Product Specifications
(Structural Steel and Sheet Pile)

Type of Product	Classifications		Mechanical Properties								
			Yield Point N/mm² (min.)		Tensile Strength N/mm²	Yield Ratio % (max)	Elongation % (min)			Impact Thickness t > 12	
			Thickness			Thickness	Thickness			Temp °C	Energy J (min)
			t ≤ 16	16 ≤ t ≤ 40		t ≥ 12	t ≤ 5	5<t≤15	t > 16		
Structural steel	JIS G 3101 : 2004[A]	SS400	245	235	400-510	-	21	17	21	-	-
		SS490	285	275	490-610	-	19	15	19	-	-
		SS540	400	390	540 min	-	16	13	17	-	-
	JIS G 3106 : 2004	SM400 A	245	235	400-510	-	23	18	22	-	-
		SM400 B	245	235	400-510	-	23	18	22	0	27
		SM490 A	325	315	490-610	-	22	17	21	-	-
		SM490 B	325	315	490-610	-	22	17	21	0	27
		SM490 YA	365	355	490-610	-	19	15	19	-	-
		SM490 YB	365	355	490-610	-	19	15	19	0	27
		SM520 B	365	355	520-640	-	19	15	19	0	27
		SM520 C	365	355	520-640	-	19	15	19	0	47
	JIS G 3136 : 2005	SN400 A	235	235	400-510	-	17	17	21	-	-
		SN400 B	235-355[B]	235	400-510	80[C]	18	18	22	0	27
		SN490 B	325-445[B]	235-355	490-610	80[C]	17	17	21	0	27
	BS 4360 : 1986	43A	275	325-445	430-580	-		20		-	-
		43B	275	265	430-580	-		20		20	27G
		43C	275	265	430-580	-		20		0	27
		43D	275	265	430-580	-		20		-20	27
		50A	355	345	490-640	-		18		-	-
		50B	355	345	490-640	-		18		20	27G
		50C	355	345	490-640	-		18		0	27
		50D	355	345	490-640	-		18		-20	27
	BS EN 10025 : 1993/2004	S275JR	275	265	410-560	-		23		20	27G
		S275JO	275	265	410-560	-		23		0	27
		S275J2	275	265	410-560	-		23		-20	27
		S275J2G3E	275	265	410-560	-		23		-20	27
		S355JR	355	345	490[F]-630	-		22		20	27G
		S355JO	355	345	490[F]-630	-		22		0	27
		S355J2	355	345	490[F]-630	-		22		20	27
		S355J2G3E	355	345	470-630	-		22		20	27
	ASTM : 2003	A36	250		400-550	-		20		-	-
		A 572 Gr.42	290		415 min	-		20		-	-
		A 572 Gr.50	345		450 min[D]	-		18		-	-
		A 992	345-450		450 min	85		18		-	-
	DIN 17100	St-33	185	175	290	-		16		-	-
		St 37-2	235	225	340-470	-		24		-	-
		St 44-2	275	265	410-540	-		20		-	-
		St 50-2	295	285	470-610	-		18		-	-
		St 52-3	355	345	490-630	-		20		-	-
	AS/NZS 3679.1 : 1996		t < 12	12 < t ≤ 40							
		250	260	250	410 min	-		22		-	-
		250L0	260	250	410 min	-		22		-	-
		350	360	340	480 min	-		20		-	-
		350L0	360	340	480 min	-		20		-	-
			t < 11	11≤t≤17	t < 17						
		300	320	300	280	440 min	-		22		-	-
		300L0	320	300	280	440 min	-		22		-	-
Sheet Pile	JIS A 5528 : 2000	SY295	295			490 min	-		17		-	-
		SY390	390			540 min	-		15		-	-

Remark

A: Bend test on material grades SS400, SS490, SS540.
B: For the H section, when the t1 is 9 mm or less, the upper limit of the yield point or proof stress shall not be applied.
C: For the H section, when the t1 is 9 mm or less, the upper limit of the yield ratio shall be 85%.
D: For grades 50 steel of thickness 20 mm and under, the tensile strength shall be a minimum of 485 N/mm².
E: Only in 1993 version.
F: For 2004 version, the specified tensile strength is 470-630 N/mm².
G: Verified only when specified at the time of the order.

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.

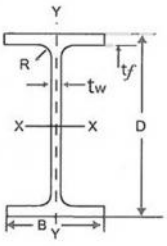
E: Carbon Equivalent : (JIS Standard) CE = C + Mn/6 + Si/24 + Ni/40 + Cr/5 + Mo/4 + V/14 (AS, ASTM Standard) CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15.

F: Chmical Composition on sensitivity of welding crack = C + Sl/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%

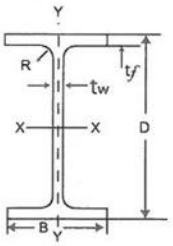
Universal Beams And Columns



IMPERIAL UNITS

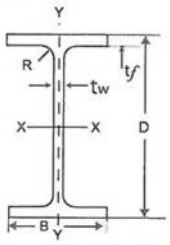
Seciton Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in.^{2}	cm^2	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W4	16.3	24.0	4.79	30.9	4.21	107.0	3.937	100.0	0.472	12.0	0.311	7.9	0.236	6.0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

Universal Beams And Columns (Continued)



