.3 206.8 206.8 203.2 202.0 203.0	5.270 5.268 5.250 5.250 5.236 5.236	133.9 133.8 133.3 133.4 133.0 133.0	0.400 0.378 0.330 0.308 0.276 0.252	10.10 9.60 8.38 7.80 7.0 6.4	0.250 0.248 0.230 0.230 0.197 0.197	6.35 6.30 5.84 5.84 5.0 5.0	0.30 0.30 0.30 0.30 0.31 0.31	7.62 7.62 7.62 7.62 8.0 8.0
W8 203 x 165 (8 x 6½)	28 24	41.67 35.72	8.25 7.08	53.23 45.68	8.06 7.93	204.7 201.4	6.535 6.495	166.0 165.0	0.465 0.400	11.80 10.10	0.285 0.245	7.24 6.22	0.40 0.40	10.2 10.2
W8 203 x 203 (8 x 8)	67 58 48 40 35 31	100.0 86.31 71.43 60.00 52.09 46.13	19.7 17.1 14.1 11.7 10.3 9.12	127.1 110.3 90.97 75.48 66.45 58.84	9.00 8.75 8.50 8.25 8.12 8.00	228.6 222.2 215.9 209.5 206.2 203.2	8.280 8.220 8.110 8.070 8.020 7.995	210.3 208.8 206.0 205.0 203.7 203.1	0.935 0.810 0.685 0.560 0.495 0.435	23.75 20.57 17.40 14.20 12.50 11.00	0.570 0.510 0.400 0.360 0.310 0.285	14.48 12.95 10.16 9.14 7.87 7.24	0.40 0.40 0.40 0.40 0.40 0.40	10.2 10.2 10.2 10.2 10.2 10.2
W10 254 x 102 (10 x 4)	19 17 15 12	28.28 25.30 22.32 17.86	5.62 4.99 4.41 3.54	36.26 32.19 28.45 22.84	10.24 10.11 9.99 9.87	260.1 256.8 253.7 250.7	4.020 4.010 4.000 3.960	102.1 101.9 101.6 100.6	0.395 0.330 0.270 0.210	10.00 8.38 6.86 5.33	0.250 0.240 0.230 0.190	6.35 6.10 5.84 4.83	0.30 0.30 0.30 0.30	7.62 7.62 7.62 7.62
W10 254 x 146 (10 x 5¾)	30 29 26 25 22 21 16	44.80 43.00 38.69 37.20 32.74 31.25 24.0	8.85 8.54 7.61 7.36 6.49 6.20 4.82	57.10 55.10 49.10 47.50 41.87 40.00 31.1	10.47 10.22 10.33 10.08 10.17 9.90 9.96	265.9 259.6 262.4 256.0 258.3 251.5 253.0	5.819 5.799 5.770 5.762 5.750 5.750 5.709	147.8 147.3 146.6 146.4 146.0 146.1 145.0	0.510 0.500 0.440 0.430 0.360 0.340 0.252	12.90 12.70 11.10 10.90 9.14 8.60 6.4	0.300 0.289 0.260 0.252 0.240 0.240 0.197	7.62 7.30 6.60 6.40 6.10 6.10 5.0	0.30 0.30 0.30 0.30 0.30 0.30 0.30	7.62 7.62 7.62 7.62 7.62 7.62 7.6
W10 254 x 203 (10 x 8)	57 45 42 39 33	84.8 66.97 62.5 58.04 49.11	16.74 13.3 12.29 11.5 9.71	108 85.81 79.3 74.19 62.64	8.15 10.10 9.89 9.92 9.73	207.0 256.5 249.4 252.0 247.1	8.315 8.020 8.150 7.985 7.960	211.3 203.7 207.0 202.8 202.2	0.650 0.620 0.480 0.530 0.435	16.5 15.70 12.2 13.40 11.00	0.650 0.350 0.480 0.315 0.290	16.5 8.89 12.2 8.00 7.37	0.50 0.50 0.50 0.50 0.50	12.7 12.7 12.7 12.7 12.7
W10 254 x 254 (10 x 10)	112 100 89	167.0 149.0 132.0	32.9 29.4 26.2	212.3 189.7 168.9	11.36 11.11 10.88	288.5 282.2 276.4	10.415 10.340 10.275	264.5 262.6 261.0	1.250 1.120 0.998	31.75 28.45 25.30	0.755 0.680 0.615	19.18 17.27 15.60	0.50 0.50 0.50	12.7 12.7 12.7

Universal Beams And Columns (Continued)



