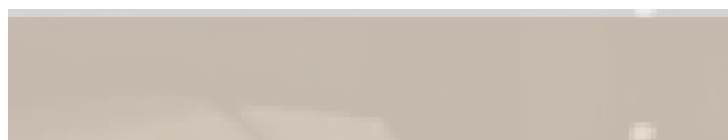
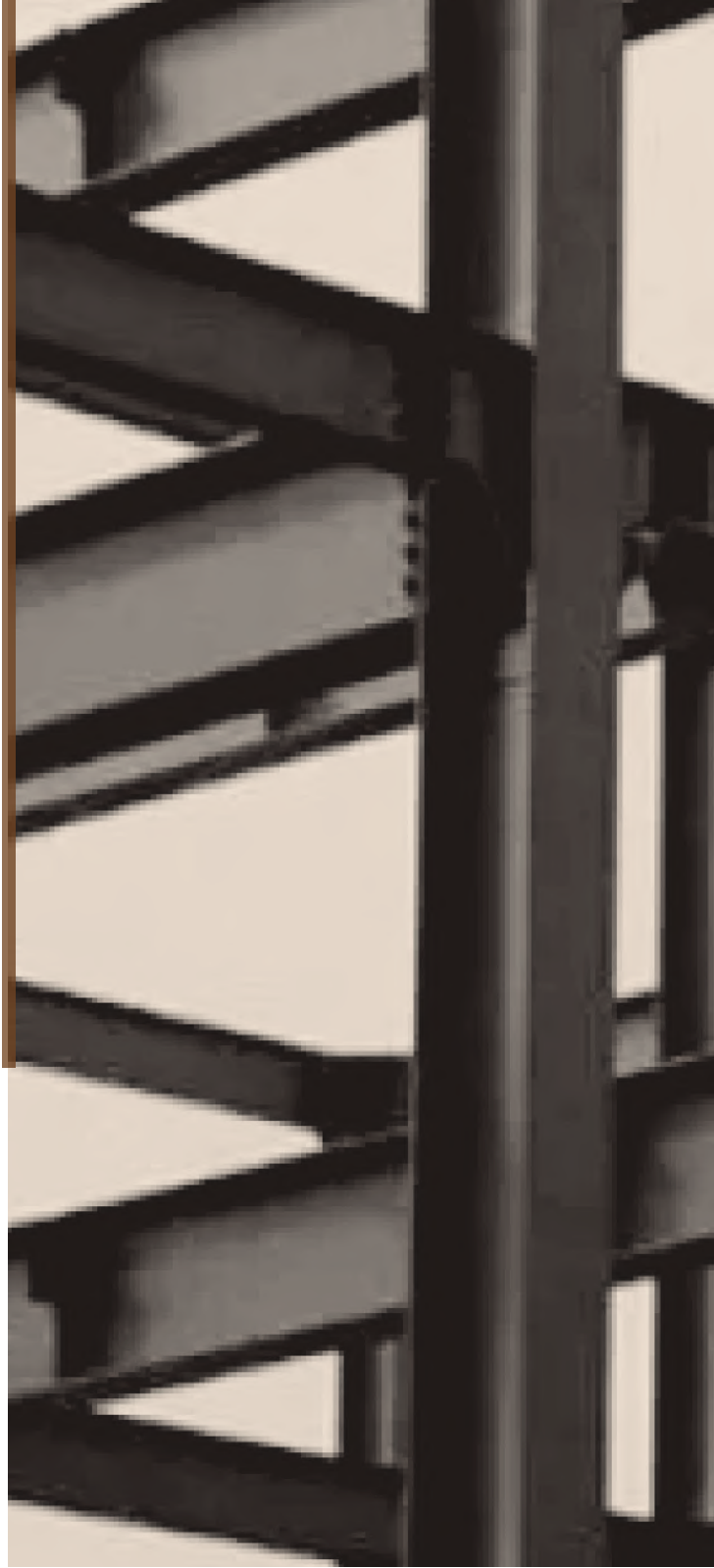




聚美集團

CHOO BEE GROUP

STEEL
**BEAMS &
COLUMNS**



Universal Beams & Columns

Standard Specifications

The Standard Specifications used for productions of universal beams and columns in this region are listed in this table.

4(i) Mechanical Properties and Dimension & Tolerance for Structural Steel and Sheet Pile

Classifications		Mechanical Properties									Dimension & Tolerance
		Yield Point N/mm ² (min.)		Tensile Strength N/mm ²	Yield Ratio % (max.)	Elongation % (min.)			Impact Thickness t > 12		
		Thickness				Thickness t ≥ 12	Thickness			Temp °C	
		t ≤ 16	16 ≤ t ≤ 40	t ≤ 5	5 < t ≤ 16		t > 16				
JIS G 3101 : 2004	SS400	245	235	400-510	-	21	17	21	-	-	JIS 3192 :1990/1994 JIS A 5526 : 1988
	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	235	400-510	80	18	18	22	0	27	
	SN490 B	325-445	235-355	490-610	80	17	17	21	0	27	
BS 4360 : 1990	43A	275	325-445	430-580	-	-	20	-	-	-	BS 4 Part 1 : 2005
	43B	275	265	430-580	-	-	20	20	27		
	43C	275	265	430-580	-	-	20	0	27		
	43D	275	265	430-580	-	-	20	-20	27		
	43DD	275	265	430-580	-	-	20	-30	27		
	50A	355	345	490-640	-	-	18	-	-		
	50B	355	345	490-640	-	-	18	20	27		
	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	27	EN 10034 : 1993	
	S275JO	275	265	410-560	-	-	23	0	27		
	S275J2	275	265	410-560	-	-	23	-20	27		
	S275J2G3	275	265	410-560	-	-	23	-20	27		
	S355JR	355	345	490-630	-	-	22	20	27 ⁶		
	S355J0	355	345	490-630	-	-	22	0	27		
	S355J2	355	345	490-630	-	-	22	-20	27		
	S355J2G3	355	345	470-630	-	-	22	-20	27		
ASTM : 2003	A36	250		400-550	-	-	20	-	-	ASTM A6/A 6m : 2003	
	A 572 Gr.42	290		415 min.	-	-	20	-	-		
	A 572 Gr.50	345		450 min.	-	-	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								AS/NZS 3679 :1996
	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	-	-		
JIS A 5528 : 2000	SY295	295		490 min.	-	-	17	-	-	JIS A 5528 : 2000	
	SY390	390		540 min.	-	-	15	-	-		



Universal Beams & Columns

Standard Specifications

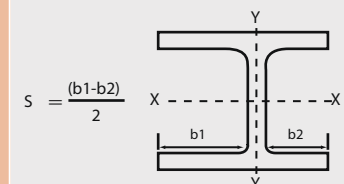
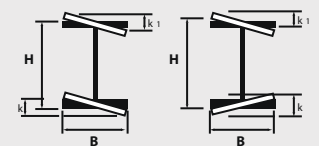
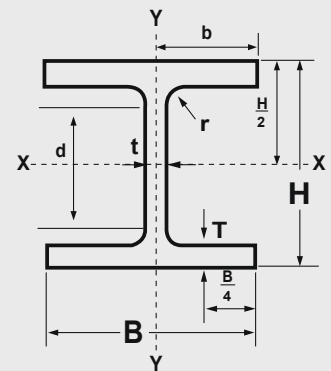
4(ii) Chemical Composition for Structural Steel and Sheet Pile

Classifications		Chemical Compositions (ladle analysis), %									
		C (max.)	Si (max.)	Mn (max.)	P (max.)	S (max.)	CE (max.)	SW (max.)	NB (max.)	V (max.)	N (max.)
JIS G 3101 : 2004	SS400	-	-	-	0.050	0.050	-	-	-	-	-
	SS490	-	-	-	0.050	0.050	-	-	-	-	-
	SS540	0.30	-	1.6	0.040	0.040	-	-	-	-	-
JIS G 3106 : 2004	SM400 A	0.23	-	2.50 x C min.	0.035	0.035	-	-	-	-	-
	SM400 B	0.20	0.35	0.60 - 1.40	0.035	0.035	-	-	-	-	-
	SM490 A	0.20	0.55	1.60	0.035	0.035	-	-	-	-	-
	SM490 B	0.18	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	0.20	0.55	1.60	0.035	0.035	-	-	-	-	-
JIS G 3136 : 2005	SN400 A	0.24	-	-	0.050	0.050	-	-	-	-	-
	SN400 B	0.20	0.35	0.60 - 1.40	0.030	0.015	0.36	0.26	-	-	-
	SN490 B	0.18	0.55	1.60	0.030	0.015	0.44	0.29	-	-	-
BS 4360 : 1990	43A	0.25	0.50	1.60	0.050	0.050	-	-	-	-	-
	43B	0.21	0.50	1.50	0.050	0.050	-	-	-	-	-
	43C	0.18	0.50	1.50	0.050	0.050	-	-	-	-	-
	43D	0.18	0.50	1.50	0.050	0.050	-	-	-	-	-
	43DD	0.18	0.50	1.50	0.050	0.050	-	-	-	-	-
	50A	0.23	0.50	1.60	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-
	50B	0.20	0.50	1.5	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-
	50C	0.20	0.50	1.5	0.050	0.050	-	-	0.003-0.100	0.003-0.100	-
50D	0.18	0.50	1.5	0.040	0.040	-	-	0.003-0.100	0.003-0.100	-	
BS EN 10025 : 1993/2004	S275JR	0.21	-	1.50	0.035	0.035	-	-	-	-	0.009
	S275JO	0.18	-	1.50	0.030	0.030	-	-	-	-	0.009
	S275J2	0.18	-	1.50	0.025	0.025	-	-	-	-	-
	S275J2G3	0.18	-	1.50	0.035	0.035	-	-	-	-	-
	S355JR	0.24	0.55	1.60	0.035	0.035	-	-	-	-	0.009
	S355JO	0.20	0.55	1.60	0.030	0.030	-	-	-	-	0.009
	S355J2	0.20	0.55	1.60	0.035	0.035	-	-	-	-	-
	S355J2G3	0.20	0.55	1.60	0.035	0.035	-	-	-	-	-
ASTM : 2003	A36	0.26	0.40	-	0.040	0.050	-	-	-	-	-
	A 572 Gr.42	0.21	0.40	1.35	0.040	0.050	-	-	-	0.010-0.150	-
	A 572 Gr.50	0.23	0.40	1.35	0.040	0.050	-	-	-	0.010-0.150	-
	A 992	0.23	0.10-0.40	0.50 - 1.50	0.035	0.450	0.45	-	-	0.11	0.012
DIN 17100	St 33	-	-	-	-	-	-	-	0.05	-	-
	St 37-2	0.17	-	-	0.050	0.050	-	-	-	-	0.009
	St 44-2	0.21	-	-	0.050	0.050	-	-	-	-	0.009
	St 50-2	-	-	-	0.050	0.050	-	-	-	-	0.009
	St 52-3	0.2	-	-	0.040	0.040	-	-	-	-	-
AS/NZS 3679.1 : 1996	250	0.25	0.40	-	0.040	0.040	0.43	-	-	-	-
	250L0	0.20	0.40	1.50	0.040	0.040	0.42	-	-	-	-
	350	0.22	0.50	1.60	0.040	0.040	0.45	-	-	-	-
	350L0	0.22	0.50	1.60	0.040	0.040	0.45	-	-	-	-
JIS A 5528 : 2000	300	0.22	0.50	1.60	0.040	0.040	0.44	-	-	-	-
	300L0	0.22	0.50	1.60	0.040	0.040	0.44	-	-	-	-
JIS A 5528 : 2000	SY295	-	-	-	0.040	0.040	-	-	-	-	-
	SY390	-	-	-	0.040	0.040	-	-	-	-	-