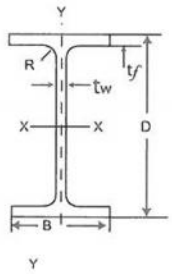
Seciton Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in.^{4}	cm^4	in.^{4}	cm^4	in.	cm	in.	cm	in.^{3}	cm^3	in.^{3}	cm^3
W4	14.14	587	4.80	200	1.72	4.36	1.00	2.55	6.71	110	2.45	40.1
102 x 102 (4 x 4)	11.0	456	4.01	167	1.65	4.18	1.00	2.53	5.46	89.4	2.00	32.7
	11.3	470	3.86	161	1.72	4.37	1.00	2.54	5.46	89.5	1.90	31.1
W5	11.5	477	1.30	56.0	2.10	5.33	0.72	1.83	4.60	75.0	0.90	15.0
127 x 76 (5 x 3)												
W5	26.3	1,090	9.13	380	2.17	5.51	1.2	3.25	10.2	167	3.63	59.50
127 x 127 (5 x 5)	21.4	891	7.51	313	2.13	5.41	1.26	3.20	8.55	140	3.00	49.2
W6	20.2	841	1.45	60.2	2.46	6.24	0.66	1.67	6.65	109	0.98	16.0
152 x 76 (6 x 3)	16.0	666	1.19	49.5	2.41	6.11	0.66	1.67	5.42	88.8	0.81	13.2
W6	20.1	838	2.20	90.0	2.52	6.40	0.83	2.10	6.70	110	1.20	20.0
152 x 89 (6 x 3½)												
W6	32.1	1,340	4.43	184	2.60	6.60	0.966	2.45	10.2	167	2.20	36.1
152 x 102	22.1	920	2.99	124	2.49	6.32	0.918	2.33	7.31	120	1.50	24.6
(6 x 4)	16.4	683	2.20	91.6	2.47	6.27	0.905	2.30	5.56	91.1	1.11	18.2
W6	53.4	2,220	17.1	712	2.70	6.86	1.52	3.86	16.7	274	5.61	91.9
152 x 152	41.4	1,720	13.3	554	2.66	6.76	1.50	3.81	13.4	220	4.41	72.3
(6 x 6)	30.3	1,263	9.70	403	2.56	6.51	1.45	3.68	10.1	165.7	3.20	52.95
	29.1	1,210	9.32	388	2.56	6.50	1.45	3.68	9.72	159	3.11	51.0
W7	36.7	1529	2.93	122	2.90	7.36	0.82	2.08	10.43	171	1.65	27.1
178 x 89 (7 x 3½)	29.1	1213	2.34	97.6	2.86	7.26	0.81	2.06	8.48	139	1.32	21.7
	25.5	1060	2.05	85.4	2.83	7.20	0.80	2.04	7.51	123	1.16	19.0
W7	32.6	1,357	3.30	138	2.95	7.49	0.940	2.39	9.30	153	1.60	27.0
178 x 102 (7 x 4)												
W8	50.2	2,091	3.90	163	3.34	8.49	0.930	2.37	12.6	206	2.00	32.0
203 x 102	48.0	2,000	3.41	142	3.29	8.36	0.876	2.22	11.8	193	1.70	27.9
(8 x 4)	39.6	1,650	2.73	114	3.21	8.16	0.843	2.14	9.91	162	1.37	22.4
	30.8	1,280	2.09	87.0	3.22	8.18	0.841	2.14	7.81	128	1.06	17.4
W8	75.3	3,130	9.77	407	3.49	8.86	1.26	3.20	18.2	298	3.71	60.8
203 x 133	69.2	2,981	8.50	354	3.43	8.71	1.20	3.05	17.0	279	3.20	52.4
(8 x 5¼)	61.9	2,580	7.97	332	3.43	8.71	1.23	3.12	15.2	249	3.04	49.8
	56.4	2,348	6.72	280	3.36	8.53	1.16	2.95	14.1	231	2.60	42.6
	50.6	2105	6.61	275	1.22	8.56	1.22	3.09	12.7	208	2.52	41.3
	47.6	1980	6.03	251	1.20	8.55	1.20	3.05	11.9	195	2.31	37.8
W8	98.0	4,080	21.7	903	3.45	8.76	1.62	4.11	24.3	398	6.63	109
203 x 165 (8 x 6½)	82.8	3,450	18.3	762	3.42	8.69	1.61	4.09	20.9	342	5.63	92.3
W8	272	11,300	88.6	3,690	3.72	9.45	2.12	5.38	60.4	990	21.4	351
203 x 203	228	9,480	75.1	3,130	3.65	9.27	2.10	5.33	52.0	852	18.3	300
(8 x 8)	184	7,660	60.9	2,530	3.61	9.17	2.08	5.28	43.3	710	15.0	246
	146	6,080	49.1	2,040	3.53	8.97	2.04	5.18	35.5	582	12.2	200
	127	5,290	42.6	1,770	3.51	8.92	2.03	5.16	31.2	511	10.6	174
	110	4,580	37.1	1,540	3.47	8.81	2.02	5.13	27.5	451	9.27	152
W10	96.3	4,010	4.29	176	4.14	10.5	0.874	2.22	18.8	308	2.14	35.1
254 x 102	81.9	3,410	3.56	148	4.05	10.3	0.845	2.15	16.2	265	1.78	29.2
(10 x 4)	68.9	2,870	2.89	120	3.95	10.0	0.810	2.06	13.8	226	1.45	23.8
	53.8	2,240	2.18	90.7	3.90	9.91	0.785	1.99	10.9	179	1.10	18.0
W10	170	7,080	16.8	699	4.38	11.1	1.38	3.51	32.5	533	5.76	94.4
254 x 146	157	6,548	15.2	633	4.29	10.9	1.34	3.40	30.8	505	5.20	85.2
(10 x 5¾)	144	5,990	14.1	587	4.35	11.0	1.36	3.45	27.9	457	4.89	80.1
	133	5,545	12.7	529	4.26	10.8	1.31	3.33	26.4	433	4.40	72.1
	118	4,910	11.4	474	4.27	10.8	1.33	3.38	23.2	380	3.97	65.1
	106	4,425	9.7	404	4.14	10.5	1.25	3.18	21.5	352	3.40	55.7
	83.5	3,477	7.83	326	4.17	10.6	1.27	3.23	16.78	275	2.74	44.9
W10	286.5	11,930	62.61	2,606	4.13	10.5	1.93	4.91	56.44	905	15.07	247
254 x 203	248	10,300	53.4	2,220	4.32	11.0	2.01	5.11	49.1	805	13.3	218
(10 x 8)	202.5	8,430	43.41	1.807	4.06	10.3	1.88	4.77	41.25	676	10.68	175
	209	8,700	45.0	1,870	4.27	10.8	1.98	5.03	42.1	690	11.3	185
	170	7,080	36.6	1,520	4.19	10.6	1.94	4.93	35.0	574	9.20	151
W10	716	29,800	236	9,820	4.66	11.8	2.68	6.81	126	2,060	45.3	742
254 x 254	625	26,000	207	8,620	4.61	11.7	2.65	6.73	112	1,840	40.0	655
(10 x 10)	542	22,580	181	7,518	4.55	11.6	2.63	6.68	99.7	1,634	35.2	577

Universal Beams And Columns



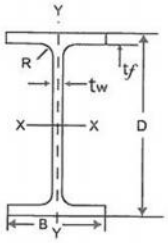
Seciton Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in.²	cm²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W10	88	131.0	25.9	167.1	10.84	275.3	10.265	260.7	0.990	25.15	0.605	15.37	0.50	12.7
254 x 254	77	115.0	226	145.8	10.60	269.2	10.190	258.8	0.870	22.10	0.530	13.46	0.50	12.7
(10 x 10)	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	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
305 x 102	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
(12 x 4)	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	03.0	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	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
305 x 127	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
(12 x 5)	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	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
305 x 165	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
(12 x 6½)	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	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
305 x 203	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
(12 x 8)	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	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
305 x 254 (12 x 10)	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	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 x 305	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
(12 x 12)	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	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
356 x 127 (14 x 5)	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	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
356 x 171 (14 x 6¾)	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)