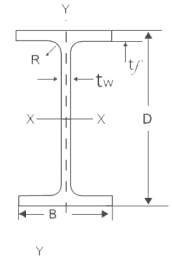
Section Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in. ⁴	cm ⁴	in. ⁴	cm ⁴	in.	cm	in.	cm	in. ³	cm ³	in. ³	cm ³
W4 102 x 102 (4 x 4)	14.14 11.0 11.3	587 456 470	4.80 4.01 3.86	200 167 161	1.72 1.65 1.72	4.36 4.18 4.37	1.00 1.00 1.00	2.55 2.53 2.54	6.71 5.46 5.46	110 89.4 89.5	2.45 2.00 1.90	40.1 32.7 31.1
W5 127 x 76 (5 x 3)	11.5	477	1.30	56.0	2.10	5.33	0.72	1.83	4.60	75.0	0.90	15.0
W5 127 x 127 (5 x 5)	26.3 21.4	1,090 891	9.13 7.51	380 313	2.17 2.13	5.51 5.41	1.2 1.26	3.25 3.20	10.2 8.55	167 140	3.63 3.00	59.50 49.2
W6 152 x 76 (6 x 3)	20.2 16.0	841 666	1.45 1.19	60.2 49.5	2.46 2.41	6.24 6.11	0.66 0.66	1.67 1.67	6.65 5.42	109 88.8	0.98 0.81	16.0 13.2
W6 152 x 89 (6 x 3½)	20.1	838	2.20	90.0	2.52	6.40	0.83	2.10	6.70	110	1.20	20.0
W6 152 x 102 (6 x 4)	32.1 22.1 16.4	1,340 920 683	4.43 2.99 2.20	184 124 91.6	2.60 2.49 2.47	6.60 6.32 6.27	0.966 0.918 0.905	2.45 2.33 2.30	10.2 7.31 5.56	167 120 91.1	2.20 1.50 1.11	36.1 24.6 18.2
W6 152 x 152 (6 x 6)	53.4 41.4 30.3 29.1	2,220 1,720 1,263 1,210	17.1 13.3 9.70 9.32	712 554 403 388	2.70 2.66 2.56 2.56	6.86 6.76 6.51 6.50	1.52 1.50 1.45 1.45	3.86 3.81 3.68 3.68	16.7 13.4 10.1 9.72	274 220 165.7 159	5.61 4.41 3.20 3.11	91.9 72.3 52.95 51.0
W7 178 x 89 (7 x 3½)	36.7 29.1 25.5	1529 1213 1060	2.93 2.34 2.05	122 97.6 85.4	2.90 2.86 2.83	7.36 7.26 7.20	0.82 0.81 0.80	2.08 2.06 2.04	10.43 8.48 7.51	171 139 123	1.65 1.32 1.16	27.1 21.7 19.0
W7 178 x 102 (7 x 4)	32.6	1,357	3.30	138	2.95	7.49	0.940	2.39	9.30	153	1.60	27.0
W8 203 x 102 (8 x 4)	50.2 48.0 39.6 30.8	2,091 2,000 1,650 1,280	3.90 3.41 2.73 2.09	163 142 114 87.0	3.34 3.29 3.21 3.22	8.49 8.36 8.16 8.18	0.930 0.876 0.843 0.841	2.37 2.22 2.14 2.14	12.6 11.8 9.91 7.81	206 193 162 128	2.00 1.70 1.37 1.06	32.0 27.9 22.4 17.4
W8 203 x 133 (8 x 5¼)	75.3 69.2 61.9 56.4 50.6 47.6	3,130 2,981 2,580 2,348 2,105 1,980	9.77 8.50 7.97 6.72 6.61 6.03	407 354 332 280 275 251	3.49 3.43 3.43 3.36 1.22 1.20	8.86 8.71 8.71 8.53 8.56 8.55	1.26 1.20 1.23 1.16 1.22 1.20	3.20 3.05 3.12 2.95 3.09 3.05	18.2 17.0 15.2 14.1 12.7 11.9	298 279 249 231 208 195	3.71 3.20 3.04 2.60 2.52 2.31	60.8 52.4 49.8 42.6 41.3 37.8
W8 203 x 165 (8 x 6½)	98.0 82.8	4,080 3,450	21.7 18.3	903 762	3.45 3.42	8.76 8.69	1.62 1.61	4.11 4.09	24.3 20.9	398 342	6.63 5.63	109 92.3
W8 203 x 203 (8 x 8)	272 228 184 146 127 110	11,300 9,480 7,660 6,080 5,290 4,580	88.6 75.1 60.9 49.1 42.6 37.1	3,690 3,130 2,530 2,040 1,770 1,540	3.72 3.65 3.61 3.53 3.51 3.47	9.45 9.27 9.17 8.97 8.92 8.81	2.12 2.10 2.08 2.04 2.03 2.02	5.38 5.33 5.28 5.18 5.16 5.13	60.4 52.0 43.3 35.5 31.2 27.5	990 852 710 582 511 451	21.4 18.3 15.0 12.2 10.6 9.27	351 300 246 200 174 152
W10 254 x 102 (10 x 4)	96.3 81.9 68.9 53.8	4,010 3,410 2,870 2,240	4.29 3.56 2.89 2.18	176 148 120 90.7	4.14 4.05 3.95 3.90	10.5 10.3 10.0 9.91	0.874 0.845 0.810 0.785	2.22 2.15 2.06 1.99	18.8 16.2 13.8 10.9	308 265 226 179	2.14 1.78 1.45 1.10	35.1 29.2 23.8 18.0
W10 254 x 146 (10 x 5¾)	170 157 144 133 118 106 83.5	7,080 6,548 5,990 5,545 4,910 4,425 3,477	16.8 15.2 14.1 12.7 11.4 9.7 7.83	699 633 587 529 474 404 326	4.38 4.29 4.35 4.26 4.27 4.14 4.17	11.1 10.9 11.0 10.8 10.8 10.5 10.6	1.38 1.34 1.36 1.31 1.33 1.25 1.27	3.51 3.40 3.45 3.33 3.38 3.18 3.23	32.5 30.8 27.9 26.4 23.2 21.5 16.78	533 505 457 433 380 352 275	5.76 5.20 4.89 4.40 3.97 3.40 2.74	94.4 85.2 80.1 72.1 65.1 55.7 44.9
W10 254 x 203 (10 x 8)	286.5 248 202.5 209 170	11,930 10,300 8,430 8,700 7,080	62.61 53.4 43.41 45.0 36.6	2,606 2,220 1,807 1,870 1,520	4.13 4.32 4.06 4.27 4.19	10.5 11.0 10.3 10.8 10.6	1.93 2.01 1.88 1.98 1.94	4.91 5.11 4.77 5.03 4.93	56.44 49.1 41.25 42.1 35.0	905 805 676 690 574	15.07 13.3 10.68 11.3 9.20	247 218 175 185 151
W10 254 x 254 (10 x 10)	716 625 542	29,800 26,000 22,580	236 207 181	9,820 8,620 7,518	4.66 4.61 4.55	11.8 11.7 11.6	2.68 2.65 2.63	6.81 6.73 6.68	126 112 99.7	2,060 1,840 1,634	45.3 40.0 35.2	742 655 577

Universal Beams And Columns



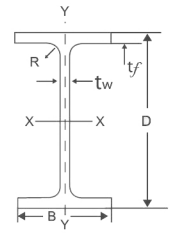
Section Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in. ²	cm ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W10 254 x 254 (10 x 10)	88	131.0	25.9	167.1	10.84	275.3	10.265	260.7	0.990	25.15	0.605	15.37	0.50	12.7
	77	115.0	22.6	145.8	10.60	269.2	10.190	258.8	0.870	22.10	0.530	13.46	0.50	12.7
	72	107.0	21.2	136.6	10.50	266.7	10.170	258.3	0.808	20.50	0.510	13.00	0.50	12.7
	68	101.2	20.0	129.0	10.40	264.2	10.130	257.3	0.770	19.56	0.470	11.94	0.50	12.7
	60	89.29	17.6	113.5	10.22	259.6	10.080	256.0	0.680	17.27	0.420	10.67	0.50	12.7
	54	80.36	15.8	101.9	10.09	256.3	10.030	254.8	0.615	15.60	0.370	9.40	0.50	12.7
49	73.00	14.4	92.90	9.98	253.5	10.000	254.0	0.560	14.20	0.340	8.64	0.50	12.7	
W12 305 x 102 (12 x 4)	22	33.00	6.48	41.81	12.31	312.7	4.030	102.4	0.425	10.80	0.260	6.60	0.30	7.62
	19	28.28	5.57	35.94	12.16	308.9	4.005	101.7	0.350	8.89	0.235	5.97	0.30	7.62
	16.5	25.00	4.87	31.40	12.00	304.8	4.000	101.6	0.269	6.80	0.230	5.80	0.30	7.62
	16	23.81	4.71	30.39	11.99	304.5	3.990	101.3	0.265	6.73	0.220	5.59	0.30	7.62
14	20.83	4.16	26.84	11.91	302.5	3.970	100.8	0.225	5.71	0.200	5.08	0.30	7.62	
W12 305 x 127 (12 x 5)	32	48.00	9.42	60.8	12.22	310.4	4.930	125.2	0.551	14.00	0.350	8.90	0.30	7.62
	28	42.00	8.25	53.2	12.07	306.6	4.893	124.3	0.476	12.10	0.313	8.00	0.30	7.62
	25	37.00	7.36	47.5	11.96	303.8	4.864	123.5	0.421	10.70	0.284	7.20	0.30	7.62
W12 305 x 165 (12 x 6½)	36	54.00	10.6	68.40	12.24	310.9	6.565	166.8	0.540	13.70	0.305	7.70	0.30	7.62
	35	52.09	10.3	66.45	12.50	317.5	6.560	166.6	0.520	13.20	0.300	7.62	0.30	7.62
	31	46.00	9.13	58.90	12.09	307.1	6.525	165.7	0.465	11.80	0.265	6.70	0.30	7.62
	30	44.64	8.79	56.71	12.34	313.4	6.520	165.6	0.440	11.10	0.260	6.60	0.30	7.62
	27	40.00	7.98	51.50	11.96	303.8	6.500	165.1	0.400	10.20	0.240	6.10	0.30	7.62
	26	38.70	7.65	49.35	12.22	310.4	6.490	164.8	0.380	9.65	0.230	5.84	0.30	7.62
21	31.0	6.11	39.4	12.05	306.0	6.460	164.0	0.290	7.4	0.196	5.0	0.30	7.62	
W12 305 x 203 (12 x 8)	50	74.41	14.7	94.84	12.19	309.6	8.080	205.2	0.640	16.20	0.370	9.40	0.60	15.2
	45	66.97	13.2	85.16	12.06	306.3	8.045	204.3	0.575	14.60	0.335	8.51	0.60	15.2
	40	59.53	11.8	76.13	11.94	303.3	8.005	203.3	0.515	13.00	0.295	7.49	0.60	15.2
W12 305 x 254 (12 x 10)	58	86.31	17.0	109.7	12.19	309.6	10.010	254.3	0.640	16.20	0.360	9.14	0.60	15.2
	53	78.87	15.6	100.6	12.06	306.3	9.995	253.9	0.575	14.60	0.345	8.76	0.60	15.2
W12 305 x 305 (12 x 12)	336	500.0	98.8	637.4	16.82	427.2	13.385	340.0	2.955	75.06	1.775	45.08	0.60	15.2
	305	453.9	89.6	578.1	16.32	414.5	13.235	336.2	2.705	68.71	1.625	41.27	0.60	15.2
	278	413.7	81.9	528.4	15.85	402.6	13.140	333.8	2.470	62.74	1.530	38.86	0.60	15.2
	242	375.0	74.0	477.4	15.41	391.4	13.005	330.3	2.250	57.15	1.395	35.43	0.60	15.2
	230	342.3	67.7	436.8	15.05	382.3	12.895	327.5	2.070	52.58	1.285	32.64	0.60	15.2
	210	312.5	61.8	398.7	14.71	373.6	12.790	324.9	1.900	48.26	1.180	29.97	0.60	15.2
	190	283.0	55.8	360.0	14.38	365.3	12.670	321.8	1.735	44.07	1.060	26.92	0.60	15.2
	170	253.0	50.0	322.6	14.03	356.4	12.570	319.3	1.560	39.62	0.960	24.38	0.60	15.2
	161	240.0	47.4	305.6	13.88	352.6	12.515	317.9	1.486	37.70	0.905	23.00	0.60	15.2
	152	226.2	44.7	288.4	13.71	348.2	12.480	317.0	1.400	35.56	0.870	22.10	0.60	15.2
	136	202.4	39.9	257.4	13.41	340.6	12.400	315.0	1.250	31.75	0.790	20.07	0.60	15.2
	133	198.0	39.1	252.3	13.38	339.9	12.365	314.1	1.236	31.40	0.755	19.20	0.60	15.2
	120	179.0	34.3	227.7	13.12	333.2	12.320	312.9	1.100	28.07	0.710	18.03	0.60	15.2
	106	158.0	31.2	201.3	12.89	327.4	12.220	310.4	0.990	24.14	0.610	15.48	0.60	15.2
	96	143.0	28.2	182.0	12.71	322.8	12.160	308.9	0.900	22.86	0.550	13.97	0.60	15.2
	92	137.0	27.1	174.6	12.62	320.4	12.155	308.7	0.856	21.70	0.545	13.80	0.60	15.2
	87	129.5	25.6	165.2	12.53	318.3	12.125	308.0	0.810	20.57	0.515	13.08	0.60	15.2
79	118.0	23.2	149.7	12.38	314.5	12.080	306.8	0.735	18.67	0.470	11.94	0.60	15.2	
72	107.1	21.2	136.1	12.25	311.1	12.040	305.8	0.670	17.02	0.430	10.92	0.60	15.2	
65	97.0	19.1	123.2	12.12	307.8	12.000	304.8	0.605	15.30	0.390	9.91	0.60	15.2	
W14 356 x 127 (14 x 5)	26	39.0	7.69	49.61	13.91	353.3	5.025	127.6	0.420	10.60	0.255	6.48	0.40	10.2
	22	33.0	6.49	41.87	13.74	349.0	5.000	127.0	0.335	8.51	0.230	5.84	0.40	10.2
W14 356 x 171 (14 x 6½)	45	67.0	13.2	85.40	14.33	364.0	6.820	173.2	0.618	15.70	0.357	9.10	0.40	10.2
	38	57.0	11.2	72.26	14.10	358.1	6.770	172.0	0.515	13.00	0.310	7.87	0.40	10.2
	34	51.0	10.0	64.52	13.98	355.1	6.745	171.3	0.455	11.50	0.285	7.24	0.40	10.2
	30	45.0	8.85	57.10	13.84	351.5	6.730	170.9	0.385	9.78	0.270	6.86	0.40	19.2