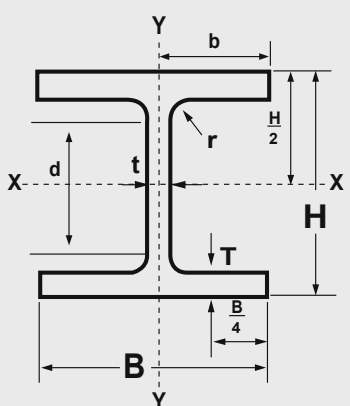
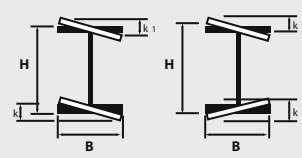
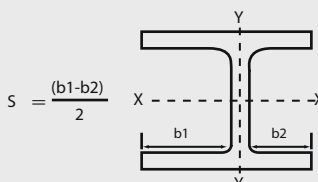


4(iii) Rolling Tolerances - European Standard BS EN 10034:1993

BS EN 10034 : 1993				
Hot Rolled Universal Beams and Columns				
		Dimension (mm)	Tolerance (mm)	Remarks
Height (H)		Up to and including 180 Greater than 180 up to and including 400 Greater than 400 up to and including 700 Greater than 700	$H \leq 180$ $180 < H \leq 400$ $400 < H \leq 700$ $H > 700$	+ 3.0, - 2.0 + 4.0, - 2.0 + 5.0, - 3.0 + 5.0, - 5.0
Width (B)		Up to and including 110 Greater than 110 up to and including 210 Greater than 210 up to and including 325 Greater than 325	$B \leq 110$ $110 < B \leq 210$ $210 < B \leq 325$ $B > 325$	+ 4.0, - 1.0 + 4.0, - 2.0 + 4.0, - 4.0 + 6.0, - 5.0
Thickness (t, T)	Web, t	Less than 7 7 up to but excluding 10 10 up to but excluding 20 20 up to but excluding 40 40 up to but excluding 60 60 and above	$t < 7$ $7 \leq t < 10$ $10 \leq t < 20$ $20 \leq t < 40$ $40 \leq t < 60$ $t \geq 60$	± 0.7 ± 1.0 ± 1.5 ± 2.0 ± 2.5 ± 3.0
	Flange, T	Less than 6.5 6.5 up to but excluding 10 10 up to but excluding 20 20 up to but excluding 30 30 up to but excluding 40 40 up to but excluding 60 60 and above	$T < 6.5$ $6.5 \leq T < 10$ $10 \leq T < 20$ $20 \leq T < 30$ $30 \leq T < 40$ $40 \leq T < 60$ $T \geq 60$	+ 1.5, - 0.5 + 2.0, - 1.0 + 2.5, - 1.5 + 2.5, - 2.0 + 2.5, - 2.5 + 3.0, - 3.0 + 4.0, - 4.0
Length (L)		-	-	+ 50 - 50
Out-of-square (k, k ₁)		Up to and including 110 Greater than 110	$B \leq 110$ $B > 110$	1.5 2% of B (Max 6.5)
Bend		Greater than 80 up to and including 180 Greater than 180 up to and including 360 Greater than 360	$80 < H \leq 180$ $180 < H \leq 360$ $H > 360$	0.30% of L 0.15% of L 0.10% of L
Web-off-center (S)		Up to and including 110 Greater than 110 up to and including 325 Greater than 325	$B \leq 110$ $110 < B \leq 325$ $B > 325$	2.5 3.5 5.0
Mass (kg / m)		-	-	$\pm 4\%$ The calculated mass shall be determined using a density of 7.85 kg / cm ³



4(iv) Dimension & Tolerances ASTM A6 (2003)

ASTM A 6 : 2003				
H-Beams				
Dimension (mm)		Tolerance (mm)	Remarks	
Height (H)	H ≤ 310	- 3.0 + 4.0		
	H > 310	- 3.0 + 4.0		
Width (B)	B ≤ 310	- 5.0 + 6.0		
	B > 310	- 5.0 + 6.0		
Length (L)	H ≤ 610	L ≤ 9 m		+ 10 - 10
		L > 9 m		10+(No. of meter of L-9) - 10
	H > 610	L ≤ 9 m	+ 13 - 13	
		L > 9 m	13+(No. of meter of L-9) - 13	
Out-of-square (k,k ₁)	H ≤ 310	≤ 3.0		
	H > 310	≤ 4.0		
Bend	L ≤ 14 m	1 mm x no. of meters of L, Max 10 mm		
	L > 14 m	10 mm + [1mm x (no. of meters of L-14m)]		
			To be applied to bend such as sweep and camber	
Web-off-center (S)	H ≤ 310	≤ 5.0		
	H > 310	≤ 5.0		
Mass (kg / m)	± 2.5%			



4(v) Dimension & Tolerances JIS G 3192 : 1990/1994

JIS G 3192				
H-Beams				
Dimension		Tolerance	Remark	
Height (H*)	H < 400	± 2.0		
	400 ≤ H < 600	± 3.0		
	H ≥ 600	± 4.0		
Width (B*)	B < 100	± 2.0		
	100 ≤ B < 200	± 2.5		
	B ≥ 200	± 3.0		
Thickness (t, T)	Web, t	t < 16		± 0.7
		16 ≤ t < 25		± 1.0
		25 ≤ t < 40		± 1.5
	Flange, T	t ≥ 40		± 2.0
		T < 16	± 1.0	
		16 ≤ T < 25	± 1.5	
Length (L)	L ≥ 7m	+ 40		
		0		
	L > 7m	40+(No. of meter of L-7)x5		
Out-of-square (k, k ₁)	H ≤ 300	1.0% of B, Max. 1.5mm		
	H > 300	1.2% of B, Max. 1.5mm		
Bend	H ≤ 300	0.15% of L		To be applied to bend such as sweep and camber
	H > 300	0.10% of L		
Web-off-center (S)	H ≤ 300, B ≤ 200	± 2.5		
	H > 300, B > 200	± 3.5		
Concavity of web (W)	H < 400 400 ≤ H < 600 H ≥ 600	2.0 2.5 3.0		
Ends-Out-of square (e)	All Section	1.6% of B or H Max 3 mm		
Mass (kg / m)	t < 10	± 5%	1. Thicker nominal values shall be applied. 2. To be applied to one lot of the same size (1t or over), provided that, when the number of pieces corresponding to 1t does no amount to 10 pieces, is shall be applied to each lot of 10 or more pieces.	
	t ≥ 10	± 4%		



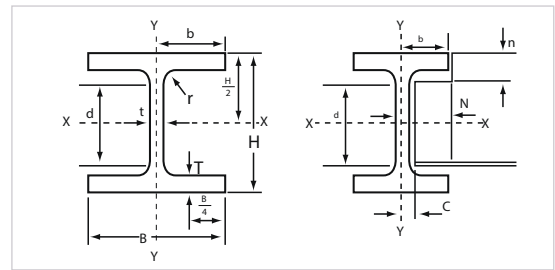
4(vi) Dimension & Tolerances JIS A 5526 : 1988

JIS A 5526			
H-Bearing Piles			
Dimension	Dimension	Tolerance	Remark
Height (H*)	H < 400 H ≥ 400	± 3.0 ± 4.0	
Width (B*)	-	± 3.0	
Thickness (t, T)	Web, t	t ≤ 13	+Not specified - 0.8
		t > 13	+Not specified - 6%
	Flange, T	T ≤ 13	+Not specified - 0.8
		T > 13	+Not specified - 6%
Length (L)	-	+Not specified 0	
Out-of-square (k, k1)	H ≤ 300 H > 300	1.2% of B 1.5% of B	
Bend	H ≤ 300 H > 300	0.20% of L 0.10% of L	To be applied to bend such as sweep and camber
Web-off-center (S)	H ≤ 300 H > 300	± 3.0 ± 4.5	
Concavity of web (W)	-	Not specified	
Ends-Out-of square (e)	-	1.6% of B or H	
Mass (kg / m)	-	Not specified	<p>1. Thicker nominal values shall be applied.</p> <p>2. To be applied to one lot of the same size (1t or over), provided that, when the number of pieces corresponding to 1t does no amount to 10 pieces, is shall be applied to each lot of 10 or more pieces.</p>