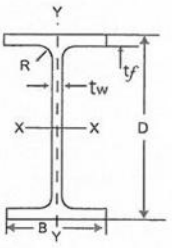
Seciton Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	in.^{4}	cm^4	in.^{4}	cm^4	in.	cm	in.	cm	in.^{3}	cm^3	in.^{3}	cm^3
W10	534	22,200	179	7,450	4.54	11.5	2.63	6.68	98.5	1,610	34.8	570
254 x 254	455	18,900	154	6,410	4.49	11.4	2.60	6.60	85.9	1,410	30.1	493
(10 x 10)	421	17,510	142	5,903	4.46	11.3	2.59	6.58	80.1	1,312	27.9	457
	394	16,400	134	5,580	4.44	11.3	2.58	6.55	75.7	1,240	26.4	433
	341	14,200	116	4,830	4.39	11.2	2.57	6.53	66.7	1,090	23.0	377
	303	12,600	103	4,290	4.37	11.1	2.56	6.50	60.0	983	20.6	338
	272	11,300	93.4	3,890	4.35	11.0	2.54	6.45	54.6	895	18.7	306
W12	156	6,490	4.66	194	4.91	12.5	0.848	2.15	25.4	416	2.31	37.9
305 x 102	130	5,410	3.76	156	4.82	12.2	0.822	2.09	21.3	349	1.88	30.8
(12 x 4)	105.4	4,387	2.90	120	4.65	11.8	0.770	1.96	17.6	288	1.40	23.6
	103	4,290	2.82	117	4.67	11.9	0.773	1.96	17.1	280	1.41	23.1
	88.6	3,690	2.36	98.2	4.62	11.7	0.753	1.91	14.9	244	1.19	19.5
W12	228.3	9,504	11.1	460	4.92	12.5	1.08	2.75	37.4	612	4.50	73.5
305 x 126	195.6	8,143	9.3	388	4.87	12.4	1.06	2.70	32.4	531	3.80	62.5
(12 x 5)	172.0	7,162	8.1	337	4.83	12.3	1.05	2.67	28.8	472	3.30	54.6
W12	285	11,900	24.5	1,020	5.25	13.3	1.54	3.91	45.6	747	7.47	122
305 x 165	280.8	11,690	23.7	986.6	5.15	13.1	1.50	3.81	45.9	752	7.20	118
(12 x 6½)	238.4	9,924	19.8	824	5.11	12.9	1.47	3.73	39.4	646	6.10	100
	238	9,910	20.3	845	5.21	13.2	1.52	3.86	38.6	633	6.24	102
	204.1	8,496	16.6	691	5.06	12.8	1.44	3.66	34.1	559	5.10	83.6
	204	8,490	17.3	720	5.17	13.1	1.51	3.84	33.4	547	5.34	87.5
	157.5	6,554	13.1	544	5.08	12.9	1.46	3.72	26.1	428	4.05	66.4
W12	394	16,400	56.3	2,340	5.18	13.2	1.96	4.98	64.7	1,060	13.9	228
305 x 203	350	14,600	50.0	2,080	5.15	13.1	1.94	4.93	58.1	952	12.4	203
(12 x 8)	310	12,900	44.1	1,840	5.13	13.0	1.94	4.93	51.9	850	11.0	180
W12	475	19,800	107	4,450	5.28	13.4	2.51	6.38	78.0	1,280	21.4	351
305 x 254 (12 x 10)	425	17,700	95.8	3,990	5.23	13.3	2.48	6.30	70.6	1,160	19.2	315
W12	4,060	169,000	1,190	49,500	6.41	16.3	3.47	8.81	483	7,910	177	2,900
305 x 305	3,550	148,000	1,050	43,700	6.29	16.0	3.42	8.69	435	7,130	159	2,610
(12 x 12)	3,110	129,000	937	39,000	6.16	15.6	3.38	8.59	393	6,440	143	2,340
	2,720	113,000	828	34,500	6.06	15.4	3.34	8.48	353	5,780	127	2,080
	2,420	101,000	742	30,900	5.97	15.2	3.31	8.41	321	5,260	115	1,880
	2,140	89,100	664	27,600	5.89	15.0	3.28	8.33	292	4,780	104	1,700
	1,890	78,700	589	24,500	5.82	14.8	3.25	8.25	263	4,310	93.0	1,520
	1 542	64 180	486	20 240	5 70	14 5	3 20	8 13	222	3 641	77 1	1 273
	1,540	68,700	517	21,500	5.74	14.6	3.22	8.18	235	3,850	82.3	1,350
	1,430	59,500	454	18,900	5.66	14.4	3.19	8.10	209	3,420	72.8	1,190
	1,240	51,600	398	16,600	5.58	14.2	3.16	8.03	186	3,050	64.2	1,050
	1,221	50,840	390	16,230	5.59	14.2	3.16	8.03	183	2,991	63.1	1,034
	1,070	44,500	345	14,400	5.51	14.0	3.13	7.95	163	2,670	56.0	918
	933	38,800	301	12,500	5.47	13.9	3.11	7.90	145	2,380	49.3	808
	833	34,700	270	11,200	5.44	13.8	3.09	7.85	131	2,150	44.4	728
	789	32,840	256	10,670	5.40	13.7	3.08	7.82	125	2,048	42.2	691
	740	30,800	241	10,000	5.38	13.7	3.07	7.80	118	1,930	39.7	651
	662	27,600	216	8,990	5.34	13.6	3.05	7.75	107	1,750	35.8	587
	597	24,800	195	8,120	5.31	13.5	3.04	7.72	97.4	1,600	32.4	531
	533	22,200	174	7,240	5.28	13.4	3.02	7.67	87.9	1,440	29.1	477
W14	245	10,200	8.91	371	5.65	14.4	1.08	2.74	35.3	578	3.55	58.2
356 x 127 (14 x 5)	199	8,280	7.00	291	5.54	14.1	1.04	2.64	29.0	475	2.80	45.9
W14	469	19,522	32.7	1,362	5.95	15.1	1.57	3.99	54.4	1,073	9.60	157
356 x 171 (14 x 6¾)	385	16,000	26.7	1,110	5.88	14.9	1.55	3.94	54.6	895	7.88	129
	340	14,200	23.3	970	5.83	14.8	1.53	3.89	48.6	796	6.91	113
	291	12,100	19.6	816	5.73	14.6	1.49	3.78	42.0	688	5.82	95.4

Universal Beams And Columns



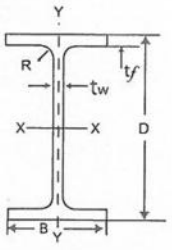
Seciton Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in.²	cm²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W14	53	78.87	15.6	100.6	13.92	353.6	8.060	204.7	0.660	16.70	0.370	9.40	0.60	15.2
356 x 203	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
(14 x 8)	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	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
356 x 254	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
(14 x 10)	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	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
356 x 368	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
(14 x 14½)	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	270.0	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
	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
W14	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
356 x 406	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
(14 x 16)	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	1688	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	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
406 x 140 (16 x 5½)	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	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
406 x 178	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
(16 x 7)	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
	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
W16	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
406 x 260	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
(16 x 10¼)	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)