Universal Beams And Columns (Continued)



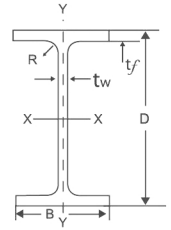
Section Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in. ⁴	cm ⁴	in. ⁴	cm ⁴	in.	cm	in.	cm	in. ³	cm ³	in. ³	cm ³
W10 254 x 254 (10 x 10)	534 455 421 394 341 303 272	22,200 18,900 17,510 16,400 14,200 12,600 11,300	179 154 142 134 116 103 93.4	7,450 6,410 5,903 5,580 4,830 4,290 3,890	4.54 4.49 4.46 4.44 4.39 4.37 4.35	11.5 11.4 11.3 11.3 11.2 11.1 11.0	2.63 2.60 2.59 2.58 2.57 2.56 2.54	6.68 6.60 6.58 6.55 6.53 6.50 6.45	98.5 85.9 80.1 75.7 66.7 60.0 54.6	1,610 1,410 1,312 1,240 1,090 983 895	34.8 30.1 27.9 26.4 23.0 20.6 18.7	570 493 457 433 377 338 306
W12 305 x 102 (12 x 4)	156 130 105.4 103 88.6	6,490 5,410 4,387 4,290 3,690	4.66 3.76 2.90 2.82 2.36	194 156 120 117 98.2	4.91 4.82 4.65 4.67 4.62	12.5 12.2 11.8 11.9 11.7	0.848 0.822 0.770 0.773 0.753	2.15 2.09 1.96 1.96 1.91	25.4 21.3 17.6 17.1 14.9	416 349 288 280 244	2.31 1.88 1.40 1.41 1.19	37.9 30.8 23.6 23.1 19.5
W12 305 x 126 (12 x 5)	228.3 195.6 172.0	9,504 8,143 7,162	11.1 9.3 8.1	460 388 337	4.92 4.87 4.83	12.5 12.4 12.3	1.08 1.06 1.05	2.75 2.70 2.67	37.4 32.4 28.8	612 531 472	4.50 3.80 3.30	73.5 62.5 54.6
W12 305 x 165 (12 x 6½)	285 280.8 238.4 238 204.1 204 157.5	11,900 11,690 9,924 9,910 8,496 8,490 6,554	24.5 23.7 19.8 20.3 16.6 17.3 13.1	1,020 986.6 824 845 691 720 544	5.25 5.15 5.11 5.21 5.06 5.17 5.08	13.3 13.1 12.9 13.2 12.8 13.1 12.9	1.54 1.50 1.47 1.52 1.44 1.51 1.46	3.91 3.81 3.73 3.86 3.66 3.84 3.72	45.6 45.9 39.4 38.6 34.1 33.4 26.1	747 752 646 633 559 547 428	7.47 7.20 6.10 6.24 5.10 5.34 4.05	122 118 100 102 83.6 87.5 66.4
W12 305 x 203 (12 x 8)	394 350 310	16,400 14,600 12,900	56.3 50.0 44.1	2,340 2,080 1,840	5.18 5.15 5.13	13.2 13.1 13.0	1.96 1.94 1.94	4.98 4.93 4.93	64.7 58.1 51.9	1,060 952 850	13.9 12.4 11.0	228 203 180
W12 305 x 254 (12 x 10)	475 425	19,800 17,700	107 95.8	4,450 3,990	5.28 5.23	13.4 13.3	2.51 2.48	6.38 6.30	78.0 70.6	1,280 1,160	21.4 19.2	351 315
W12 305 x 305 (12 x 12)	4,060 3,550 3,110 2,720 2,420 2,140 1,890 1,542 1,540 1,430 1,240 1,221 1,070 933 833 789 740 662 597 533	169,000 148,000 129,000 113,000 101,000 89,100 78,700 64,180 68,700 59,500 51,600 50,840 44,500 38,800 34,700 32,840 30,800 27,600 24,800 22,200	1,190 1,050 937 828 742 664 589 486 517 454 398 390 345 301 270 256 241 216 195 174	49,500 43,700 39,000 34,500 30,900 27,600 24,500 20,240 21,500 18,900 16,600 16,230 14,400 12,500 11,200 10,670 10,000 8,990 8,120 7,240	6.41 6.29 6.16 6.06 5.97 5.89 5.82 5.70 5.74 5.66 5.58 5.59 5.51 5.47 5.44 5.40 5.38 5.34 5.31 5.28	16.3 16.0 15.6 15.4 15.2 15.0 14.8 14.5 14.6 14.4 14.2 14.2 14.0 13.9 13.8 13.7 13.7 13.6 13.5 13.4	3.47 3.42 3.38 3.34 3.31 3.28 3.25 3.20 3.22 3.19 3.16 3.16 3.13 3.11 3.09 3.08 3.07 3.05 3.04 3.02	8.81 8.69 8.59 8.48 8.41 8.33 8.25 8.13 8.18 8.10 8.03 8.03 7.95 7.90 7.85 7.82 7.80 7.75 7.72 7.67	483 435 393 353 321 292 263 222 235 209 186 183 163 145 131 125 118 107 97.4 87.9	7,910 7,130 6,440 5,780 5,260 4,780 4,310 3,641 3,850 3,420 3,050 2,991 2,670 2,380 2,150 2,048 1,930 1,750 1,600 1,440	177 159 143 127 115 104 93.0 77.1 82.3 72.8 64.2 63.1 56.0 49.3 44.4 42.2 39.7 35.8 32.4 29.1	2,900 2,610 2,340 2,080 1,880 1,700 1,520 1,273 1,350 1,190 1,050 1,034 918 808 728 691 651 587 531 477
W14 356 x 127 (14 x 5)	245 199	10,200 8,280	8.91 7.00	371 291	5.65 5.54	14.4 14.1	1.08 1.04	2.74 2.64	35.3 29.0	578 475	3.55 2.80	58.2 45.9
W14 356 x 171 (14 x 6¾)	469 385 340 291	19,522 16,000 14,200 12,100	32.7 26.7 23.3 19.6	1,362 1,110 970 816	5.95 5.88 5.83 5.73	15.1 14.9 14.8 14.6	1.57 1.55 1.53 1.49	3.99 3.94 3.89 3.78	54.4 54.6 48.6 42.0	1,073 895 796 688	9.60 7.88 6.91 5.82	157 129 113 95.4