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing			
							Flange	Web				Flange	Web	End Clearance	Notch		
	in	(mm)	lb/ft	kg/m	H	B	T	t	r	d	A	b/T	d/t	C	N	n	
W5	5 x 3	(127 x 76)	9	13.4	127.0	76.0	7.6	4.0	7.6	96.6	16.5	5.00	24.2	4	46	15	
			12	17.9	155.0	75.0	8.5	6.0	8.0	122.0	21.6	4.41	20.3	5	45	17	
W6	6 x 3	(152 x 76)	11	16.4	152.4	88.7	7.7	4.5	7.6	121.8	20.3	5.76	27.1	4	52	15	
			12	17.9	153.2	101.6	7.1	5.8	6.4	126.3	22.9	7.14	21.6	5	58	13	
	6 x 3 1/2	(152 x 89)	12	17.9	153.2	101.6	7.1	5.8	6.4	126.3	22.9	7.14	21.6	5	58	13	
			16	23.8	159.5	102.4	10.2	6.6	6.4	126.4	30.4	5.02	19.2	5	58	17	
W7	7 x 3 1/2	(178 x 89)	11	16.4	173.0	90.0	7.0	4.5	8.9	141.2	20.4	6.43	31.4	4	53	16	
			12	17.9	175.0	90.0	8.0	5.0	8.9	141.2	23.0	5.63	28.2	5	53	17	
			15	22.3	179.0	90.0	10.0	6.0	8.9	141.2	28.2	4.50	23.5	5	52	19	
	7 x 4	(178 x 102)	13	19.3	177.8	101.2	7.9	4.8	7.6	146.8	24.3	6.41	30.6	4	58	16	
W8	8 x 4	(203 x 102)	10	14.9	200.4	100.1	5.2	4.3	7.6	174.7	19.1	9.61	40.4	4	58	13	
			13	19.3	202.9	101.6	6.5	5.8	7.6	174.7	24.8	7.84	29.9	5	58	14	
			15	22.3	206.0	102.0	8.0	6.2	7.6	174.8	28.6	6.38	28.1	5	58	16	
			16	23.1	203.2	101.8	9.3	5.4	7.6	169.4	29.4	5.47	31.4	5	58	17	
	8 x 5 1/4	(203 x 133)	14	20.8	203.0	133.0	6.4	5.0	8.0	174.2	27.1	10.39	34.8	5	74	14	
			15	22.3	202.0	133.0	7.0	5.0	8.9	170.2	28.7	9.50	34.0	5	74	16	
			17	25.1	203.2	133.2	7.8	5.7	7.6	172.4	32.0	8.54	30.2	5	74	15	
			18	26.8	206.8	133.3	8.4	5.8	7.6	174.8	33.9	7.95	29.9	5	74	16	
8 x 6 1/2	(203 x 165)	20	29.8	206.8	133.9	9.6	6.4	7.6	172.4	38.2	6.97	26.9	5	74	17		
		21	31.3	210.3	133.9	10.1	6.4	7.6	174.9	39.6	6.63	27.5	5	74	18		
		24	35.7	201.4	165.0	10.1	6.2	10.2	160.8	45.5	8.17	25.9	5	89	20		
		28	41.7	204.7	166.0	11.8	7.2	10.2	160.7	53.2	7.03	22.2	6	89	22		
		10 x 4	(254 x 102)	12	17.9	250.7	100.6	5.3	4.8	7.6	224.8	22.8	9.44	46.5	4	58	13
				15	22.3	254.0	101.6	6.8	5.7	7.6	225.2	28.0	7.47	39.5	5	58	14
W10	10 x 5 3/4	(254 x 146)	17	25.3	257.2	101.9	8.4	6.0	7.6	225.2	32.0	6.07	37.5	5	58	16	
			19	28.3	260.4	102.2	10.0	6.3	7.6	225.2	36.1	5.11	35.7	5	58	18	
			16	23.8	253.0	145.0	6.4	5.0	7.6	224.2	31.1	11.33	44.8	5	80	14	
			21	31.3	251.4	146.1	8.6	6.0	7.6	219.0	39.7	8.49	36.5	5	80	16	
			22	32.7	258.3	146.0	9.1	6.1	7.6	224.8	41.8	7.99	36.8	5	80	17	
			25	37.2	256.0	146.4	10.9	6.3	7.6	219.0	47.2	6.72	34.8	5	80	19	
	10 x 8	(254 x 203)	26	38.7	262.4	146.6	11.1	6.6	7.6	225.0	48.9	6.60	34.1	5	80	19	
			29	43.2	259.6	147.3	12.7	7.2	7.6	219.0	54.8	5.80	30.4	6	80	20	
			30	44.6	265.9	147.6	12.9	7.6	7.6	224.9	56.9	5.72	29.5	6	80	21	
			33	49.1	247.1	202.2	11.0	7.4	12.7	199.7	62.5	9.19	27.1	6	107	24	
W12	12 x 4	(305 x 102)	39	58.0	252.0	202.8	13.4	8.0	12.7	199.8	73.8	7.57	25.0	6	107	26	
			42	62.5	249.4	207.0	12.2	12.2	12.7	199.6	79.3	8.49	16.4	8	107	25	
			45	67.0	256.5	203.7	15.7	8.9	12.7	199.7	85.4	6.49	22.5	6	107	28	
			57	84.8	258.1	211.3	16.5	16.5	12.7	199.7	108	6.40	12.1	10	107	29	
	12 x 5	(305 x 127)	14	20.8	302.5	100.8	5.7	5.1	7.6	275.8	26.8	8.83	54.3	5	58	13	
			16	23.8	304.5	101.3	6.7	5.6	7.6	275.8	30.4	7.53	49.3	5	58	14	
			16.5	24.6	305.1	101.6	7.0	5.8	7.6	275.9	31.6	7.26	47.6	5	58	15	
			19	28.3	308.7	101.8	8.8	6.0	7.6	275.9	35.9	5.78	46.0	5	58	16	
12 x 5	(305 x 127)	22	32.7	312.7	102.4	10.8	6.6	7.6	275.9	41.8	4.74	41.8	5	58	18		
		25	37.2	304.4	123.3	10.7	7.1	8.9	265.2	47.2	5.76	37.4	6	68	20		
		28	41.7	307.2	124.3	12.1	8.0	8.9	265.2	53.4	5.14	33.2	6	68	21		
		32	47.6	311.0	125.3	14.0	9.0	8.9	265.2	61.2	4.48	29.5	7	68	23		

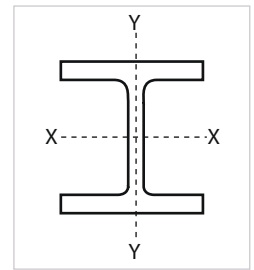
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size		
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y							
lb/ft	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H dm ⁶	J cm ⁴	in		
9	13.39	0.537	473	55.8	5.35	1.84	74.6	14.7	84.2	22.6	0.895	16.3	0.00199	2.85	5 x 3	W5	
9	13.39	0.576	666	49.5	6.11	1.67	88.8	13.2	102	20.8	0.876	20.4	0.00253	2.81	6 x 3	W6	
12	17.86	0.584	841	60.2	6.24	1.67	109	16.0	126	25.4	0.875	17.6	0.00323	4.81	6 x 3		
11	16.37	0.638	834	89.8	6.41	2.10	109	20.2	123	31.2	0.890	19.6	0.00470	3.56	6 x 3 1/2		
9	13.39	0.681	683	91.4	6.29	2.30	91.1	18.3	102	28.1	0.873	26.2	0.00477	1.69	6 x 4	W6	
12	17.86	0.690	918	125	6.33	2.33	120	24.5	136	38.0	0.869	20.4	0.00665	3.76	6 x 4		
16	23.81	0.704	1330	183	6.61	2.45	167	35.7	190	55.2	0.882	15.4	0.0102	9.12	6 x 4		
11	16.37	0.682	1060	85.4	7.20	2.04	123	19.0	138	29.4	0.884	23.9	0.00588	3.15	7 x 3 1/2	W7	
12	17.86	0.685	1213	97.6	7.26	2.06	139	21.7	157	33.7	0.885	21.4	0.00680	4.48	7 x 3 1/2		
15	22.32	0.691	1529	122	7.36	2.08	171	27.1	195	42.3	0.886	17.8	0.00871	8.16	7 x 3 1/2		
13	19.35	0.738	1356	137	7.48	2.37	153	27.0	171	41.6	0.888	22.6	0.00987	4.41	7 x 4	W7	
10	14.88	0.779	1284	87.3	8.19	2.14	128	17.4	145	27.2	0.867	36.3	0.00832	1.78	8 x 4		W8
13	19.35	0.787	1647	114	8.16	2.14	162	22.4	187	35.3	0.861	29.0	0.0110	3.63	8 x 4		
15	22.32	0.794	1999	142	8.36	2.23	194	27.8	222	43.7	0.869	25.2	0.0139	5.68	8 x 4		
16	23.81	0.790	2105	164	8.46	2.36	207	32.2	234	49.8	0.888	22.5	0.0154	7.02	8 x 4	W8	
14	20.83	0.914	1980	251	8.55	3.05	195	37.8	218	58.0	0.874	29.9	0.0243	3.74	8 x 5 1/4		W8
15	22.32	0.911	2105	275	8.56	3.09	208	41.3	232	63.4	0.879	27.9	0.0261	4.50	8 x 5 1/4		
17	25.30	0.915	2340	308	8.56	3.10	230	46.2	258	70.9	0.877	25.6	0.0294	5.96	8 x 5 1/4		
18	26.79	0.922	2578	331	8.72	3.12	249	49.7	279	76.3	0.880	24.5	0.0326	7.13	8 x 5 1/4	W8	
20	29.76	0.923	2896	385	8.71	3.17	280	57.5	314	88.2	0.881	21.5	0.0374	10.3	8 x 5 1/4		
21	31.25	0.930	3119	405	8.87	3.20	297	60.4	333	92.7	0.885	21.0	0.0405	11.6	8 x 5 1/4		
24	35.72	1.03	3430	757	8.68	4.08	341	91.7	378	140	0.875	19.3	0.0693	14.3	8 x 6 1/2	W8	
28	41.67	1.04	4077	901	8.76	4.12	398	109	445	165	0.875	16.8	0.0838	22.4	8 x 6 1/2		
12	17.86	0.881	2241	90.8	9.91	1.99	179	18.0	207	28.6	0.851	44.0	0.0137	2.28	10 x 4		W10
15	22.32	0.890	2841	119	10.1	2.06	224	23.5	259	37.3	0.856	36.4	0.0182	4.15	10 x 4		
17	25.30	0.897	3415	149	10.3	2.15	266	29.2	306	46.0	0.866	31.5	0.0230	6.42	10 x 4		
19	28.28	0.904	4005	179	10.5	2.22	308	34.9	353	54.8	0.874	27.5	0.0280	9.57	10 x 4	W10	
16	23.81	1.06	3477	326	10.6	3.23	275	44.9	308	69.0	0.874	38.2	0.0494	4.16	10 x 5 3/4		W10
21	31.25	1.06	4413	448	10.5	3.36	351	61.3	393	94.1	0.880	29.6	0.0660	8.55	10 x 5 3/4		
22	32.74	1.08	4917	475	10.8	3.37	381	65.0	426	100	0.882	28.9	0.0737	9.96	10 x 5 3/4		
25	37.20	1.07	5537	571	10.8	3.48	433	78.0	483	119	0.890	24.3	0.0857	15.3	10 x 5 3/4	W10	
26	38.69	1.08	5974	584	11.1	3.45	455	79.6	510	122	0.888	24.5	0.0921	16.5	10 x 5 3/4		
29	43.16	1.08	6544	677	10.9	3.52	504	92.0	566	141	0.891	21.2	0.103	23.9	10 x 5 3/4		
30	44.64	1.09	7048	692	11.1	3.49	530	93.8	597	144	0.888	21.3	0.111	25.6	10 x 5 3/4	W10	
33	49.11	1.27	7071	1517	10.6	4.93	572	150	634	229	0.873	21.5	0.211	24.0	10 x 8		W10
39	58.04	1.28	8672	1865	10.8	5.03	688	184	765	280	0.878	18.3	0.265	40.2	10 x 8		
42	62.50	1.25	8430	1807	10.3	4.77	676	175	768	271	0.851	17.9	0.254	44.5	10 x 8		
45	66.97	1.29	10300	2214	11.0	5.09	803	217	898	331	0.880	15.9	0.321	62.3	10 x 8	W10	
57	84.83	1.31	11930	2606	10.5	4.91	925	247	1067	385	0.849	13.6	0.380	109	10 x 8		
14	20.83	0.985	3682	97.9	11.7	1.91	243	19.4	286	31.1	0.842	50.8	0.0216	2.93	12 x 4		W12
16	23.81	0.990	4274	117	11.9	1.96	281	23.1	329	37.0	0.846	45.0	0.0260	4.27	12 x 4		
16.5	24.55	0.992	4455	123	11.9	1.97	292	24.2	342	38.8	0.846	43.4	0.0273	4.77	12 x 4		
19	28.28	1.00	5366	155	12.2	2.08	348	30.5	403	48.5	0.859	37.4	0.0349	7.40	12 x 4	W12	
22	32.74	1.01	6501	194	12.5	2.15	416	37.9	481	60.0	0.866	31.6	0.0442	12.2	12 x 4		
25	37.20	1.07	7166	335	12.3	2.67	471	54.4	539	85.3	0.872	29.7	0.0723	14.8	12 x 5		W12
28	41.67	1.08	8196	389	12.4	2.70	534	62.6	614	98.4	0.872	26.5	0.0847	21.1	12 x 5		
32	47.62	1.09	9575	461	12.5	2.74	616	73.6	711	116	0.873	23.3	0.102	31.8	12 x 5		