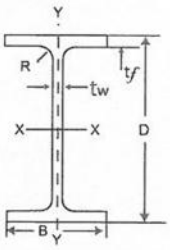
Seciton Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	$in.^4$	cm4	$in.^3$	cm^3	in.	cm	in.	cm	$in.^3$	cm^3	in.	cm
W14	542	22,600	57.7	2,400	5.89	15.0	1.92	4.88	77.8	1,270	14.3	234
356 x 203	485	20,200	51.4	2,140	5.85	14.9	1.91	4.85	70.3	1,150	12.8	210
(14 x 8)	428	17,800	45.2	1,880	5.82	14.8	1.89	4.80	62.7	1,030	11.3	185
W14	882	36,700	148	6,160	6.05	15.4	2.48	6.30	123	2,020	29.3	480
356 x 254	796	33,100	134	5,580	6.04	15.3	2.48	6.30	112	1,840	26.6	436
(14 x 10)	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	1,593	63,310	568	23,630	6.31	16.0	3.77	9.58	216	3,540	77	1,262
356 x 368	1,530	63,700	548	22,800	6.28	16.0	3.76	9.55	209	3,420	74.5	1,220
(14 x 14½)	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	14,300	595,000	4,720	196,000	8.17	20.8	4.69	11.9	1,280	21,000	627	8,640
356 x 406	12,400	516,000	4,170	174,000	7.98	20.3	4.62	11.7	1,150	18,800	472	7,730
14 x 16	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	51770	498	20730	5.98	15.2	3.78	9.61	175	2876	63.9	1047
W16	375	15;600	12.4	516	6:41	16:3	1:17	2:97	47:2	773	4:49	73:6
406 x 140 (16 x 5½)	301	12 500	9 59	399	6 26	15 9	1 12	2 84	38 4	629	3 49	57 2
W16	758	31,600	43.1	1,790	6.72	17.1	1.60	4.06	92.2	1,510	12.1	198
406 x 178	659	27,400	37.2	1,550	6.68	17.0	1.59	4.04	81.0	1,330	10.5	172
(16 x 7)	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	1,490	62,000	186	7,740	7.10	18.0	2.51	6.38	175	2,870	35.7	585
406 x 260	1,300	54,100	163	6,780	7.05	17.9	2.49	6.32	155	2,540	31.4	515
(16 x 10¼)	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



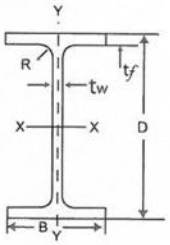
Seciton Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in.²	cm²	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W18	55	82.00	16.2	104.5	18.31	465.1	6.042	153.5	0.744	18.90	0.420	10.7	0.40	10.2
457 x 152	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
(18 x 6)	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	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
457 x 191	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
(18 x 7½)	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	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
457 x 279	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
(18 x 11)	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	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
533 x 165	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
(21 x 6½)	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
W21	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
533 x 210	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
(21 x 8¼)	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
W21	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
533 x 311	132	196.4	38.8	250.3	21.83	554.5	12.440	316.0	10.030	26.29	0.650	16.51	0.50	12.7
(21 x 12¼)	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	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
610 x 178	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
(24 x 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
W24	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
610 x 229	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
(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	598.7	9.065	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	9.020	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
W24	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
610 x 305	120	179	35.3	227.9	24.31	617.5	12.088	30.7.0	0.930	23.6	0.556	14.1	0.50	17.8
(24 x 12)	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
W24	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
610 x 324	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
(24 x 12¾)	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)



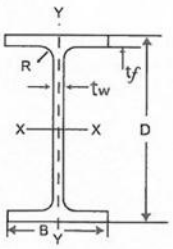
Seciton Number and Nominal size	Moment of inertia				Radius of gyration				Modulus of section			
	I_x		I_y		i_x		i_y		Z_x		Z_y	
mm./(in.)	$in.^4$	cm^4	$in.^4$	cm^4	in.	cm	in.	cm	$in.^3$	cm^3	$in.^3$	cm^3
W18	870	36,215	27.5	1,143	7.33	18.6	1.30	3.31	95.0	1,557	31.5	149
457 x 152	779	32,435	24.3	1,012	7.28	18.5	1.28	3.26	85.8	1,406	8.10	133
(18 x 6)	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	1,170	48,700	60.3	2,510	7.50	19.0	1.70	4.32	127	2,080	15.8	259
457 x 191	1,098	45,717	56.3	2,343	7.52	19.1	1.70	4.33	119	1,956	14.8	243
(18 x 7½)	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	3,452	143,700	392	16,300	8.19	20.8	2.76	7.01	345	5,646	68.3	1,128
457 x 279	2,190	91,200	253	10,500	7.90	20.1	2.69	6.83	231	3,790	44.9	736
(18 x 11)	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	1,170	48,700	30.6	1,270	8.36	21.2	1.35	3.43	111	1,820	9.35	153
533 x 165	984	41,000	24.9	1,040	8.18	20.8	1.30	3.30	94.5	1,550	7.64	125
(21 x 6½)	843	35,100	20.7	862	8.06	20.5	1.26	3.20	81.6	1,340	6.37	104
W21	2,070	86,200	92.9	3,870	8.70	22.1	1.84	4.67	192	3,150	22.1	362
533 x 210	1,830.7	76,207	81.5	3,393	8.71	22.1	1.84	4.67	171	2,800	19.5	320.2
(21 x 8¼)	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	3,630	151,000	376	15,600	9.17	23.3	2.95	7.49	329	5,390	60.1	985
533 x 311	3,220	134,000	333	13,900	9.12	23.2	2.93	7.44	295	4,830	53.5	877
(21 x 12¼)	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	1,550	64,500	34.5	1,440	9.23	23.4	1.38	3.51	131.0	2,150	9.80	161
610 x 178	1,540	64,085	34.3	1,432	9.25	23.5	1.38	3.51	130.0	2,124	9.76	159.5
(24 x 7)	1,350	56,200	29.1	1,210	9.11	23.1	1.34	3.40	114.0	1,870	8.30	136
W24	1,830	76,200	70.4	2,930	9.55	24.3	1.87	4.75	154	2,520	15.7	157
610 x 229	2,100	87,400	82.5	3,430	9.69	24.6	1.92	4.88	176	2,880	18.4	302
(24 x 9)	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	183900	181.2	7544	10.12	25.7	2.05	5.21	349	5718	39.3	644
	3,806	158400	154.1	6415	10.08	25.6	2.03	5.15	304	4990	33.8	554
	3,397	141400	136.2	5670	1.00	25.4	2.00	5.09	274	4495	30.1	493
	3,003	125000	119.4	4972	9.96	25.3	1.98	5.04	245	4012	26.5	435
W24	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
610 x 305	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
(24 x 12)	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	6,256	260400	529	22030	10.6	26.8	3.07	7.79	491	8050	81.8	1340
610 x 324	5,660	236600	479	19950	10.5	26.6	3.04	7.73	450	7380	74.3	1218
(24 x 12¾)	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