Universal Beams And Columns



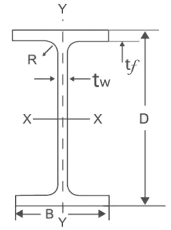
Section Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in. ²	cm ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W14 356 x 203 (14 x 8)	53	78.87	15.6	100.6	13.92	353.6	8.060	204.7	0.660	16.70	0.370	9.40	0.60	15.2
	48	71.43	14.1	90.97	13.79	350.3	8.030	204.0	0.595	15.10	0.340	8.64	0.60	15.2
	43	63.99	12.6	81.29	13.66	347.0	7.995	203.1	0.530	13.40	0.305	7.75	0.60	15.2
W14 356 x 254 (14 x 10)	82	122.0	24.1	155.5	14.31	363.5	10.130	257.3	0.855	21.72	0.510	12.95	0.60	15.2
	74	110.1	21.8	140.6	14.17	359.9	10.070	255.8	0.785	19.94	0.450	11.43	0.60	15.2
	68	101.2	20.0	129.0	14.04	356.6	10.035	254.9	0.723	18.36	0.415	10.54	0.60	15.2
	61	90.78	17.9	115.5	13.89	352.8	9.995	253.9	0.645	16.30	0.375	9.52	0.60	15.2
W14 356 x 368 (14 x 14½)	136	202.0	40.0	257.9	14.75	374.7	14.740	374.4	1.063	27.00	0.660	16.80	0.60	15.2
	132	196.4	38.8	250.3	14.66	372.4	14.725	374.0	1.030	26.16	0.645	16.38	0.60	15.2
	120	179.0	35.3	227.7	14.48	367.8	14.670	372.6	0.940	23.88	0.590	14.99	0.60	15.2
	119	177.0	35.0	225.7	14.50	368.3	14.550	372.1	0.938	23.80	0.570	14.50	0.60	15.2
	109	162.2	32.0	206.5	14.32	363.7	14.605	371.0	0.860	21.84	0.525	13.33	0.60	15.2
	103	153.0	30.3	195.2	14.25	362.0	14.575	370.2	0.813	20.70	0.495	12.60	0.60	15.2
	99	147.3	29.1	187.7	14.16	359.7	14.565	370.0	0.780	19.81	0.485	12.32	0.60	15.2
	90	134.0	26.5	171.0	14.02	356.1	14.520	368.8	0.710	18.03	0.440	11.18	0.60	15.2
W14 356 x 406 (14 x 16)	87	129.0	25.6	164.9	14.00	355.6	14.500	368.3	0.688	17.50	0.420	10.70	0.60	15.2
	730	1,086.0	215	1,387	22.42	569.5	17.890	454.4	4.910	124.70	3.070	77.98	0.60	15.2
	665	989.6	196	1,265	21.64	549.7	17.650	448.3	4.520	114.80	2.830	71.88	0.60	15.2
	605	900.3	178	1,148	20.92	531.4	17.415	442.3	4.160	105.60	2.595	65.91	0.60	15.2
	550	818.5	162	1,045	20.24	514.1	17.200	436.9	3.820	97.03	2.380	60.45	0.60	15.2
	500	744.1	147	948.4	19.60	497.8	17.010	432.1	3.500	88.90	2.190	55.63	0.60	15.2
	455	677.1	134	864.5	19.02	483.1	16.835	427.6	3.210	81.53	2.015	51.18	0.60	15.2
	426	634.0	125	806.4	18.67	474.2	16.695	424.1	3.035	77.09	1.875	47.62	0.60	15.2
	398	592.3	117	754.8	18.29	464.6	16.590	421.4	2.845	72.26	1.770	44.96	0.60	15.2
	370	551.0	109	703.2	17.92	455.2	16.475	418.5	2.660	67.56	1.655	42.04	0.60	15.2
	342	509.0	101	651.6	17.54	445.5	16.360	415.5	2.470	62.74	1.540	39.12	0.60	15.2
	314	467.0	92.3	595.5	17.19	436.6	16.235	412.4	2.283	58.00	1.415	35.90	0.60	15.2
	311	463.0	91.4	589.7	17.12	434.8	16.230	412.2	2.260	57.40	1.410	35.81	0.60	15.2
	283	421.1	83.3	537.4	16.74	425.2	16.110	409.2	2.070	52.58	1.290	32.77	0.60	15.2
	264	393.0	77.6	500.9	16.50	419.1	16.025	407.0	1.938	49.20	1.205	30.60	0.60	15.2
	257	382.5	75.6	487.7	16.38	416.1	15.995	406.3	1.890	48.01	1.175	29.84	0.60	15.2
	233	347.0	68.5	441.9	16.04	407.4	15.890	403.6	1.720	43.69	1.070	27.18	0.60	15.2
	228	340.0	67.1	432.7	16.00	406.4	15.865	403.0	1.688	42.90	1.045	26.50	0.60	15.2
	211	314.0	62.0	400.0	15.72	399.3	15.800	401.3	1.560	39.62	0.980	24.89	0.60	15.2
	193	287.2	56.8	366.4	15.48	393.2	15.710	399.0	1.440	36.58	0.890	22.61	0.60	15.2
176	262.0	51.8	334.2	15.22	386.6	15.650	397.5	1.310	33.27	0.830	21.08	0.60	15.2	
159	237.0	46.7	301.3	14.98	380.5	15.565	395.4	1.190	30.23	0.745	18.92	0.60	15.2	
158	235.0	46.5	299.8	15.00	381.0	15.550	395.0	1.188	30.20	0.730	18.50	0.60	15.2	
145	216.0	42.7	275.5	14.78	375.4	15.500	393.7	1.090	27.69	0.680	17.27	0.60	15.2	
118	175.6	34.7	224	14.17	360.0	15.590	396.0	0.787	20.00	0.780	20.00	0.59	15.0	
W16 406 x 140 (16 x 5½)	31	46.13	9.12	58.84	15.88	403.4	5.525	140.3	0.440	11.10	0.275	6.98	0.40	10.2
	26	39.00	7.68	49.55	15.69	398.5	5.500	139.7	0.345	8.76	0.250	6.35	0.40	10.2
W16 406 x 178 (16 x 7)	57	85.0	16.8	108.4	16.43	417.3	7.120	180.8	0.715	18.16	0.430	10.92	0.40	10.2
	50	74.41	14.7	94.84	16.26	413.0	7.070	179.6	0.630	16.00	0.380	9.65	0.40	10.2
	45	67.0	13.3	85.81	16.13	409.7	7.035	178.7	0.565	14.30	0.345	8.76	0.40	10.2
	40	60.0	11.8	76.13	16.01	406.7	6.995	177.7	0.505	12.80	0.305	7.75	0.40	10.2
W16 406 x 260 (16 x 10¼)	36	54.0	10.6	68.39	15.86	402.8	6.985	177.4	0.430	10.90	0.295	7.49	0.40	10.2
	100	148.8	29.4	189.7	16.97	431.0	10.425	264.8	0.985	25.02	0.585	14.86	0.40	10.2
	89	132.4	26.2	169.0	16.75	425.4	10.365	263.3	0.875	22.22	0.525	13.33	0.40	10.2
	77	114.6	22.6	145.8	16.52	419.6	10.295	261.5	0.760	19.30	0.455	11.56	0.40	10.2
	67	99.71	19.7	127.1	16.33	414.8	10.235	260.0	0.665	16.89	0.395	10.03	0.40	10.2