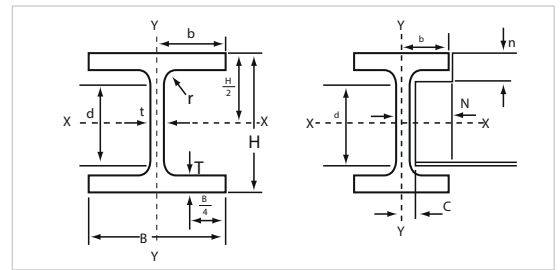
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

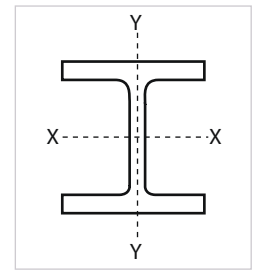
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
							Flange	Web				Flange	Web	End Clearance	Notch	
	in	(mm)	lb/ft	kg/m	H	B	T	t	r	d	A	b/T	d/t	C	N	n
W12	12 x 6 1/2	(305 x 165)	21	31.3	306.0	164.0	7.4	5.0	7.6	275.2	39.4	11.08	55.0	5	90	15
			26	38.7	310.4	164.8	9.7	5.8	7.6	275.9	49.3	8.54	47.2	5	89	17
			27	40.2	303.4	165.0	10.2	6.0	8.9	265.2	51.3	8.09	44.2	5	90	19
			30	44.6	313.4	165.6	11.1	6.6	7.6	276.0	56.5	7.46	41.8	5	90	19
			31	46.1	306.6	165.7	11.8	6.7	8.9	265.2	58.7	7.02	39.6	5	90	21
			35	52.1	317.5	166.6	13.2	7.6	7.6	275.9	66.7	6.31	36.2	6	89	21
	12 x 8	(305 x 203)	40	59.5	303.3	203.3	13.0	7.5	15.2	246.9	75.6	7.82	33.0	6	108	28
			45	67.0	306.3	204.3	14.6	8.5	15.2	246.7	85.2	7.00	29.0	6	108	30
			50	74.4	309.6	205.2	16.2	9.4	15.2	246.8	94.5	6.33	26.3	7	108	31
	12 x 10	(305 x 254)	53	78.9	306.3	253.9	14.6	8.8	15.2	246.7	100	8.70	28.2	6	133	30
			58	86.3	309.6	254.3	16.2	9.1	15.2	246.8	110	7.85	27.0	7	133	31
	W14	14 x 5	(356 x 127)	22	32.7	349.0	125.4	8.5	6.0	10.2	311.6	42.1	7.38	51.9	5	70
26				38.7	353.4	126.0	10.7	6.6	10.2	311.6	49.8	5.89	47.2	5	70	21
14 x 6 3/4		(356 x 171)	30	44.6	351.4	171.1	9.7	7.0	10.2	311.6	57.3	8.82	44.5	6	92	20
			34	50.6	355.0	171.5	11.5	7.4	10.2	311.6	64.9	7.46	42.1	6	92	22
			38	56.6	358.0	172.2	13.0	8.1	10.2	311.6	72.6	6.62	38.5	6	92	23
			45	67.0	363.4	173.2	15.7	9.1	10.2	311.6	85.5	5.52	34.2	7	92	26
14 x 8		(356 x 203)	43	64.0	347.0	203.1	13.4	7.8	15.2	289.8	81.2	7.58	37.4	6	108	29
			48	71.4	350.3	204.0	15.1	8.6	15.2	289.7	91.2	6.75	33.5	6	108	30
			53	78.9	353.6	204.7	16.7	9.4	15.2	289.8	100	6.13	30.8	7	108	32
14 x 10		(356 x 254)	61	90.8	352.8	253.9	16.3	9.5	15.2	289.8	115	7.79	30.4	7	132	32
			68	101.2	356.6	254.8	18.3	10.5	15.2	289.6	129	6.97	27.5	7	132	33
			74	110.1	359.9	255.8	19.9	11.4	15.2	289.6	141	6.41	25.3	8	132	35
			82	122.0	363.5	257.3	21.7	12.9	15.2	289.7	155	5.92	22.5	8	132	37
			14 x 14 1/2	(356 x 368)	87	129.5	355.6	368.6	17.5	10.4	15.2	290.2	164	10.5	27.9	7
90		133.9			356.1	368.8	18.0	11.2	15.2	289.6	171	10.2	25.9	8	189	33
99		147.3			359.7	370.0	19.8	12.3	15.2	289.7	188	9.34	23.5	8	189	35
103		153.3			362.0	370.5	20.7	12.3	15.2	290.2	195	8.95	23.6	8	189	36
109		162.2			363.7	371.0	21.8	13.3	15.2	289.6	207	8.49	21.7	9	189	37
119		177.1			368.2	372.6	23.8	14.4	15.2	290.2	226	7.83	20.2	9	189	39
120		178.6			367.8	372.6	23.9	15.0	15.2	289.6	228	7.80	19.3	9	189	39
132		196.4			372.4	374.0	26.2	16.4	15.2	289.7	250	7.15	17.7	10	189	41
136		202.4			374.6	374.7	27.0	16.5	15.2	290.2	257	6.94	17.6	10	189	42
14 x 16		(356 x 406)	118	175.6	360.0	396.0	20.0	20.0	15.0	290.0	224	9.90	14.5	12	198	35
			145	215.8	375.4	393.7	27.7	17.3	15.2	289.6	275	7.11	16.8	11	198	43
			158	235.1	381.0	394.8	30.2	18.4	15.2	290.2	299	6.54	15.8	11	198	45
			159	236.6	380.5	395.4	30.2	18.9	15.2	289.6	302	6.54	15.3	11	198	45
			176	261.9	386.6	397.5	33.3	21.1	15.2	289.7	334	5.97	13.7	13	198	48
			193	287.2	393.6	399.0	36.5	22.6	15.2	290.2	366	5.47	12.8	13	198	52
			211	314.0	399.3	401.3	39.6	24.9	15.2	289.7	400	5.06	11.6	14	198	55
			219	325.9	403.1	402.0	41.2	25.5	15.2	290.3	415	4.88	11.4	15	198	56
			228	339.3	406.4	403.0	42.9	26.6	15.2	290.2	433	4.70	10.9	15	198	58
			233	346.7	407.4	403.6	43.7	27.2	15.2	289.6	442	4.62	10.7	16	198	59
	257		382.5	416.1	406.3	48.0	29.8	15.2	289.7	488	4.23	9.71	17	198	63	
	264		392.9	419.0	407.0	49.2	30.6	15.2	290.2	501	4.14	9.48	17	198	64	
283	421.1	425.2	409.2	52.6	32.8	15.2	289.6	537	3.89	8.84	18	198	68			
311	462.8	434.8	412.2	57.4	35.8	15.2	289.6	590	3.59	8.09	20	198	73			
314	467.3	436.6	412.2	58.0	35.8	15.2	290.2	595	3.55	8.11	20	198	73			