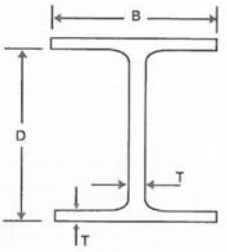
Seciton Number and Nominal Size	Unit weight M		Section area A		Section depth D		Flange				Web Thickness tw		Corner radius r	
							Width B		Thickness T					
mm (in.)	lb/ft	kg/m	in.^{2}	cm^2	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
W27	182	271	53.5	345	28.50	723.9	10.244	260.2	1.539	39.1	0.850	21.6	0.60	15.2
686 x 254	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
(27 x 10)	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	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
686 x 356	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
(27 x 14)	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	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
762 x 267	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
(30 x 10½)	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	261	388.4	76.7	495	31.61	802.9	15.154	384.9	1.650	41.9	0.929	23.6	0.65	16.5
762 x 381	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
(30 x 15)	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	157.5	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	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
838 x 292	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
(33 x 11½)	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	291	433.1	85.6	552	34.84	884.9	15.906	404.0	1.728	43.9	0.961	24.4	0.70	17.8
838 x 400	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
(33 x 15¾)	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	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
914 x 305	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
(36 x 12)	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	359	534.2	105.4	680	37.40	950.0	16.728	424.9	2.012	51.1	1.122	28.5	0.95	24.1
914 x 419	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
(36 x 16½)	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

Universal Beams And Columns (Continued)



Seciton 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
W27	6,950	289,300	277	11,540	11.4	29.0	2.28	5.78	488	7993	54.4	887
686 x 254	5,953	247,800	234	9750	11.3	28.7	2.57	5.69	423	6940	46.1	756
(27 x 10)	5,333	222,000	208	8678	11.3	28.7	2.23	5.67	383	6272	41.4	678
	4,757	198,000	184	7670	11.2	28.5	2.21	5.61	344	5644	36.8	603
	4,090	170,000	159	6,620	11.0	27.9	2.18	5.54	299	4,900	31.5	516
	3,620	151,000	139	5,790	11.0	27.9	2.15	5.46	267	4,380	27.8	456
	3,270	136,000	124	5,160	10.9	27.7	2.12	5.38	243	3,980	24.8	406
	2,850	119,000	106	4,410	10.7	27.2	2.07	5.26	213	3,490	21.2	347
W27	8,870	369,200	704	29,310	11.8	30.0	3.32	8.44	624	10,230	99.8	1635
686 X 356	7,820	325,500	618	25,720	11.7	29.8	3.29	8.36	556	9,118	88.1	1,444
(27 x 14)	6,990	291,000	555	23,100	11.6	29.5	3.26	8.28	502	8,230	78.8	1,290
	6,280	261,000	497	20,700	11.5	29.2	3.24	8.23	455	7,460	70.9	1,160
	5,630	234,000	443	18,400	11.4	29.0	3.21	8.15	411	6,740	63.5	1,040
W30	8,486	353,200	294	12,240	12.5	31.7	2.33	5.91	544	8,909	55.3	906
762 x 267	7,464	310,700	256	10,640	12.4	31.5	2.30	5.84	483	7,914	48.4	794
(30 x 10½)	6,684	278,200	227	9,463	12.4	31.5	2.29	5.81	436	7,142	43.4	711
	5,770	240,000	196	8,160	12.2	31.0	2.25	5.71	380	6,230	37.2	610
	5,360	223,000	181	7,530	12.1	30.7	2.23	5.66	355	5,820	34.4	564
	4,930	205,000	164	6,830	12.0	30.5	2.19	5.56	329	5,390	31.3	513
	4,470	186,000	146	6,080	11.9	30.2	2.15	5.46	299	4,900	27.9	457
	4,000	166,000	128	5,330	11.7	29.7	2.10	5.33	269	4,410	24.5	401
	3,621	150,700	115	4,788	11.7	29.7	2.09	5.30	245	4,018	22.1	362
W30	13,062	543,700	959	39,920	13.0	33.1	3.54	8.98	826	13,540	126.6	2,074
762 x 381	11,674	485,900	855	35,570	13.0	33.0	3.52	8.94	746	12,220	113.5	1,860
(30 x 15)	10,300	429,000	757	31,500	12.9	32.8	3.49	8.86	663	10,900	100	1,640
	9,170	382,000	673	28,000	12.8	32.5	3.46	8.79	598	9,800	89.5	1,470
	8,200	341,000	598	24,000	12.7	32.3	3.43	8.71	539	8,830	79.8	1,310
W33	11,364	473,000	386	16,050	13.8	35.0	2.54	6.45	663	10,860	66.3	1,086
838 x 292	10,340	430,400	348	14,470	13.7	34.8	2.51	6.38	607	9,950	60.0	984
(33 x 11½)	9,286	386,500	310	12,920	13.7	34.8	2.50	6.36	549	8,999	54.0	884
	8,160	340,000	273	11,400	13.5	34.3	2.47	6.27	487	7,980	47.2	773
	7,450	310,000	246	10,200	13.4	34.0	2.43	6.17	448	7,340	42.7	700
	6,710	279,000	218	9,070	13.2	33.5	2.38	6.05	406	6,640	37.9	621
	5,900	246,000	187	7,780	13.0	33.0	2.32	5.89	359	5,880	32.6	534
W33	17,668	735,400	1,163	48,390	14.4	36.5	3.69	9.36	1,104	16,620	146.2	2,396
838 x 400	15,832	659,000	1,035	43,070	14.3	36.3	3.66	9.29	917	15,030	131.0	2,146
(33 x 15¾)	14,200	591,000	932	38,800	14.1	35.8	3.63	9.22	829	13,600	118	1,930
	12,800	533,000	840	35,000	14.1	35.8	3.59	9.12	757	12,400	106	1,740
	11,500	479,000	749	31,200	14.0	35.6	3.56	9.04	684	11,200	95.2	1,560
W36	16,743	696,900	528	21,980	14.9	37.9	2.65	6.72	895	14,660	86.4	1,416
914 x 305	15,020	625,200	468	19,480	14.8	37.7	2.62	6.66	809	13,260	77.3	1,266
(36 x 12)	13,200	549,000	411	17,100	14.6	37.1	2.58	6.55	719	11,800	67.5	1,110
	12,100	504,000	375	15,600	14.6	37.1	2.56	6.50	664	10,900	61.9	1,010
	11,300	470,000	347	14,400	14.5	36.8	2.55	6.48	623	10,200	57.6	944
	10,500	437,000	320	13,300	14.5	36.8	2.53	6.43	580	9,500	53.2	872
	9,760	406,000	295	12,300	14.4	36.6	2.50	6.35	542	8,880	49.1	805
	9,040	376,000	270	11,200	14.3	36.3	2.47	6.27	504	8,260	45.1	739
	7,800	325,000	225	9,370	14.0	35.6	2.38	6.04	439	7,190	37.7	618
W36	24,772	1,031,000	1,572	65,450	15.3	38.9	3.86	9.81	1,324	21,700	188	3,081
914 x 419	22,497	936,400	1,422	59,170	15.3	38.8	3.84	9.76	1,213	19,880	171	2,801
(36 x 16½)	20,300	845,000	1,300	54,100	15.2	38.6	3.83	9.73	1,110	18,200	156	2,560
	18,900	787,900	1,200	49,900	15.1	38.4	3.81	9.68	1,030	16,900	144	2,360
	17,300	720,000	1,090	45,400	15.0	38.1	3.78	9.60	953	15,600	132	2,160
	16,100	670,000	1,010	42,000	15.0	38.1	3.75	9.52	895	14,700	123	2,020
	15,000	624,000	940	39,100	14.9	37.8	3.73	9.47	837	13,700	114	1,870