Universal Beams And Columns (Continued)



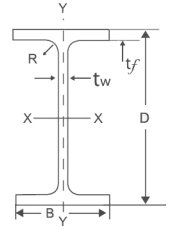
Section Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in. ⁴	cm ⁴	in. ³	cm ³	in.	cm	in.	cm	in. ³	cm ³	in.	cm
W14 356 x 203 (14 x 8)	542	22,600	57.7	2,400	5.89	15.0	1.92	4.88	77.8	1,270	14.3	234
	485	20,200	51.4	2,140	5.85	14.9	1.91	4.85	70.3	1,150	12.8	210
	428	17,800	45.2	1,880	5.82	14.8	1.89	4.80	62.7	1,030	11.3	185
W14 356 x 254 (14 x 10)	882	36,700	148	6,160	6.05	15.4	2.48	6.30	123	2,020	29.3	480
	796	33,100	134	5,580	6.04	15.3	2.48	6.30	112	1,840	26.6	436
	725	30,200	122	5,080	6.01	15.3	2.47	6.27	103	1,690	24.3	398
	640	26,600	107	4,450	5.98	15.2	2.45	6.22	92.2	1,510	21.5	352
W14 356 x 368 (14 x 14½)	1,593	63,310	568	23,630	6.31	16.0	3.77	9.58	216	3,540	77	1,262
	1,530	63,700	548	22,800	6.28	16.0	3.76	9.55	209	3,420	74.5	1,220
	1,380	57,400	495	20,600	6.24	15.8	3.74	9.50	190	3,110	67.5	1,110
	1,373	57,160	492	20,470	6.26	15.9	3.75	9.52	189	3,104	67.1	1,099
	1,240	51,600	447	18,600	6.22	15.8	3.73	9.47	173	2,830	61.2	1,000
	1,166	48,530	420	17,470	6.21	15.8	3.72	9.45	164	2,681	57.6	944
	1,110	46,200	402	16,700	6.17	15.7	3.71	9.42	157	2,570	55.2	905
	999	41,600	362	15,100	6.14	15.6	3.70	9.40	143	2,340	49.9	818
	966	40,250	350	14,560	6.15	15.6	3.70	9.40	138	2,263	48.2	790
W14 356 x 406 14 x 16	14,300	595,000	4,720	196,000	8.17	20.8	4.69	11.9	1,280	21,000	627	8,640
	12,400	516,000	4,170	174,000	7.98	20.3	4.62	11.7	1,150	18,800	472	7,730
	10,800	450,000	3,680	153,000	7.80	19.8	4.55	11.6	1,040	17,000	423	6,930
	9,430	392,000	3,250	135,000	7.63	19.4	4.49	11.4	931	15,300	378	6,190
	8,210	342,000	2,880	120,000	7.48	19.0	4.43	11.3	838	13,700	339	5,560
	7,190	299,000	2,560	107,000	7.33	18.6	4.38	11.1	756	12,400	304	4,980
	6,600	275,000	2,360	98,200	7.26	18.4	4.34	11.0	706	11,600	283	4,640
	6,000	250,000	2,170	90,300	7.16	18.2	4.31	10.9	656	10,700	262	4,290
	5,440	226,000	1,990	82,800	7.07	18.0	4.27	10.8	607	9,950	241	3,950
	4,900	204,000	1,810	75,300	6.98	17.7	4.24	10.8	559	9,160	221	3,620
	4,399	183,100	1,631	67,910	6.90	17.5	4.20	10.7	512	8,390	201	3,294
	4,330	180,000	1,610	67,000	6.88	17.5	4.20	10.7	506	8,290	199	3,260
	3,840	160,000	1,440	59,900	6.79	17.2	4.17	10.6	459	7,520	179	2,930
	3,526	146,800	1,331	55,420	6.74	17.1	4.14	10.5	427	7,005	166	2,772
	3,400	142,000	1,290	53,700	6.71	17.0	4.13	10.5	415	6,800	161	2,640
	3,010	125,000	1,150	47,900	6.63	16.8	4.10	10.4	375	6,150	145	2,380
	2,942	122,500	1,124	46,820	6.62	16.8	4.10	10.4	368	6,028	141	2,324
	2,660	111,000	1,030	42,900	6.55	16.6	4.07	10.3	338	5,540	130	2,130
2,400	99,900	931	38,800	6.50	16.5	4.05	10.3	310	5,080	119	1,950	
2,140	89,100	838	34,900	6.43	16.3	4.02	10.2	281	4,600	107	1,750	
1,900	79,100	748	31,100	6.38	16.2	4.00	10.2	254	4,160	96.2	1,580	
1,900	79,100	745	31,010	6.40	16.2	4.00	10.2	253	4,153	95.8	1,570	
1,710	71,200	677	28,200	6.33	16.1	3.98	10.1	232	3,800	87.3	1,430	
1,244	51,770	498	20,730	5.98	15.2	3.78	9.61	175	2,876	63.9	1,047	
W16 406 x 140 (16 x 5½)	375	15,600	12.4	516	6.41	16.3	1.17	2.97	47.2	773	4.49	73.6
	301	12,500	9.59	399	6.26	15.9	1.12	2.84	38.4	629	3.49	57.2
W16 406 x 178 (16 x 7)	758	31,600	43.1	1,790	6.72	17.1	1.60	4.06	92.2	1,510	12.1	198
	659	27,400	37.2	1,550	6.68	17.0	1.59	4.04	81.0	1,330	10.5	172
	586	24,400	32.8	1,370	6.65	16.9	1.57	3.99	72.7	1,190	9.34	153
	518	21,600	28.9	1,200	6.63	16.8	1.57	3.99	64.7	1,060	8.25	135
448	18,600	24.5	1,020	6.51	16.5	1.52	3.86	56.5	926	7.00	115	
W16 406 x 260 (16 x 10¼)	1,490	62,000	186	7,740	7.10	18.0	2.51	6.38	175	2,870	35.7	585
	1,300	54,100	163	6,780	7.05	17.9	2.49	6.32	155	2,540	31.4	515
	1,100	46,200	138	5,740	7.00	17.8	2.47	6.27	134	2,200	26.9	441
	954	39,700	119	4,956	6.96	17.7	2.46	6.25	117	1,920	23.2	380