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

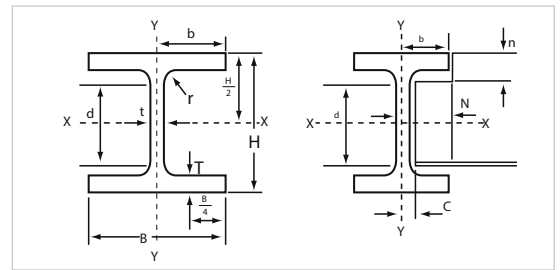
Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size	
lb/ft	kg/m	m ²	Axis x-x cm ⁴	Axis y-y cm ⁴	Axis x-x cm	Axis y-y cm	Axis x-x cm ³	Axis y-y cm ³	Axis x-x cm ³	Axis y-y cm ³	u	x	H dm ⁶	J cm ⁴	in	
21	31.25	1.24	6554	544	12.9	3.72	428	66.4	476	102	0.881	42.4	0.121	6.3	12 x 6 1/2	W12
26	38.69	1.26	8498	720	13.1	3.82	548	87.4	609	134	0.887	33.8	0.163	12.5		
27	40.18	1.24	8503	764	12.9	3.86	560	92.7	623	142	0.889	31.0	0.164	14.7		
30	44.64	1.26	9864	841	13.2	3.86	629	102	703	156	0.887	29.7	0.192	18.7		
31	46.13	1.25	9899	896	13.0	3.90	646	108	720	166	0.891	27.1	0.195	22.2		
35	52.09	1.27	11860	1019	13.3	3.91	747	122	838	188	0.889	25.3	0.236	30.8		
36	53.57	1.26	11700	1063	13.0	3.93	754	127	846	196	0.889	23.6	0.234	34.8		
40	59.53	1.38	12840	1823	13.0	4.91	847	179	938	274	0.890	22.9	0.384	39.1		
45	66.97	1.39	14570	2078	13.1	4.94	952	203	1060	311	0.889	20.6	0.442	54.6		
50	74.41	1.40	16350	2337	13.2	4.97	1056	228	1183	349	0.889	18.8	0.503	73.5		
53	78.87	1.58	17700	3986	13.3	6.30	1156	314	1276	477	0.876	20.4	0.848	65.6	12 x 10	W12
58	86.31	1.59	19740	4444	13.4	6.36	1275	349	1411	531	0.878	18.7	0.956	86.5		
22	32.74	1.17	8250	280	14.0	2.58	473	44.7	543	70.3	0.863	42.2	0.0813	8.79	14 x 5	W14
26	38.69	1.18	10170	358	14.3	2.68	576	56.8	659	89.1	0.871	35.2	0.105	15.1		
30	44.64	1.36	12070	811	14.5	3.76	687	94.8	775	147	0.874	36.8	0.237	15.8	14 x 6 3/4	W14
34	50.60	1.36	14140	968	14.8	3.86	796	113	896	174	0.881	32.1	0.286	23.8		
38	56.55	1.37	16040	1108	14.9	3.91	896	129	1010	199	0.882	28.8	0.330	33.4	14 x 8	W14
45	66.97	1.38	19460	1362	15.1	3.99	1071	157	1211	243	0.886	24.4	0.412	55.7		
43	63.99	1.46	17760	1874	14.8	4.80	1024	185	1138	283	0.891	25.9	0.521	43.2	14 x 8	W14
48	71.43	1.47	20170	2140	14.9	4.84	1151	210	1285	322	0.891	23.3	0.601	60.4		
53	78.87	1.48	22480	2391	15.0	4.88	1271	234	1424	359	0.892	21.3	0.679	80.1	14 x 10	W14
61	90.78	1.68	26540	4451	15.2	6.21	1505	351	1668	534	0.886	21.5	1.26	90.3		
68	101.19	1.69	30060	5048	15.3	6.26	1686	396	1878	604	0.886	19.4	1.44	126	14 x 10	W14
74	110.12	1.69	33120	5569	15.3	6.29	1840	435	2058	665	0.886	18.0	1.61	161		
82	122.03	1.70	36680	6175	15.4	6.31	2018	480	2270	734	0.884	16.6	1.80	211	14 x 14 1/2	W14
87	129.47	2.14	40250	14610	15.6	9.43	2264	793	2479	1199	0.844	19.9	4.18	153		
90	133.93	2.14	41580	15080	15.6	9.40	2335	818	2565	1238	0.842	19.2	4.31	169	14 x 14 1/2	W14
99	147.33	2.15	46240	16730	15.7	9.43	2571	904	2838	1370	0.842	17.7	4.83	223		
103	153.28	2.16	48590	17550	15.8	9.49	2685	948	2965	1435	0.844	17.0	5.11	251	14 x 14 1/2	W14
109	162.21	2.16	51540	18600	15.8	9.49	2834	1003	3142	1519	0.843	16.2	5.43	296		
119	177.09	2.17	57120	20530	15.9	9.54	3103	1102	3455	1671	0.844	15.0	6.09	381	14 x 14 1/2	W14
120	178.58	2.17	57290	20600	15.9	9.51	3115	1106	3475	1678	0.842	14.9	6.09	390		
132	196.44	2.18	63720	22820	16.0	9.55	3422	1221	3838	1853	0.843	13.7	6.84	511	14 x 14 1/2	W14
136	202.39	2.19	66260	23690	16.1	9.60	3538	1264	3972	1920	0.844	13.4	7.16	558		
118	175.60	2.24	51770	20730	15.2	9.61	2876	1047	3235	1603	0.810	16.1	5.99	322	14 x 16	W14
145	215.78	2.26	71240	28180	16.1	10.1	3796	1432	4264	2172	0.832	13.0	8.52	632		
158	235.13	2.28	79090	30990	16.3	10.2	4151	1570	4687	2383	0.834	12.1	9.54	812	14 x 16	W14
159	236.62	2.28	79160	31170	16.2	10.2	4161	1577	4702	2394	0.833	12.0	9.56	822		
176	261.92	2.29	89040	34860	16.3	10.2	4606	1754	5244	2667	0.833	11.0	10.9	1101	14 x 16	W14
193	287.22	2.31	99880	38680	16.5	10.3	5075	1939	5812	2949	0.835	10.2	12.3	1441		
211	314.00	2.33	110500	42720	16.6	10.3	5537	2129	6387	3243	0.834	9.5	13.8	1854	14 x 16	W14
219	325.91	2.34	116400	44660	16.7	10.4	5777	2222	6681	3384	0.836	9.2	14.6	2073		
228	339.30	2.35	122500	46850	16.8	10.4	6031	2325	6999	3544	0.836	8.8	15.5	2343	14 x 16	W14
233	346.74	2.35	125100	47930	16.8	10.4	6141	2375	7140	3621	0.836	8.7	15.9	2478		
257	382.46	2.37	141500	53750	17.0	10.5	6803	2646	7975	4038	0.837	8.0	18.2	3292	14 x 16	W14
264	392.87	2.38	146600	55370	17.1	10.5	6998	2721	8222	4154	0.837	7.9	18.9	3545		
283	421.15	2.40	159800	60150	17.2	10.6	7516	2940	8887	4492	0.837	7.4	20.9	4336	14 x 16	W14
311	462.82	2.42	180100	67130	17.5	10.7	8283	3257	9877	4983	0.838	6.9	23.9	5655		
314	467.28	2.42	183000	67830	17.5	10.7	8383	3291	10000	5034	0.839	6.9	24.3	5809		

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

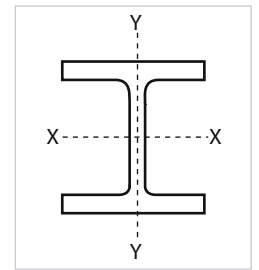
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing				
							Flange	Web				Flange	Web	End Clearance	Notch			
	H	B	T	t	r	d	A	b/T	d/t	C	N	n						
	in	(mm)	lb/ft	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm		
W14	14 x 16	(356 x 406)	342	509.0	445.5	415.5	62.7	39.1	15.2	289.6	649	3.31	7.40	22	198	78		
			370	550.6	455.6	418.5	67.5	42.1	15.2	290.2	702	3.10	6.89	23	198	83		
			398	592.3	464.6	421.4	72.3	45.0	15.2	289.7	755	2.92	6.44	24	198	87		
			426	634.0	474.6	424.0	77.0	47.6	15.2	290.2	808	2.75	6.10	26	198	92		
			455	677.1	483.1	427.6	81.5	51.2	15.2	289.6	863	2.62	5.66	28	198	97		
			500	744.1	497.8	432.1	88.9	55.6	15.2	289.6	948	2.43	5.21	30	198	104		
			550	818.5	514.1	436.9	97.0	60.5	15.2	289.6	1043	2.25	4.79	32	198	112		
			605	900.3	531.4	442.3	105.6	65.9	15.2	289.8	1147	2.09	4.40	35	198	121		
			665	989.6	549.7	448.3	114.8	71.9	15.2	289.7	1261	1.95	4.03	38	198	130		
			730	1086.4	569.5	454.4	124.7	78.0	15.2	289.7	1385	1.82	3.72	41	198	140		
W16	16 x 5 1/2	(406 x 140)	26	38.7	398.0	141.8	8.6	6.4	10.2	360.4	49.7	8.24	56.3	5	78	19		
			31	46.1	403.2	142.2	11.2	6.8	10.2	360.4	58.6	6.35	53.0	5	78	21		
			16 x 7	(406 x 178)	36	53.6	402.6	177.7	10.9	7.7	10.2	360.4	69.0	8.15	46.8	6	95	21
					40	59.5	406.4	177.9	12.8	7.9	10.2	360.4	76.5	6.95	45.6	6	95	23
					45	67.0	409.4	178.8	14.3	8.8	10.2	360.4	85.5	6.25	41.0	6	95	25
	50	74.4			412.8	179.5	16.0	9.5	10.2	360.4	94.5	5.61	37.9	7	95	26		
	16 x 10 1/4	(406 x 260)	57	84.8	417.3	180.8	18.2	10.9	10.2	360.6	108	4.98	33.0	7	95	28		
			67	99.7	414.8	260.0	16.9	10.0	10.2	360.6	127	7.70	36.0	7	135	27		
			77	114.6	419.6	261.5	19.3	11.6	10.2	360.6	146	6.77	31.2	8	135	30		
			89	132.4	425.4	263.3	22.2	13.3	10.2	360.6	169	5.92	27.0	9	135	32		
100			148.8	431.0	264.8	25.0	14.9	10.2	360.6	190	5.29	24.3	9	135	35			
W18	18 x 6	(457 x 152)	35	52.1	449.8	152.4	10.9	7.6	10.2	407.6	66.6	6.99	53.6	6	82	21		
			40	59.5	454.6	152.9	13.3	8.1	10.2	407.6	76.2	5.75	50.3	6	82	24		
			45	67.0	458.0	153.8	15.0	9.0	10.2	407.6	85.6	5.13	45.3	7	82	25		
			46	68.5	458.7	153.9	15.3	9.1	10.2	407.7	87.1	5.03	44.6	7	82	26		
			50	74.4	462.0	154.4	17.0	9.6	10.2	407.6	94.5	4.54	42.5	7	82	27		
			55	81.8	465.8	155.3	18.9	10.5	10.2	407.6	105	4.11	38.8	7	82	29		
			18 x 7 1/2	(457 x 191)	41	61.0	450.0	189.0	10.8	8.1	10.2	408.4	76	8.75	50.4	6	750	21
	45	67.0			453.4	189.9	12.7	8.5	10.2	407.6	85.5	7.48	48.0	6	101	23		
	50	74.4			457.0	190.4	14.5	9.0	10.2	407.6	94.6	6.57	45.3	7	101	25		
	55	81.8			460.0	191.3	16.0	9.9	10.2	407.6	104	5.98	41.2	7	101	26		
	60	89.3			463.4	191.9	17.7	10.5	10.2	407.6	114	5.42	38.8	7	101	28		
	65	96.7			466.1	192.8	19.1	11.4	10.2	407.6	123	5.06	35.7	8	101	29		
	66	98.2			467.2	192.8	19.6	11.4	10.2	407.6	125	4.92	35.8	8	101	30		
	18 x 11	(457 x 279)	71	105.7	469.1	193.9	20.6	12.6	10.2	407.6	134	4.71	32.4	8	101	31		
			76	113.1	462.5	280.3	17.3	10.8	10.2	407.6	144	8.12	37.7	7	145	27		
			86	128.0	467.1	281.7	19.6	12.1	10.2	407.6	163	7.20	33.7	8	145	30		
			97	144.4	472.2	283.1	22.1	13.6	10.2	407.6	184	6.40	30.0	9	145	32		
			106	157.7	475.7	284.5	23.9	15.0	10.2	407.5	201	5.96	27.2	9	145	34		
			119	177.1	481.8	286.1	26.9	16.6	10.2	407.6	226	5.31	24.5	10	145	37		
	W21	21 x 6 1/2	(533 x 165)	130	193.5	489.0	283.5	30.5	17.0	10.2	407.6	247	4.65	24.0	11	143	41	
143				212.8	495.0	285.0	33.5	18.5	10.2	407.5	271	4.25	22.0	11	143	44		
158				235.1	501.0	287.0	36.6	20.6	10.2	407.8	299	3.92	19.8	12	143	47		
175				260.4	509.0	289.0	40.4	22.6	10.2	408.2	331	3.58	18.1	13	143	50		
44				65.5	524.8	165.1	11.4	8.9	12.7	476.6	84	7.24	53.6	6	88	24		
50				74.4	529.1	165.9	13.5	9.7	12.7	476.7	95	6.14	49.4	7	88	26		
57	84.8	534.9	166.5	16.5	10.3	12.7	476.5	108	5.04	46.3	7	88	29					