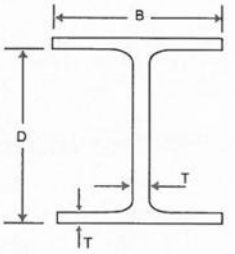
Universal Bearing Piles



IMPERIAL DIMENSIONS

US term	Serial size in	Weight per ft lb	Depth of Section D in	Width of Section B in	Thickness Web and Flange in	Area of section in^2
HP14	14 X 14½	117	14.234	14.885	0.805	34.40
		102	14.032	14.784	0.704	30.00
		89	13.856	14.696	0.616	26.10
		73	13.636	14.586	0.506	21.40
			No imperial equivalent			
HP12	12 X 12	150	13.308	12.810	1.200	44.17
		125	12.928	12.620	1.010	36.73
		100	12.528	12.420	0.810	29.40
		85	12.308	12.310	0.700	24.60
		74	12.122	12.217	0.607	21.80
		64	11.960	12.136	0.526	18.40
		59	11.878	12.095	0.485	17.36
		53	11.780	12.046	0.436	15.50
			No imperial equivalent			
HP10	10 X 10	57	10.012	10.224	0.564	16.80
		48	9.838	10.137	0.477	14.10
		42	9.72	10.078	0.418	12.40
			No imperial equivalent			
HP8	8 X 8	36	8.026	81.58	0.446	10.60
		30	7.880	8.085	0.373	8.83
			No imperial equivalent			

Universal Bearing Piles

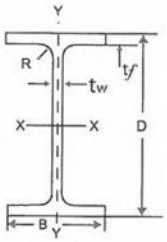


METRIC / IMPERIAL SIZES

Serial Size mm	Mass kg/m	Depth of Section D mm	Width of Section B mm	Thickness Web and Flange mm	Area of section cm^2
†400 X 400	235 197 168 140	408 400 394 388	412 408 405 402	25 21 18 15	300 251 214 178
*356 X 368	174 152 133 109	361.5 356.4 351.9 346.4	378.1 375.5 373.3 370.5	20.4 17.9 15.6 12.9	222.2 193.6 169.0 138.4
†350 X 350	156 131 106	350 344 338	357 354 351	19 16 13	198.4 166.6 135.3
*305 X 305	223 186 149 126 110 95 88 79	338.0 328.4 318.2 312.6 307.9 303.8 301.7 299.2	325.4 320.5 315.5 312.7 310.3 308.3 307.2 306.0	30.5 25.7 20.6 17.8 15.4 13.4 12.3 11.1	285.0 237.0 190.0 161.0 140.4 121.0 112.0 100.4
†300 X 300	142 106 84.5 83.4	310 300 294 294	310 305 302 302	20 15 12 12	181 134.8 107.7 106
*254 X 254	85 71 63	254.3 249.9 246.9	259.7 257.5 256.0	14.3 12.1 10.6	108.1 91.0 79.7
†250 X 250	82.2 64.4 63.8	250 244 244	255 252 252	14 11 11	104.7 82.06 81.3
*203 X 203	54 45	203.9 202.2	207.2 205.4	11.3 9.5	68.4 57.0
†200 X 200	56.2	200	204	12	71.53

*BS4: Part 1:1980 sizes
†JIS series

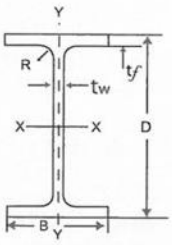
Universal Beams And Columns



Metric Units

Section size	Unit weight	Section depth	Flange width	Tickness		Corner radius	Section area	Moment of inertia		Radius of gyration		Modulus of section	
	M	D	B	tw	tf	r	A	Ix	Iy	Ix	Iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm^2	cm^4	cm^4	cm	cm	cm^3	cm^3
100 x 50	9.30	100	50	5	7	8	11.85	187	14.8	3.98	1.12	37.5	5.91
100 x 100	14.8	100	100	5	7	10	19.2	344	117.0	4.20	2.47	69.0	23.0
	16.9	100	100	8	6	8	21.6	378	134	4.18	2.49	75.6	26.7
	17.2	100	100	6	8	10	21.90	333	134	4.18	2.47	76.5	26.7
125 x 60	13.2	125	60	6	8	9	16.84	413	29.2	4.95	1.32	66.1	9.73
125 x 125	23.6	125	125	6.5	9	8	30.0	840	293	5.29	3.13	134	46.9
	23.8	125	125	6.5	9	10	30.31	847	293	5.29	3.11	136	47.0
150 x 75	14.0	150	75	5	7	8	17.85	666	49.5	6.11	1.66	88.8	13.2
150 x 100	20.7	148	100	6	9	8	26.3	1003	150	6.17	2.39	135	30.1
	21.1	148	100	6	9	11	26.84	1,020	151	6.17	2.37	138	30.1
150 x 150	31.1	150	150	7	10	8	39.6	1623	563	6.40	3.77	216	75.1
	31.5	150	150	7	10	11	40.14	1,640	563	6.39	3.75	219	75.1
	37.4	154	151	8	12	11	47.7	2018	690	6.51	3.80	262	91.4
175 x 90	18.0	175	90	5	8	8	22.9	1205	97.5	7.26	2.06	138	21.7
	18.1	175	90	5	8	9	23.04	1,210	97.5	7.26	2.06	139	21.7
175 x 125	23.3	169	125	5.5	8	12	29.65	1,530	261	7.18	2.97	181	41.8
175 x 175	32.8	171	174	6	9	12	41.7	2304	791	7.43	4.35	269	90.9
	40.2	175	175	7.5	11	13	51.2	2,880	984	7.50	4.38	330	112
	40.4	175	175	7.5	11	12	51.4	2895	984	7.50	4.37	331	112
200 x 100	17.8	198	99	4.5	7	8	22.7	1543	113	8.25	2.24	156	22.9
	18.2	198	99	7	4.5	11	23.2	1582	114	8.26	2.22	160	23.0
	20.9	200	100	5.5	8	8	26.7	1806	134	8.23	2.24	181	26.7
	21.3	200	100	5.5	8	11	27.16	1,840	134	8.24	2.22	184	26.8
200 x 150	29.9	194	150	6	9	8	38.1	2625	507	8.30	3.65	271	67.6
	30.6	194	150	6	9	13	39.01	2,690	507	8.30	3.61	277	67.6
	36.9	198	151	7	11	13	47.0	3331	633	8.42	3.67	336	83.8
200 x 200	41.4	196	199	6.5	10	13	52.7	3846	1315	8.54	5.00	392	132
	49.9	200	200	8	12	13	63.53	4,720	1,600	8.62	5.02	472	160
	56.2	200	204	12	12	13	71.53	4,980	1,700	8.35	4.88	498	167
	57.8	204	201	9	14	13	73.6	5603	1897	5.70	5.08	549	189
	65.7	208	202	16	10	13	83.69	6,530	2,200	8.83	5.13	628	218
250 x 125	25.1	248	124	5	8	8	32.0	3450	255	10.4	2.82	278	41.1
	25.7	248	124	5	8	12	32.68	3,540	255	10.4	2.79	285	41.1
	29.0	250	125	6	9	8	37.0	3965	294	10.4	2.82	317	47.0
	29.6	250	125	6	9	12	37.66	4,050	294	10.4	2.79	324	47.0
250 x 175	43.6	244	175	7	11	13	55.5	6037	984	10.4	4.21	495	112
	44.1	244	175	7	11	16	56.24	6120	985	10.4	4.19	502	113
	51.6	248	176	8	13	16	65.7	7308	1184	10.5	4.24	589	135
	59.1	252	177	9	15	16	75.3	8541	1390	10.7	4.30	678	157