Universal Beams And Columns



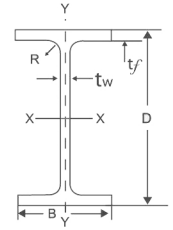
Section Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in. ²	cm ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W18 457 x 152 (18 x 6)	55	82.00	16.2	104.5	18.31	465.1	6.042	153.5	0.744	18.90	0.420	10.7	0.40	10.2
	50	74.00	14.7	95.00	18.16	461.3	6.011	152.7	0.669	17.00	0.389	9.90	0.40	10.2
	46	68.46	13.5	87.10	18.06	458.7	6.060	153.9	0.605	15.30	0.360	9.14	0.40	10.2
	45	67.00	13.2	85.40	18.00	457.2	5.982	151.9	0.589	15.00	0.360	9.10	0.40	10.2
	40	60.00	11.8	76.13	17.90	454.7	6.015	152.8	0.525	13.30	0.315	8.00	0.40	10.2
35	52.09	10.3	66.45	17.70	449.6	6.000	152.4	0.425	10.80	0.300	7.62	0.40	10.2	
W18 457 x 191 (18 x 7½)	71	106.0	20.8	134.2	18.47	469.1	7.635	193.9	0.810	20.57	0.495	12.57	0.40	10.2
	66	98.00	19.4	125.3	18.40	467.4	7.592	192.8	0.770	19.60	0.450	11.40	0.40	10.2
	65	97.00	19.1	123.2	18.35	466.1	7.590	192.8	0.750	19.05	0.450	11.43	0.40	10.2
	60	89.29	17.6	113.5	18.24	463.3	7.555	191.9	0.695	17.65	0.415	10.54	0.40	10.2
	55	82.00	16.2	104.5	18.11	460.0	7.530	191.3	0.630	16.00	0.390	9.91	0.40	10.2
	50	74.41	14.7	94.84	17.99	456.9	7.495	190.4	0.570	14.40	0.355	9.02	0.40	10.2
	45	67.00	13.2	85.40	17.86	453.6	7.476	189.9	0.500	12.70	0.334	8.50	0.40	10.2
	41	61.00	11.8	76.00	17.72	450.0	7.441	189.0	0.425	10.80	0.319	8.10	0.40	10.2
W18 457 x 279 (18 x 11)	175	260.0	51.3	331.0	20.04	509.0	11.378	289.0	1.591	40.40	0.890	22.60	0.40	10.2
	119	177.1	35.1	226.5	18.97	481.8	11.265	286.1	1.060	26.92	0.655	16.64	0.40	10.2
	106	157.7	31.1	200.6	18.73	475.7	11.200	284.5	0.940	23.88	0.590	14.99	0.40	10.2
	97	144.4	28.5	183.9	18.59	472.2	11.145	283.1	0.870	22.10	0.535	13.59	0.40	10.2
	86	128.0	25.3	163.2	18.39	467.1	11.090	281.7	0.770	19.56	0.480	12.19	0.40	10.2
	76	113.1	22.3	143.9	18.21	462.5	11.035	280.3	0.680	17.27	0.425	10.80	0.40	10.2
W21 533 x 165 (21 x 6½)	57	85.00	16.7	107.7	21.06	534.9	6.555	166.5	0.650	16.51	0.405	10.29	0.50	12.7
	50	74.41	14.7	94.84	20.83	529.1	6.530	165.9	0.583	13.50	0.380	9.65	0.50	12.7
	44	66.00	13.0	83.87	20.66	524.8	6.500	165.1	0.450	11.40	0.350	8.89	0.50	12.7
	93	138.4	27.3	176.1	21.62	549.1	8.420	213.9	0.930	23.62	0.580	14.73	0.50	12.7
W21 533 x 210 (21 x 8¼)	83	123.5	24.3	156.8	21.43	544.3	8.355	212.2	0.835	21.21	0.515	13.08	0.50	12.7
	82	122.0	24.1	155.8	21.44	544.6	8.342	211.9	0.840	21.30	0.502	12.80	0.50	12.7
	73	109.0	21.5	138.7	21.24	539.5	8.295	210.7	0.740	18.80	0.455	11.56	0.50	12.7
	68	101.2	20.0	129.0	21.13	536.7	8.270	210.1	0.685	17.40	0.430	10.92	0.50	12.7
	62	92.27	18.3	118.1	20.99	533.1	8.240	209.3	0.615	15.62	0.400	10.16	0.50	12.7
	55	82.00	16.2	104.4	20.80	528.3	8.216	208.7	0.520	13.20	0.376	9.60	0.50	12.7
	48	71.4	14.1	91.0	20.60	523.2	8.142	206.8	0.429	10.90	0.350	8.90	0.50	12.7
	147	218.8	43.2	278.7	22.06	560.3	12.510	317.8	1.150	29.21	0.720	18.29	0.50	12.7
W21 533 x 311 (21 x 12¼)	132	196.4	38.8	250.3	21.83	554.5	12.440	316.0	1.030	26.29	0.650	16.51	0.50	12.7
	122	181.6	35.9	231.6	21.68	550.7	12.390	314.7	0.960	24.38	0.600	15.24	0.50	12.7
	111	165.2	32.7	211.0	21.51	546.4	12.340	313.4	0.875	22.22	0.550	13.97	0.50	12.7
	101	150.3	29.8	192.3	21.36	542.5	12.290	312.2	0.800	20.32	0.500	12.70	0.50	12.7
W24 610 x 178 (24 x 7)	62	92.27	18.2	117.4	23.74	603.0	7.040	178.8	0.590	14.99	0.430	10.92	0.50	12.7
	61	91.00	17.9	116.5	23.72	602.5	7.023	178.4	0.591	15.00	0.419	10.60	0.50	12.7
	55	82.00	16.2	104.5	23.57	598.7	7.005	177.9	0.505	12.83	0.395	10.03	0.50	12.7
	146	217	43.1	278	25.32	643.1	9.217	234.1	1.382	35.1	0.772	19.6	0.50	12.7
	128	191	37.5	242	25.00	635.0	9.114	231.5	1.216	30.9	0.669	17.0	0.50	12.7
W24 610 x 229 (24 x 9)	114	171	33.8	218	24.76	628.9	9.051	229.9	1.098	27.9	0.610	15.5	0.50	12.7
	103	153	30.2	195	24.53	623.1	9.000	228.6	0.980	24.9	0.551	14.0	0.50	12.7
	94	140.0	27.7	178.7	24.31	618.7	8.965	230.2	0.875	22.22	0.515	13.08	0.50	12.7
	84	125.0	24.7	159.4	24.10	617.5	8.920	229.1	0.770	19.56	0.470	11.94	0.50	12.7
	76	113.1	22.4	144.5	23.92	612.1	8.990	228.3	0.680	17.27	0.440	11.18	0.50	12.7
	68	101.2	20.1	129.7	23.73	607.6	8.965	227.7	0.585	14.86	0.415	10.54	0.50	12.7
	160	238	47.0	303.8	24.92	636.0	12.264	311.5	1.235	31.4	0.732	18.6	0.50	17.8
	W24 610 x 305 (24 x 12)	120	179	35.3	227.9	24.31	617.5	12.088	307.0	0.930	23.6	0.556	14.1	0.50
100		149	29.4	190.1	24.00	609.6	12.000	304.8	0.775	19.7	0.468	11.9	0.70	17.8
192		285.7	56.3	363	25.86	656.9	12.949	328.9	1.461	37.1	0.811	20.6	0.50	12.7
W24 610 x 324 (24 x 12¾)	176	261.9	51.6	333	25.24	641.1	12.890	327.4	1.339	34.0	0.752	19.1	0.50	12.7
	162	241.1	47.7	307.7	25.00	635.0	12.955	329.1	1.220	30.99	0.705	17.91	0.50	12.7
	146	217.3	43.0	277.4	24.74	628.4	12.900	327.7	1.090	27.69	0.650	16.51	0.50	12.7
	131	194.9	38.5	248.4	24.48	621.8	12.855	326.5	0.960	24.38	0.605	15.37	0.50	12.7
	117	174.1	34.4	221.9	24.26	616.2	12.800	325.1	0.850	21.59	0.550	13.97	0.50	12.7
	104	154.8	30.6	197.4	24.06	611.1	12.750	323.8	0.750	19.05	0.500	12.70	0.50	12.7