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size	
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y						
lb/ft	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J	in	
342	508.95	2.45	203800	75180	17.7	10.8	9151	3619	11010	5543	0.840	6.4	27.5	7401	14 x 16	W14
370	550.62	2.47	226900	82670	18.0	10.9	9962	3951	12080	6058	0.841	6.1	31.1	9240		
398	592.29	2.50	249800	90380	18.2	10.9	10750	4289	13130	6583	0.842	5.7	34.8	11350		
426	633.96	2.52	274800	98130	18.4	11.0	11580	4629	14240	7108	0.843	5.5	38.8	13720		
455	677.11	2.55	299400	106600	18.6	11.1	12400	4987	15340	7669	0.843	5.2	43.0	16460		
500	744.08	2.59	341900	120000	19.0	11.3	13740	5555	17160	8553	0.844	4.9	50.2	21390		
550	818.49	2.63	392400	135500	19.4	11.4	15260	6202	19260	9560	0.846	4.6	58.9	27870		
605	900.34	2.67	450600	153100	19.8	11.6	16960	6922	21610	10680	0.848	4.3	69.4	36130		
665	989.63	2.72	518100	173400	20.3	11.7	18850	7736	24250	11960	0.849	4.0	82.0	46760		
730	1086.36	2.77	597000	196300	20.8	11.9	20970	8640	27230	13370	0.851	3.8	97.1	60230		
26	38.69	1.33	12510	410	15.9	2.87	629	57.8	724	90.8	0.858	47.5	0.155	10.7	16 x 5 1/2	W16
31	46.13	1.34	15690	538	16.4	3.03	778	75.7	888	118	0.871	38.9	0.207	19.0		
36	53.57	1.48	18720	1021	16.5	3.85	930	115	1055	178	0.871	38.3	0.392	23.1	16 x 7	
40	59.53	1.49	21600	1203	16.8	3.97	1063	135	1199	209	0.880	33.8	0.466	33.3		
45	66.97	1.50	24330	1365	16.9	3.99	1189	153	1346	237	0.880	30.5	0.533	46.1		
50	74.41	1.51	27310	1546	17.0	4.04	1323	172	1501	267	0.882	27.6	0.608	62.8		
57	84.83	1.52	31520	1794	17.1	4.07	1511	198	1724	309	0.881	24.5	0.714	92.2		
67	99.71	1.83	39730	4951	17.7	6.25	1915	381	2128	581	0.888	25.4	1.96	99.4	16 x 10 1/4	
77	114.59	1.84	46110	5758	17.8	6.28	2198	440	2457	673	0.887	22.4	2.31	149		
89	132.45	1.86	54060	6768	17.9	6.33	2541	514	2859	788	0.887	19.7	2.75	227		
100	148.82	1.87	61830	7754	18.0	6.39	2869	586	3246	899	0.887	17.7	3.20	322		
35	52.09	1.48	21370	645	17.9	3.11	950	84.7	1096	133	0.859	43.9	0.311	21.4	18 x 6	W18
40	59.53	1.49	25500	795	18.3	3.23	1122	104	1287	163	0.868	37.5	0.387	33.8		
45	66.97	1.50	28930	913	18.4	3.27	1263	119	1453	187	0.869	33.6	0.448	47.7		
46	68.46	1.50	29530	933	18.4	3.27	1288	121	1482	191	0.869	33.0	0.458	50.4		
50	74.41	1.50	32670	1047	18.6	3.33	1414	136	1627	213	0.873	30.1	0.518	65.9		
55	81.85	1.51	36590	1185	18.7	3.37	1571	153	1811	240	0.873	27.4	0.591	89.2		
41	61.01	1.62	25380	1218	18.2	3.99	1128	129	1286	201	0.865	42.6	0.6	26	18 x 7 1/2	
45	66.97	1.63	29380	1452	18.5	4.12	1296	153	1471	237	0.872	37.9	0.705	37.1		
50	74.41	1.64	33320	1671	18.8	4.20	1458	176	1653	272	0.877	33.9	0.818	51.8		
55	81.85	1.65	37050	1871	18.8	4.23	1611	196	1831	304	0.877	30.9	0.922	69.2		
60	89.29	1.66	41020	2089	19.0	4.29	1770	218	2014	338	0.880	28.3	1.04	90.7		
65	96.73	1.66	44590	2281	19.0	4.30	1913	237	2184	369	0.879	26.3	1.14	114		
66	98.22	1.67	45730	2347	19.1	4.33	1957	243	2232	379	0.881	25.7	1.18	121		
71	105.66	1.67	48760	2507	19.0	4.32	2079	259	2383	404	0.877	24.4	1.26	145		
76	113.10	2.01	55460	6344	19.6	6.64	2398	453	2669	692	0.885	27.9	3.14	118	18 x 11	
86	127.98	2.02	63520	7295	19.7	6.69	2720	518	3039	792	0.886	24.8	3.65	170		
97	144.35	2.03	72710	8367	19.9	6.74	3079	591	3457	906	0.886	22.1	4.24	244		
106	157.75	2.04	79600	9178	19.9	6.76	3347	645	3775	991	0.884	20.5	4.68	311		
119	177.09	2.06	91040	10530	20.1	6.82	3779	736	4284	1132	0.885	18.4	5.44	442		
130	193.46	2.06	102500	11590	20.4	6.86	4192	818	4761	1257	0.891	16.6	6.09	603		
143	212.81	2.08	114400	12960	20.5	6.91	4624	910	5278	1400	0.891	15.2	6.90	800		
158	235.13	2.09	127300	14450	20.6	6.95	5083	1007	5839	1554	0.890	14.0	7.80	1059		
175	260.43	2.11	143700	16300	20.8	7.01	5646	1128	6525	1743	0.891	12.8	8.90	1423		
44	65.48	1.67	35030	859	20.5	3.20	1335	104	1561	166	0.847	47.0	0.566	31.9		
50	74.41	1.68	40810	1032	20.8	3.30	1543	124	1797	199	0.853	41.4	0.686	47.1		
57	84.83	1.69	48640	1276	21.2	3.44	1819	153	2107	243	0.862	35.5	0.857	73.8		

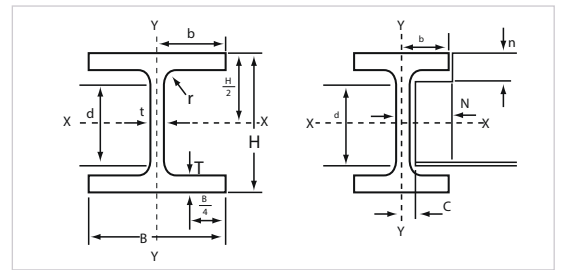
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

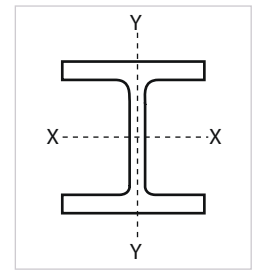
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing				
							Flange	Web				Flange	Web	End Clearance	Notch			
	in	(mm)	lb/ft	kg/m	H	B	T	t	r	d	A	b/T	d/t	C	N	n		
W21	21 x 8 1/4	(533 x 210)	48	71.4	523.2	206.8	10.9	8.9	12.7	476.5	91	11.62	43.7	6	109	23		
			55	81.8	528.3	208.8	13.2	9.6	12.7	476.5	105	7.91	49.6	7	110	26		
			62	92.3	533.1	209.3	15.6	10.1	12.7	476.5	117	6.71	47.2	7	110	28		
			68	101.2	536.7	210.0	17.4	10.8	12.7	476.5	129	6.03	44.1	7	110	30		
			73	108.6	539.5	210.8	18.8	11.6	12.7	476.5	139	5.61	41.1	8	110	32		
			82	122.0	544.5	211.9	21.3	12.7	12.7	476.5	155	4.97	37.5	8	110	34		
			83	123.5	544.3	212.2	21.2	13.1	12.7	476.5	157	5.00	36.4	9	110	34		
			93	138.4	549.1	213.9	23.6	14.7	12.7	476.5	176	4.53	32.3	9	110	36		
			21 x 12 1/4	(533 x 312)	101	150.3	542.5	312.2	20.3	12.7	12.7	476.5	192	7.68	37.5	8	160	33
					111	165.2	546.4	313.4	22.2	14.0	12.7	476.6	211	7.05	34.1	9	160	35
	122	181.6			550.7	314.7	24.4	15.2	12.7	476.5	231	6.45	31.3	10	160	37		
	132	196.4			554.5	316.0	26.3	16.5	12.7	476.5	250	6.01	28.9	10	160	39		
	147	218.8			560.3	317.8	29.2	18.3	12.7	476.5	279	5.44	26.1	11	160	42		
	166	247.0			571.0	315.5	34.5	19.1	12.7	476.5	315	4.57	25.0	12	158	47		
	182	270.8			577.1	317.8	37.6	21.1	12.7	476.5	346	4.23	22.6	13	158	50		
	201	299.1			585.0	319.0	41.4	23.1	12.7	476.8	382	3.85	20.6	14	158	54		
	223	331.9			593.0	322.0	45.5	25.4	12.7	476.6	422	3.54	18.8	15	158	58		
	248	369.1			603.0	324.0	50.5	26.2	12.7	476.6	460	3.21	18.2	15	159	63		
	275	409.2	613.0	327.0	55.6	31.0	12.7	476.4	521	2.94	15.4	18	158	68				
	W24	24 x 7	(610 x 178)	55	81.8	598.7	177.9	12.8	10.0	12.7	547.6	105	6.93	54.6	7	94	26	
61				90.8	602.5	178.4	15.0	10.6	12.7	547.1	116	5.95	51.6	7	94	28		
62				92.3	603.0	178.8	15.0	10.9	12.7	547.6	118	5.96	50.1	7	94	28		
24 x 9		(610 x 229)	68	101.2	602.6	227.6	14.8	10.5	12.7	547.6	129	7.69	52.2	7	119	28		
			76	113.1	607.6	228.2	17.3	11.1	12.7	547.6	144	6.60	49.3	8	119	30		
			84	125.0	612.2	229.0	19.3	11.9	12.7	548.2	158	5.93	46.1	8	119	32		
			94	139.9	617.2	230.2	22.1	13.1	12.7	547.6	178	5.21	41.8	9	119	35		
			103	153.3	623.1	228.6	24.9	14.0	12.7	547.9	195	4.59	39.1	9	117	38		
			114	169.7	628.9	229.9	27.9	15.5	12.7	547.7	218	4.12	35.3	10	117	41		
			128	190.5	635.0	231.5	30.9	17.0	12.7	547.8	242	3.75	32.2	11	117	44		
			146	217.3	643.1	234.1	35.1	19.6	12.7	547.5	278	3.33	27.9	12	117	48		
			163	242.6	651.0	235.9	39.1	21.6	12.7	547.4	310	3.02	25.3	13	117	52		
			181	269.4	658.6	238.5	42.9	23.9	12.7	547.4	343	2.78	22.9	14	117	56		
			198	294.7	667.0	240.5	47.0	25.9	12.7	547.6	376	2.56	21.1	15	117	60		
			218	324.4	675.1	243.1	51.0	28.4	12.7	547.7	412	2.38	19.3	16	117	64		
			239	355.7	685.0	245.6	55.9	31.0	12.7	547.8	454	2.20	17.7	18	117	69		
			24 x 12 (UB)	(610 x 305)	100	148.8	612.4	304.8	19.7	11.8	16.5	540.0	190	7.74	45.8	8	157	36
120		178.6			620.2	307.1	23.6	14.1	16.5	540.0	228	6.51	38.3	9	157	40		
160		238.1			635.8	311.4	31.4	18.4	16.5	540.0	303	4.96	29.3	11	157	48		
24 x 12 3/4		(610 x 324)	104	154.8	611.1	323.8	19.1	12.7	12.7	547.6	198	8.50	43.1	8	166	32		
			117	174.1	616.2	325.1	21.6	14.0	12.7	547.6	222	7.53	39.2	9	166	34		
			131	194.9	621.8	326.5	24.4	15.4	12.7	547.6	249	6.70	35.6	10	166	37		
			146	217.3	628.4	327.7	27.7	16.5	12.7	547.6	277	5.92	33.2	10	166	40		
			162	241.1	635.0	329.1	31.0	17.9	12.7	547.6	308	5.31	30.6	11	166	44		
			176	261.9	641.1	327.4	34.0	19.1	12.7	547.6	333	4.81	28.7	12	164	47		
			192	285.7	646.9	328.9	37.1	20.6	12.7	547.3	363	4.44	26.6	12	164	50		
			207	308.0	653.0	330.5	39.9	22.1	12.7	547.8	392	4.14	24.8	13	164	53		
			229	340.8	661.0	333.0	43.9	24.4	16.5	540.2	435	3.79	22.1	14	164	60		
			250	372.0	669.0	335.0	48.0	26.4	16.5	540.0	475	3.49	20.5	15	164	65		
			279	415.2	679.0	338.0	53.1	29.5	16.5	539.8	530	3.18	18.3	17	164	70		
	306		455.4	689.0	340.0	57.9	32.0	16.5	540.2	579	2.94	16.9	18	164	74			
	335		498.5	699.0	343.0	63.0	35.1	13.0	547.0	635	2.72	15.6	20	164	76			
	370		550.6	711.0	347.0	69.1	38.6	13.0	546.8	702	2.51	14.2	21	164	82			