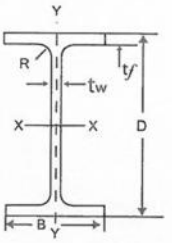
Universal Beams And Columns



Metric Units

Section size	Unit weight	Section depth	Flange width	Tickness		Corner radius	Section area	Moment of inertia		Radius of gyration		Modulus of section	
	M	D	B	tw	tf	r	A	Ix	Iy	Ix	Iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	cm^2	cm^4	cm^4	cm	cm	cm^3	cm^3
250 x 250	64.4	244	252	11	11	16	82.06	8,780	2,940	10.3	5.98	720	233
	66.5	248	249	8	13	16	84.7	9,930	3,350	10.8	6.29	801	269
	71.8	250	250	9	14	13	91.4	10750	3648	10.8	6.32	860	292
	72.4	250	250	9	14	16	92.18	10,800	3,650	10.8	6.29	867	292
	82.8	250	255	14	14	16	104.7	11,500	3,880	10.5	6.09	919	304
	98.1	260	253	12	19	16	125	15340	5134	11.1	6.41	1180	406
390 x 150	25.0	294	148	4.5	6	16	32.6	4940	326	12.3	3.16	336	44.0
	32.0	298	149	5.5	8	13	40.80	6,320	442	12.4	3.29	424	59.3
	36.7	300	150	6.5	9	13	46.78	7,210	508	12.4	3.29	481	67.7
	41.4	304	150	6.5	11	13	52.8	8578	620	12.7	3.43	564	82.7
	46.2	306	151	7.5	12	13	58.8	9514	691	12.7	3.43	622	91.5
	69.0	318	154	11	18	13	87.9	14820	1100	13.0	3.54	932	143
300 x 200	48.3	290	199	7	10	18	61.5	9431	1317	12.4	4.63	650	132
	55.8	294	200	8	12	13	71.1	11110	1602	12.5	4.75	756	160
	56.8	294	200	8	12	18	72.38	11,300	1,600	12.5	4.71	771	160
	65.4	298	201	9	14	18	83.36	13,300	1,900	12.6	4.77	893	189
	77.3	304	202	10	17	18	98.5	16280	2341	12.9	4.88	1071	232
300 x 300	84.5	294	302	12	12	18	107.7	16,900	5,520	12.5	7.16	1,150	365
	87.0	298	299	9	14	18	110.8	18,800	6,750	13.1	7.51	1,270	450
	93.0	300	300	10	15	13	118	20190	6753	13.1	7.55	1346	450
	94.0	300	300	10	15	18	119.8	20,400	6,750	13.1	7.51	1,360	450
	105	300	305	15	15	13	133.5	21,311	7,102	12.6	7.26	1,421	466
	106	304	301	11	17	18	134.8	23,400	7,730	13.2	7.57	1,540	514
	125	310	303	20	13	18	159	28130	9282	13.3	7.64	1815	613
	130	310	305	15	20	18	165	28630	9470	13.2	7.57	1847	621
	147	312	310	20	21	18	187	31370	10450	13.0	7.48	2011	674
350 x 175	41.2	346	174	6	9	13	52.5	11040	792	14.5	3.88	638	91.0
	41.4	346	174	6	9	14	52.68	11,100	798	14.5	3.88	641	91.0
	49.4	350	175	7	11	13	62.9	13500	984	14.6	3.96	771	113
	49.6	350	175	7	11	14	63.14	13,600	984	14.7	3.95	775	112
	57.8	354	176	8	13	14	73.7	16100	1184	14.8	4.01	909	135
	66.2	358	177	9	15	14	84.3	18710	1390	14.9	4.06	1045	157
	71.8	360	178	10	16	14	91.4	20240	1508	14.9	4.06	1124	169
	79.7	364	177	11	18	14	101	22760	1669	15.0	4.06	1250	189
350 x 250	69.2	336	249	8	12	20	88.15	18,500	3,090	14.5	5.92	1,100	248
	78.1	340	250	9	14	13	100	21230	3649	14.6	6.05	1249	292
	79.7	340	240	9	14	20	102	21,700	3,650	14.6	6.00	1,280	292
	94.2	346	251	10	17	20	120	26440	4488	14.8	6.12	1528	358
	108	350	253	12	19	20	137	30190	5138	14.8	6.12	1725	406