Universal Beams And Columns (Continued)



Section Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in. ⁴	cm ⁴	in. ⁴	cm ⁴	in.	cm	in.	cm	in. ³	cm ³	in. ³	cm ³
W18 457 x 152 (18 x 6)	870	36,215	27.5	1,143	7.33	18.6	1.30	3.31	95.0	1,557	31.5	149
	779	32,435	24.3	1,012	7.28	18.5	1.28	3.26	85.8	1,406	8.10	133
	712	29,600	22.5	937	7.25	18.4	1.29	3.28	78.8	1,290	7.43	122
	686	28,577	21.1	878	7.20	18.3	1.26	3.21	76.3	1,250	7.00	116
	612	25,500	19.1	795	7.21	18.3	1.27	3.23	68.4	1,120	6.35	104
	510	21,200	15.3	637	7.04	17.9	1.22	3.10	57.6	944	5.12	83.9
W18 457 x 191 (18 x 7½)	1,170	48,700	60.3	2,510	7.50	19.0	1.70	4.32	127	2,080	15.8	259
	1,098	45,717	56.3	2,343	7.52	19.1	1.70	4.33	119	1,956	14.8	243
	1,070	44,500	54.8	2,280	7.49	19.0	1.69	4.29	117	1,920	14.4	236
	984	41,000	50.1	2,090	7.47	19.0	1.68	4.27	108	1,770	13.3	128
	890	37,000	44.9	1,870	7.41	18.8	1.67	4.24	98.3	1,610	11.9	195
	800	33,300	40.1	1,670	7.38	18.7	1.65	4.19	88.9	1,460	10.7	175
	704	29,330	31.9	1,328	7.30	18.5	1.55	3.94	78.9	1,293	8.5	139
		25380		1218		18.2		3.99		1128		129
W18 457 x 279 (18 x 11)	3,452	143,700	392	16,300	8.19	20.8	2.76	7.01	345	5,646	68.3	1,128
	2,190	91,200	253	10,500	7.90	20.1	2.69	6.83	231	3,790	44.9	736
	1,910	79,500	220	9,170	7.84	19.9	2.66	6.76	204	3,340	39.4	646
	1,750	72,800	201	8,370	7.82	19.9	2.65	6.73	188	3,080	36.1	592
	1,530	63,700	175	7,280	7.77	19.7	2.63	6.68	166	2,720	31.6	518
	1,330	55,400	152	6,330	7.73	19.6	2.61	6.63	146	2,390	27.6	452
W21 533 x 16 (21 x 6½)	1,170	48,700	30.6	1,270	8.36	21.2	1.35	3.43	111	1,820	9.35	153
	984	41,000	24.9	1,040	8.18	20.8	1.30	3.30	94.5	1,550	7.64	125
	843	35,100	20.7	862	8.06	20.5	1.26	3.20	81.6	1,340	6.37	104
W21 533 x 210 (21 x 8¼)	2,070	86,200	92.9	3,870	8.70	22.1	1.84	4.67	192	3,150	22.1	362
	1,830.7	76,207	81.5	3,393	8.71	22.1	1.84	4.67	171	2,800	19.5	320.2
	1,830	76,200	81.4	3,390	8.67	22.0	1.83	4.65	170.8	2,799	19.6	320
	1,600	66,600	70.6	2,940	8.64	21.9	1.81	4.60	151	2,470	17.0	279
	1,480	61,600	64.7	2,690	8.60	21.8	1.80	4.57	140	2,290	15.7	257
	1,330	55,400	57.5	2,390	8.54	21.7	1.77	4.50	127	2,080	14.0	229
	1,140.7	47,490	44.0	1,832	8.40	21.3	1.65	4.19	109.7	1,798	10.7	175.4
	959.0	39,917	38.7	1,611	8.23	20.9	1.65	4.20	93.0	1,524	9.5	156
W21 533 x 311 (21 x 12¼)	3,630	151,000	376	15,600	9.17	23.3	2.95	7.49	329	5,390	60.1	985
	3,220	134,000	333	13,900	9.12	23.2	2.93	7.44	295	4,830	53.5	877
	2,960	123,000	305	12,700	9.09	23.1	2.92	7.42	273	4,470	49.2	806
	2,670	111,000	274	11,400	9.05	23.0	2.90	7.37	249	4,080	44.5	729
	2,420	101,000	248	10,300	9.02	22.9	2.89	7.34	227	3,720	40.3	660
W24 610 x 178 (24 x 7)	1,550	64,500	34.5	1,440	9.23	23.4	1.38	3.51	131.0	2,150	9.80	161
	1,540	64,085	34.3	1,432	9.25	23.5	1.38	3.51	130.0	2,124	9.76	159.5
	1,350	56,200	29.1	1,210	9.11	23.1	1.34	3.40	114.0	1,870	8.30	136
W24 610 x 229 (24 x 9)	1,830	76,200	70.4	2,930	9.55	24.3	1.87	4.75	154	2,520	15.7	157
	2,100	87,400	82.5	3,430	9.69	24.6	1.92	4.88	176	2,880	18.4	302
	2,370	98,600	94.4	3,930	9.79	24.9	1.95	4.95	196	3,210	20.9	342
	2,700	112,000	109	4,540	9.87	25.1	1.98	5.03	222	3,640	24.0	393
	4,418	183,900	181.2	7,544	10.12	25.7	2.05	5.21	349	5,718	39.3	644
	3,806	158,400	154.1	6,415	10.08	25.6	2.03	5.15	304	4,990	33.8	554
	3,397	141,400	136.2	5,670	1.00	25.4	2.00	5.09	274	4,495	30.1	493
	3,003	125,000	119.4	4,972	9.96	25.3	1.98	5.04	245	4,012	26.5	435
W24 610 x 305 (24 x 12)	4,986.3	207,571	380.5	15,838	10.28	26.10	2.84	7.22	400.2	6,559	62.0	1,017
	3,635.3	151,300	254.0	10,570	10.15	25.78	2.68	6.81	299.1	4,902.2	42.0	688.4
	2,987.3	124,400	203.5	8,471	10.08	25.60	2.63	6.68	248.9	4,079.5	33.9	555.6
W24 610 x 324 (24 x 12¾)	6,256	260,400	529	22,030	10.6	26.8	3.07	7.79	491	8,050	81.8	1,340
	5,660	236,600	479	19,950	10.5	26.6	3.04	7.73	450	7,380	74.3	1,218
	5,170	215,000	443	18,400	10.4	26.4	3.05	7.75	414	6,780	68.4	1,120
	4,580	191,000	391	16,300	10.3	26.2	3.01	7.65	371	6,080	60.5	991
	4,020	167,000	340	14,200	10.2	25.9	2.97	7.54	329	5,390	53.0	869
	3,540	147,000	297	12,400	10.1	25.7	2.94	7.47	291	4,770	46.5	762
	3,100	129,000	259	10,800	10.1	25.7	2.91	7.39	258	4,230	40.7	667