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

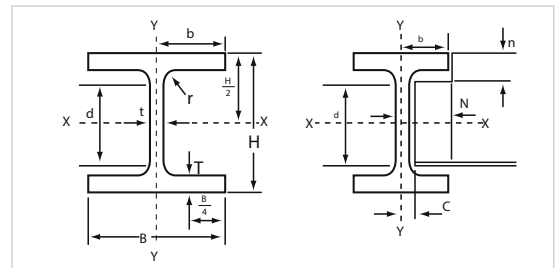
Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size			
lb/ft	kg/m		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y							u	x
		m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴				
48	71.43	1.85	39917	1611	20.9	4.20	1524	156	1753	244	0.858	47.9	1.1	33.4	21 x 8 1/4	W21		
55	81.85	1.85	47540	2008	21.3	4.38	1800	192	2059	300	0.864	41.6	1.33	51.5				
62	92.27	1.86	55230	2389	21.7	4.51	2072	228	2360	356	0.872	36.5	1.60	75.7				
68	101.19	1.87	61520	2692	21.9	4.57	2292	256	2612	399	0.874	33.2	1.82	101				
73	108.64	1.88	66820	2943	21.9	4.60	2477	279	2828	436	0.875	30.9	1.99	126				
82	122.03	1.89	76040	3388	22.1	4.67	2793	320	3196	500	0.877	27.6	2.32	178				
83	123.52	1.89	76240	3389	22.0	4.65	2801	319	3212	500	0.874	27.6	2.32	181				
93	138.40	1.90	86170	3868	22.1	4.68	3139	362	3617	569	0.873	24.9	2.67	251				
101	150.30	2.29	100800	10320	22.9	7.33	3715	661	4147	1012	0.885	27.8	7.03	217			21 x 12 1/4	
111	165.19	2.30	111300	11410	23.0	7.36	4074	728	4565	1117	0.885	25.6	7.84	284				
122	181.56	2.31	123300	12680	23.1	7.40	4476	806	5032	1238	0.885	23.4	8.78	373				
132	196.44	2.32	134200	13850	23.2	7.44	4842	876	5462	1348	0.884	21.8	9.66	469				
147	218.76	2.33	151200	15650	23.3	7.49	5396	985	6116	1519	0.884	19.8	11.0	643				
166	247.03	2.34	178000	18110	23.8	7.58	6233	1148	7080	1766	0.891	17.2	13.0	983				
182	270.85	2.36	197200	20150	23.9	7.63	6834	1268	7807	1956	0.890	15.9	14.7	1278				
201	299.12	2.38	220700	22450	24.1	7.67	7547	1408	8670	2175	0.890	14.6	16.6	1700				
223	331.86	2.40	247700	25390	24.2	7.76	8355	1577	9656	2442	0.890	13.4	19.0	2263				
248	369.06	2.43	278900	28710	24.6	7.90	9250	1772	10730	2739	0.894	12.3	21.9	2996				
275	409.24	2.45	316900	32530	24.7	7.91	10340	1990	12120	3096	0.890	11.2	25.3	4131				
55	81.85	1.87	56020	1210	23.2	3.40	1871	136	2200	219	0.843	48.3	1.04	49.2	24 x 7	W24		
61	90.78	1.88	63880	1426	23.5	3.51	2120	160	2480	256	0.850	43.2	1.23	68.6				
62	92.27	1.88	64580	1436	23.4	3.49	2142	161	2512	258	0.848	42.8	1.24	71.0				
68	101.19	2.07	75780	2915	24.2	4.76	2515	256	2881	400	0.864	43.1	2.52	77.0	24 x 9			
76	113.10	2.08	87320	3434	24.6	4.88	2874	301	3281	469	0.870	38.0	2.99	111				
84	125.01	2.09	97540	3872	24.8	4.95	3187	338	3639	528	0.872	34.5	3.40	149				
94	139.89	2.11	111800	4505	25.0	5.03	3622	391	4142	611	0.875	30.6	3.99	216				
103	153.28	2.11	125000	4972	25.3	5.04	4012	435	4595	680	0.878	27.6	4.45	295				
114	169.65	2.12	141400	5670	25.4	5.09	4495	493	5167	773	0.878	24.8	5.12	411				
128	190.48	2.14	158400	6415	25.6	5.15	4990	554	5757	871	0.879	22.6	5.85	554				
146	217.27	2.16	183900	7544	25.7	5.21	5718	644	6643	1019	0.877	20.0	6.97	819				
163	242.57	2.18	207900	8606	25.9	5.27	6386	730	7455	1157	0.878	18.2	8.06	1123				
181	269.36	2.20	232800	9768	26.1	5.34	7069	819	8299	1304	0.877	16.7	9.26	1495				
198	294.66	2.22	259400	10980	26.3	5.41	7778	913	9173	1458	0.878	15.4	10.6	1952				
218	324.42	2.24	287700	12330	26.4	5.47	8522	1014	10110	1625	0.877	14.3	12.0	2517				
239	355.67	2.27	322200	13950	26.6	5.55	9406	1136	11220	1826	0.877	13.2	13.8	3309				
100	148.82	2.39	125900	9308	25.7	7.00	4111	611	4594	937	0.886	32.7	8.17	200	24 x 12 (UB)			
120	178.58	2.41	153000	11410	25.9	7.07	4935	743	5547	1144	0.886	27.7	10.2	340				
160	238.11	2.45	209500	15840	26.3	7.23	6589	1017	7486	1574	0.886	21.3	14.5	785				
104	154.77	2.47	129200	10790	25.6	7.39	4227	666	4734	1023	0.880	33.6	9.46	196	24 x 12 3/4			
117	174.11	2.48	147200	12380	25.8	7.47	4776	762	5360	1170	0.882	30.0	10.9	280				
131	194.95	2.50	167300	14160	25.9	7.55	5383	867	6057	1335	0.883	26.8	12.6	395				
146	217.27	2.51	190800	16260	26.2	7.66	6074	993	6845	1527	0.886	23.9	14.7	559				
162	241.08	2.53	215400	18440	26.4	7.74	6784	1121	7670	1726	0.888	21.6	16.8	770				
176	261.92	2.53	236600	19950	26.6	7.73	7380	1218	8369	1878	0.890	19.9	18.4	995				
192	285.73	2.55	260400	22030	26.8	7.79	8050	1340	9163	2068	0.890	18.4	20.5	1280				
207	308.05	2.56	283900	24050	26.9	7.84	8695	1455	9936	2250	0.890	17.2	22.6	1593				
229	340.79	2.58	319000	27090	27.1	7.90	9652	1627	11090	2523	0.890	15.7	25.8	2162				
250	372.04	2.60	353900	30170	27.3	7.97	10580	1801	12220	2797	0.890	14.5	29.1	2809				
279	415.20	2.62	400500	34310	27.5	8.04	11800	2030	13720	3162	0.889	13.2	33.6	3824				
306	455.38	2.65	445200	38100	27.7	8.11	12920	2241	15120	3498	0.889	12.2	37.9	4940				
335	498.53	2.68	494700	42580	27.9	8.19	14150	2483	16670	3885	0.889	11.3	42.9	6420				
370	550.62	2.71	557510	48400	28.2	8.30	15682	2790	18599	4377	0.889	10.4	49.6	8525				