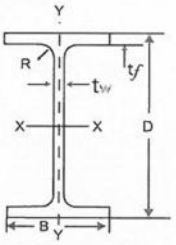
Universal Beams And Columns



Metric Units

Section size	Unit weight	Section depth	Flange width	Tickness		Corner radius	Section area	Moment of inertia		Radius of gyration		Modulus of section	
	M	D	B	tw	tf	r	A	Ix	Iy	Ix	Iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	mm	cm^4	cm^4	cm	cm	cm^3	cm^3
350 x 350	106	338	351	13	13	20	135.3	28,200	9,380	14.4	8.33	1,670	534
	113	344	348	10	16	13	144	32,850	11,240	15.1	8.84	1,910	646
	115	344	348	10	16	20	146.0	33,810	11,840	15.1	8.95	1,966	646
	131	344	354	16	16	20	166.6	35,300	11,800	14.6	8.43	2,050	669
	135	350	350	12	19	13	172	39,847	11,840	15.2	8.89	2277	776
	137	350	350	12	19	20	173.9	40,300	13,583	15.2	8.84	2,303	776
	156	350	357	19	19	20	198.4	42,500	14,400	14.7	8.53	2,450	809
	159	356	352	14	22	20	202.0	47,600	16,000	15.3	8.90	2,674	909
	181	362	354	16	25	20	230	55190	18500	15.5	8.96	3049	1045
400 x 200	56.1	396	199	7	11	13	71.4	19,770	1447	16.6	4.50	999	145
	56.5	396	199	7	11	16	72.16	20,020	1,450	16.7	4.48	1,011	145
	65.4	400	200	13	8	13	83.4	23,460	1736	16.8	4.56	1173	174
	66.0	400	200	13	8	16	84.12	23,710	1,740	16.8	4.54	1,185	174
	75.5	404	201	9	15	16	96.2	27,490	2035	16.9	4.60	1361	202
	88.2	410	202	10	18	16	112	33,060	2478	17.2	4.70	1612	245
	140	430	208	16	28	16	179	54,850	4216	17.5	4.86	2551	405
400 x 300	94.3	386	299	9	14	22	120.1	33,700	6,240	16.7	7.21	1,740	418
	105	390	300	10	16	13	133	37860	7204	16.9	7.35	1942	480
	107	390	300	10	16	22	136.0	38,680	7,210	16.9	7.28	1,983	481
	127	896	302	12	19	22	162	46660	8735	17.0	7.35	2357	578
400 x 400	140	388	402	15	15	22	178.5	48,930	16,260	16.6	9.55	2,524	809
	147	394	398	11	18	22	186.8	56,150	18,930	17.3	10.1	2,850	951
	168	394	405	18	18	22	214.4	49,700	20,000	16.7	9.65	3,030	985
	172	400	400	13	21	22	218.7	66,620	22,420	17.5	10.1	3,331	1,120
	197	400	408	21	21	22	250.7	70,900	23,800	16.8	9.75	3,540	1,170
	200	406	403	16	24	22	254.9	78,040	26,200	17.5	10.1	3,844	1,300
	232	414	405	18	28	22	295.5	92,770	31,030	17.7	10.2	4,482	1,532
	283	428	407	20	35	22	360.7	119,000	39,360	18.2	10.4	5,570	1,934
	415	458	417	30	50	22	528.6	187,100	60,530	18.8	10.7	8,172	2,903
	605	598	432	45	70	22	770.1	297,900	94,360	19.7	11.1	12,000	4,370
450 x 200	65.1	446	199	8	12	13	83.0	28130	1579	18.4	4.36	1262	159
	66.2	446	199	8	12	18	84.30	28,700	1,580	18.5	4.33	1,287	159
	74.9	450	200	9	14	13	95.4	32890	1870	18.6	4.43	1462	187
	76.0	450	200	9	14	18	96.76	33,500	1,872	18.6	4.40	1,487	187
	88.9	456	201	10	17	18	113	40400	2308	18.9	4.51	1772	230
	98.9	460	202	11	19	18	126	45430	2619	19.0	4.56	1975	259
	110	460	205	14	19	18	140	47860	2742	18.5	4.43	2081	268
450 x 300	106	434	299	10	15	24	135.0	46,800	6,690	18.6	7.04	2,160	448
	121	440	300	11	18	13	154	54730	8106	18.9	7.26	2488	540
	124	440	300	11	18	24	157.4	56,100	8,110	18.9	7.18	2,550	541
	145	446	302	13	21	24	184	66380	9658	19.0	7.24	2977	640

Universal Beams And Columns



Metric Units

Section size	Unit weight	Section depth	Flange width	Tickness		Corner radius	Section area	Moment of inertia		Radius of gyration		Modulus of section	
	M	D	B	tw	tf	r	A	Ix	Iy	Ix	Iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	mm	cm^4	cm^4	cm	cm	cm^3	cm^3
500 x 200	77.9	496	199	9	14	13	99	40840	1843	20.3	4.31	1647	185
	79.5	496	199	9	14	20	101.3	41,900	1,846	20.3	4.27	1,690	186
	88.2	500	200	10	16	13	112	46810	2138	20.4	4.36	1872	214
	89.6	500	200	10	16	20	114.2	47,800	2,142	20.5	4.33	1,917	214
	102	506	201	11	19	13	129	55480	2578	20.7	4.47	2193	257
	103	506	201	11	19	20	131.3	56,520	2,582	20.7	4.43	2,234	257
	117	512	202	12	22	20	148	65450	3035	21.0	4.52	2557	300
500 x 300	111	482	300	11	15	13	141	58270	6756	20.3	6.92	2418	450
	114	482	300	11	15	26	145.5	60,400	6,768	20.4	6.82	2,505	451
	125	488	300	11	18	13	159	68860	8106	20.8	7.14	2822	540
	128	488	300	11	18	26	163.5	71,000	8,118	20.8	7.05	2,910	541
	150	494	302	13	21	26	191	83810	9663	20.9	7.11	3393	640
600 x 200	79.0	592	197	8	13	22	101	58240	1665	24.1	4.07	1968	169
	92.6	596	199	10	15	13	118	66640	1976	23.8	4.10	2236	199
	94.6	596	199	10	15	22	120.5	68,720	1,982	23.9	4.05	2,310	199
	103	600	200	11	17	13	132	75560	2274	24.0	4.16	2519	227
	106	600	200	11	17	22	134.4	77,630	2,280	24.0	4.12	2,588	228
	118	606	201	12	20	13	150	88320	2716	24.3	4.26	2915	270
	120	606	201	12	20	22	152.5	90,400	2,723	24.3	4.23	2,983	271
	134	612	202	13	23	22	171.7	103,500	3,180	24.6	4.32	3,382	315
600 x 300	133	582	300	12	17	13	169	98950	7659	24.2	6.73	3400	511
	137	582	300	12	17	28	174.5	102,700	7,675	24.3	6.63	3.530	512
	147	588	300	12	20	13	187	114400	9009	24.7	6.94	3889	601
	151	588	300	12	20	28	192.5	118,100	9,025	24.8	6.85	4,020	602
	170	594	302	14	23	13	217	133,650	10570	24.8	6.98	4497	700
	175	594	302	14	23	28	222.4	137,300	10,590	24.9	6.90	4,624	701
	203	602	304	16	27	28	259	162600	12680	25.1	7.00	5401	834
	217	608	304	16	30	28	277	179300	14090	25.4	7.13	5896	927
700 x 300	166	692	300	13	20	28	211.5	172,400	9,030	28.6	6.53	4,980	602
	182	700	300	13	24	18	232	197500	10820	29.2	6.83	5643	721
	185	700	300	13	24	28	235.5	201,500	10,830	29.3	6.78	5,760	722
	215	708	302	15	28	28	273.6	237,100	12,900	29.5	6.86	6,700	854
800 x 300	191	792	300	14	22	28	243.4	254,000	9,936	32.3	6.39	6,410	662
	207	800	300	14	26	18	264	286,400	11720	33.0	6.67	7159	781
	210	800	300	14	26	28	267.4	291,700	11,740	33.0	6.62	7,292	782
	241	808	302	16	30	28	307.6	339,200	13,820	33.2	6.70	8,400	915
	267	816	303	17	34	28	340	383600	15820	33.6	6.82	9402	1044
900 x 300	210	890	299	15	23	18	267	338500	10280	35.6	6.20	7608	687
	213	890	299	15	23	28	270.9	345,300	10,290	35.7	6.16	7,760	688
	240	900	300	16	28	18	306	404500	12630	36.4	6.43	8989	842
	243	900	300	16	28	28	309.8	411,300	12,650	36.4	6.39	9,140	843
	283	912	302	18	34	18	360	491000	15660	36.9	6.59	10770	1037
	286	912	302	18	34	28	364.0	497,800	15,670	37.0	6.56	10,920	1,038
	304	918	303	19	37	18	387	535400	17210	37.2	6.67	11660	1136
	307	918	303	19	37	28	391	542200	17230	37.2	6.63	11810	1137