Universal Beams And Columns



Section Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
							in.	mm	in.	mm				
mm (in.)	lb/ft	kg/m	in. ²	cm ²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W27 686 x 254 (27 x 10)	182	271	53.5	345	28.50	723.9	10.244	260.2	1.539	39.1	0.850	21.6	0.60	15.2
	159	237	46.7	301	28.11	714.0	10.150	257.8	1.339	34.0	0.752	19.1	0.60	15.2
	143	213	41.8	270	27.87	707.9	10.071	255.8	1.220	31.0	0.669	17.0	0.60	15.2
	129	192	37.8	244	27.63	701.8	10.012	254.3	1.098	27.9	0.610	15.5	0.60	15.2
	114	170.0	33.5	216.1	27.29	693.2	10.070	255.8	0.930	23.62	0.570	14.48	0.60	15.2
	102	152.0	30.0	193.5	27.09	688.1	10.015	254.4	0.830	21.08	0.515	13.08	0.60	15.2
	94	140.0	27.7	178.7	26.92	683.8	9.990	253.7	0.745	18.92	0.490	12.45	0.60	15.2
	84	125.0	24.8	160.0	26.71	678.4	9.960	253.0	0.640	16.26	0.460	11.68	0.60	15.2
W27 686 x 356 (27 x 14)	217	322.9	63.7	411	28.43	722.1	14.114	358.5	1.500	38.1	0.831	21.1	0.60	15.2
	194	288.7	57.0	368	28.11	714.0	14.031	356.4	1.339	34.0	0.752	19.1	0.60	15.2
	178	264.9	52.3	337.4	27.81	706.4	14.085	357.8	1.190	30.23	0.725	18.41	0.60	15.2
	161	239.6	47.4	305.8	27.59	700.8	14.020	356.1	1.080	27.43	0.660	16.76	0.60	15.2
	146	217.3	42.9	276.8	27.38	695.5	13.965	354.7	0.975	24.76	0.605	15.37	0.60	15.2
W30 762 x 267 (30 x 10½)	185	275	54.4	351	31.22	793.0	10.634	270.1	1.461	37.1	0.811	20.6	0.65	16.5
	165	246	48.4	312	30.91	785.1	10.555	268.1	1.299	33.0	0.728	18.5	0.65	16.5
	148	220	43.6	281	30.67	779.0	10.480	266.2	1.181	30.0	0.650	16.5	0.65	16.5
	132	197.0	38.9	251.0	30.31	769.9	10.545	267.8	1.000	25.40	0.615	15.62	0.65	16.5
	124	185.0	36.5	235.5	30.17	766.3	10.515	267.1	0.930	23.62	0.585	14.86	0.65	16.5
	116	173.0	34.2	220.6	30.01	762.3	10.495	266.6	0.850	21.59	0.565	14.35	0.65	16.5
	108	161.0	31.7	204.5	29.83	757.7	10.475	266.1	0.760	19.30	0.545	13.84	0.65	16.5
	99	147.3	29.1	187.7	29.65	753.1	10.450	265.4	0.670	17.02	0.520	13.21	0.65	16.5
	90	133.9	26.5	171	29.53	750.0	10.409	264.4	0.610	15.5	0.472	12.0	0.65	16.5
	W30 762 x 381 (30 x 15)	261	388.4	76.7	495	31.61	802.9	15.154	384.9	1.650	41.9	0.929	23.6	0.65
235		349.7	69.0	445	31.30	795.0	15.055	382.4	1.500	38.1	0.831	21.1	0.65	16.5
211		314.0	62.0	400.0	30.94	785.9	15.105	383.7	1.310	33.40	0.775	19.68	0.65	16.5
191		284.2	56.1	361.9	30.68	779.3	15.040	382.0	1.180	30.10	0.710	18.03	0.65	16.5
173		257.5	50.8	327.7	30.44	773.2	14.985	380.6	1.060	27.05	0.655	16.64	0.65	16.5
W33 838 x 292 (33 x 11½)	204	304	59.8	386	34.30	871.2	11.642	295.7	1.461	37.1	0.811	20.6	0.70	17.8
	187	278	55.0	355	34.06	865.1	11.579	294.1	1.339	34.0	0.752	19.1	0.70	17.8
	169	252	49.4	319	33.82	859.0	11.500	292.1	1.220	31.0	0.669	17.0	0.70	17.8
	152	226.2	44.7	288.4	33.49	850.6	11.565	293.8	1.050	26.80	0.635	16.13	0.70	17.8
	141	210.0	41.6	268.4	33.30	845.8	11.535	293.0	0.960	24.38	0.605	15.37	0.70	17.8
	130	194.0	38.3	247.1	33.09	840.5	11.510	292.4	0.855	21.72	0.580	14.73	0.70	17.8
	118	176.0	34.7	223.9	32.86	834.6	11.480	291.6	0.740	18.80	0.550	13.97	0.70	17.8
	W33 838 x 400 (33 x 15¾)	291	433.1	85.6	552	34.84	884.9	15.906	404.0	1.728	43.9	0.961	24.4	0.70
263		391.4	77.3	499	34.53	877.1	15.803	401.4	1.571	39.9	0.870	22.1	0.70	17.8
241		358.6	70.9	457.4	34.18	868.2	15.860	402.8	1.400	35.56	0.830	21.08	0.70	17.8
221		328.9	65.0	419.4	33.93	861.8	15.805	401.4	1.270	32.38	0.775	19.68	0.70	17.8
201		299.1	59.1	381.3	33.68	855.5	15.745	399.9	1.150	29.21	0.715	18.16	0.70	17.8
W36 914 x 305 (36 x 12)	256	381	75.3	486	37.43	950.7	12.217	310.3	1.728	43.9	0.961	24.4	0.80	19.1
	232	345	68.2	440	37.12	942.9	12.118	307.8	1.571	39.9	0.870	22.1	0.80	19.1
	210	313.0	61.8	398.7	36.69	931.9	12.180	309.4	1.360	34.54	0.830	21.08	0.75	19.0
	194	289.0	57.0	367.7	36.49	926.8	12.115	307.7	1.260	32.00	0.765	19.43	0.75	19.0
	182	271.0	53.6	345.8	36.33	922.8	12.075	306.7	1.180	29.97	0.725	18.41	0.75	19.0
	170	253.0	50.0	322.6	36.17	918.7	12.030	305.6	1.100	27.94	0.680	17.27	0.75	19.0
	160	238.1	47.0	303.2	36.01	914.7	12.000	304.8	1.020	25.91	0.650	16.51	0.75	19.0
	150	224.0	44.2	285.2	35.85	910.6	11.975	304.2	0.940	23.88	0.625	15.87	0.75	19.0
	135	201.0	39.7	256.1	35.55	903.0	11.950	303.5	0.790	20.07	0.600	15.24	0.75	19.0
	W36 914 x 419 (36 x 16½)	359	534.2	105.4	680	37.40	950.0	16.728	424.9	2.012	51.1	1.122	28.5	0.95
328		488.1	96.4	622	37.10	942.1	16.630	422.4	1.850	47.0	1.020	25.9	0.95	24.1
300		447.0	88.3	569.7	36.74	933.2	16.655	423.0	1.680	42.67	0.945	24.00	0.95	24.1
280		417.0	82.4	531.6	36.52	927.6	16.595	421.5	1.570	39.88	0.885	22.48	0.95	24.1
260		388.0	76.5	493.5	36.26	921.0	16.550	420.4	1.440	36.58	0.840	21.34	0.95	24.1
245		365.0	72.1	465.2	36.08	916.4	16.510	419.4	1.350	34.29	0.800	20.32	0.95	24.1
230		343.0	67.6	436.1	35.90	911.9	16.470	418.3	1.260	32.00	0.760	19.30	0.95	24.1