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

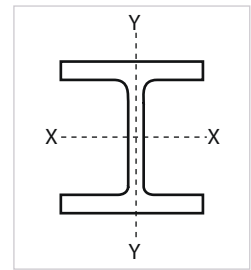
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
							Flange	Web				Flange	Web	End Clearance	Notch	
	in	(mm)	lb/ft	kg/m	H	B	T	t	r	d	A	b/T	d/t	C	N	n
W27	27 x 10	(686 x 254)	84	125.0	677.9	253.0	16.2	11.7	15.2	615.1	159	7.81	52.6	8	131	31
			94	139.9	683.5	253.7	19.0	12.4	15.2	615.1	178	6.68	49.6	8	131	34
			102	151.8	687.5	254.5	21.0	13.2	15.2	615.1	194	6.06	46.6	9	131	36
			114	169.7	692.9	255.8	23.7	14.5	15.2	615.1	217	5.40	42.4	9	131	39
			129	192.0	701.8	254.3	27.9	15.5	15.2	615.6	244	4.56	39.7	10	129	43
			143	212.8	707.9	255.8	31.0	17.0	15.2	615.5	270	4.13	36.2	11	129	46
			159	236.6	714.0	257.8	34.0	19.1	15.2	615.6	301	3.79	32.2	12	129	49
			182	270.8	723.9	260.2	39.1	21.6	15.2	615.3	345	3.33	28.5	13	129	54
			201	299.1	732.0	262.8	42.9	23.9	15.2	615.8	382	3.06	25.8	14	129	58
	27 x 14	(686 x 356)	221	328.9	739.9	264.8	47.0	25.9	15.2	615.5	418	2.82	23.8	15	129	62
			247	367.6	749.8	267.7	52.1	28.9	15.2	615.2	468	2.57	21.3	16	129	67
			271	403.3	760.0	270.3	56.9	31.5	15.2	615.8	513	2.38	19.5	18	129	72
			302	449.4	771.9	273.8	63.0	35.1	15.2	615.5	574	2.17	17.5	20	129	78
			146	217.3	695.5	354.7	24.8	15.4	15.2	615.6	277	7.16	40.1	10	180	40
			161	239.6	700.8	356.1	27.4	16.8	15.2	615.5	306	6.49	36.7	10	180	43
			178	264.9	706.4	357.8	30.2	18.4	15.2	615.5	337	5.92	33.4	11	180	45
			194	288.7	714.0	356.4	34.0	19.1	15.2	615.5	368	5.24	32.3	12	179	49
			217	322.9	722.1	358.5	38.1	21.1	15.2	615.5	411	4.70	29.2	13	179	53
			235	349.7	728.0	360.4	40.9	23.1	15.2	615.8	446	4.41	26.6	14	179	56
W30	30 x 10 1/2	(762 x 267)	258	383.9	736.1	362.5	45.0	24.9	15.2	615.8	489	4.03	24.7	14	179	60
			281	418.2	744.0	364.5	49.0	26.9	15.2	615.6	533	3.72	22.9	15	179	64
			307	456.9	752.1	366.9	53.1	29.5	15.2	615.5	582	3.46	20.9	17	179	68
			336	500.0	762.0	369.0	57.9	32.0	15.2	615.8	636	3.19	19.2	18	179	73
			90	133.9	750.0	264.4	15.5	12.0	16.5	686.0	171	8.53	57.2	8	136	32
			99	147.3	754.0	265.2	17.5	12.8	16.5	686.0	187	7.58	53.6	8	136	34
			108	160.7	757.7	266.1	19.3	13.8	16.5	686.1	205	6.89	49.6	9	136	36
			116	172.6	762.2	266.7	21.6	14.3	16.5	686.0	220	6.17	48.0	9	136	38
			124	184.5	766.3	267.1	23.6	14.9	16.5	686.1	235	5.65	46.2	9	136	40
	30 x 15	(762 x 381)	132	196.4	769.8	268.0	25.4	15.6	16.5	686.0	251	5.28	44.0	10	136	42
			148	220.2	779.0	266.2	30.0	16.5	16.5	686.0	281	4.44	41.6	10	135	47
			165	245.5	785.1	268.1	33.0	18.5	16.5	686.1	312	4.06	37.1	11	135	50
			185	275.3	793.0	270.1	37.1	20.6	16.5	685.8	351	3.64	33.3	12	135	54
			207	308.0	801.1	272.7	40.9	23.1	16.5	686.3	392	3.33	29.7	14	135	57
			226	336.3	809.0	274.6	44.9	24.9	16.5	686.2	428	3.06	27.6	14	135	61
			246	366.1	817.1	276.6	48.0	26.9	16.5	688.1	462	2.88	25.6	15	135	65
			269	400.3	825.0	279.1	53.1	29.5	16.5	685.8	511	2.63	23.2	17	135	70
			295	439.0	835.2	281.7	57.9	32.0	16.5	686.4	559	2.43	21.5	18	135	74
			173	257.5	773.2	380.6	27.1	16.6	16.5	686.1	328	7.04	41.2	10	192	44
191	284.2	779.3	382.0	30.1	18.0	16.5	686.1	362	6.35	38.1	11	192	47			
211	314.0	785.9	383.7	33.4	19.7	16.5	686.1	400	5.74	34.9	12	192	50			
235	349.7	795.0	382.4	38.1	21.1	16.5	685.8	445	5.02	32.5	13	191	55			
261	388.4	802.9	384.9	41.9	23.6	16.5	686.1	495	4.59	29.0	14	191	58			
292	434.5	813.1	387.5	47.0	25.9	16.5	686.1	553	4.12	26.5	15	191	63			
326	485.1	823.0	390.4	52.1	29.0	16.5	685.9	617	3.75	23.7	16	191	69			
357	531.3	833.0	393.0	56.9	31.5	20.0	679.2	677	3.45	21.6	18	191	77			

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

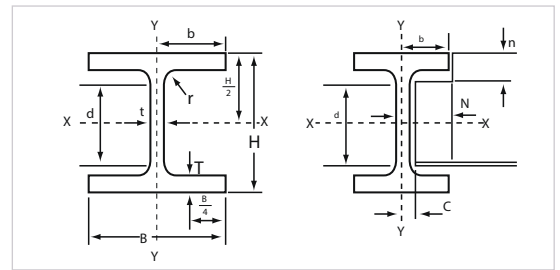
Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size	
lb/ft	kg/m		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y						
		m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴		
84	125.01	2.32	118000	4383	27.2	5.24	3481	347	3994	542	0.862	43.9	4.80	116	27 x 10	W27
94	139.89	2.33	136300	5184	27.6	5.39	3987	409	4558	638	0.868	38.7	5.72	169		
102	151.79	2.34	150400	5784	27.8	5.46	4374	455	5000	710	0.871	35.5	6.42	220		
114	169.65	2.35	170300	6631	28.0	5.53	4916	518	5631	811	0.872	31.8	7.42	308		
129	191.97	2.36	198000	7670	28.5	5.61	5644	603	6462	943	0.878	27.7	8.71	462		
143	212.81	2.38	222000	8678	28.7	5.67	6272	678	7204	1063	0.878	25.2	9.94	627		
159	236.62	2.39	247800	9750	28.7	5.69	6940	756	8016	1191	0.877	23.0	11.3	840		
182	270.85	2.42	289300	11540	29.0	5.78	7993	887	9282	1402	0.878	20.3	13.5	1260		
201	299.12	2.44	323800	13060	29.1	5.85	8847	994	10330	1577	0.877	18.6	15.5	1675		
221	328.88	2.46	359400	14640	29.3	5.92	9715	1106	11390	1759	0.877	17.2	17.6	2186		
247	367.58	2.49	406900	16800	29.5	5.99	10850	1255	12810	2005	0.877	15.6	20.4	2993		
271	403.29	2.51	453800	18910	29.7	6.07	11940	1399	14170	2243	0.877	14.4	23.4	3897		
302	449.42	2.54	515400	21790	30.0	6.16	13350	1592	15950	2565	0.876	13.2	27.4	5322		
146	217.27	2.75	234200	18440	29.1	8.16	6735	1040	7558	1598	0.884	29.7	20.7	454	27 x 14	
161	239.59	2.77	261200	20670	29.2	8.22	7455	1161	8389	1787	0.885	27.0	23.4	610		
178	264.89	2.78	290800	23120	29.4	8.28	8233	1292	9297	1992	0.885	24.6	26.4	813		
194	288.70	2.79	325500	25720	29.8	8.36	9118	1444	10300	2223	0.889	22.3	29.7	1100		
217	322.93	2.81	369200	29310	30.0	8.44	10230	1635	11610	2523	0.890	20.1	34.3	1532		
235	349.72	2.83	402300	31970	30.0	8.47	11050	1774	12600	2745	0.888	18.8	37.7	1914		
258	383.95	2.85	447800	35780	30.3	8.56	12170	1974	13930	3057	0.889	17.2	42.7	2518		
281	418.17	2.87	494700	39680	30.5	8.63	13300	2177	15290	3377	0.890	15.9	47.9	3250		
307	456.87	2.89	545000	43850	30.6	8.68	14990	2390	16750	3717	0.889	14.8	53.6	4152		
336	500.02	2.91	604800	48670	30.8	8.75	15870	2638	18450	4111	0.889	13.7	60.3	5373		
90	133.93	2.51	150700	4788	29.7	5.30	4018	362	4644	570	0.854	49.8	6.46	119	30 x 10 1/2	W30
99	147.33	2.51	168500	5456	30.0	5.40	4470	411	5156	647	0.858	45.2	7.40	159		
108	160.72	2.52	185900	6080	30.1	5.45	4907	457	5665	720	0.859	41.5	8.29	208		
116	172.63	2.53	205300	6850	30.5	5.58	5387	514	6198	807	0.864	38.1	9.39	267		
124	184.53	2.54	223100	7525	30.8	5.65	5821	563	6689	885	0.867	35.4	10.4	333		
132	196.44	2.55	240000	8175	30.9	5.71	6234	610	7167	959	0.869	33.2	11.3	404		
148	220.25	2.56	278200	9463	31.5	5.81	7142	711	8197	1115	0.875	28.9	13.3	605		
165	245.55	2.58	310700	10640	31.5	5.84	7914	794	9129	1251	0.874	26.4	15.0	815		
185	275.31	2.60	353200	12240	31.7	5.91	8909	906	10320	1433	0.874	23.7	17.5	1147		
207	308.05	2.62	397200	13900	31.8	5.96	9916	1020	11550	1620	0.873	21.6	20.1	1555		
226	336.32	2.64	440500	15600	32.1	6.04	10890	1136	12720	1808	0.874	19.9	22.8	2029		
246	366.09	2.66	480200	17050	32.2	6.08	11750	1233	13790	1971	0.873	18.7	25.2	2500		
269	400.32	2.68	536500	19400	32.4	6.16	13010	1390	15330	2229	0.874	17.0	28.9	3361		
295	439.01	2.70	595900	21780	32.7	6.24	14270	1546	16900	2486	0.874	15.8	32.9	4345		
173	257.45	3.01	341200	24890	32.3	8.71	8827	1308	9916	2012	0.883	30.3	34.6	635	30 x 15	
191	284.24	3.02	381700	28000	32.5	8.80	9796	1466	11030	2258	0.885	27.5	39.3	859		
211	314.00	3.04	427000	31500	32.7	8.87	10870	1642	12270	2531	0.886	25.0	44.6	1161		
235	349.72	3.05	485900	35570	33.0	8.94	12220	1860	13830	2869	0.889	22.2	50.9	1651		
261	388.41	3.07	543700	39920	33.1	8.98	13540	2074	15410	3208	0.888	20.3	57.8	2218		
292	434.54	3.10	618300	45680	33.4	9.09	15210	2358	17380	3653	0.889	18.3	67.0	3090		
326	485.14	3.12	697600	51790	33.6	9.16	16950	2653	19500	4123	0.888	16.7	77.0	4224		
357	531.27	3.14	776600	57770	33.9	9.24	18650	2940	21550	4579	0.888	15.3	87.0	5563		

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

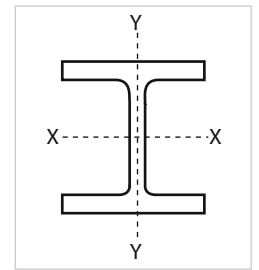
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
							Flange	Web				Flange	Web	End Clearance	Notch	
	H	B	T	t	r	d	A	b/T	d/t	C	N	n				
W33	33 x 11 1/2	(838 x 292)	118	175.6	834.9	291.7	18.8	14.0	17.8	761.7	224	7.76	54.4	9	149	37
			130	193.5	840.7	292.4	21.7	14.7	17.8	761.7	247	6.74	51.8	9	149	40
			141	209.8	845.8	293.0	24.4	15.4	17.8	761.4	268	6.01	49.5	10	149	42
			152	226.2	850.9	293.8	26.8	16.1	17.8	761.7	289	5.48	47.3	10	149	45
			169	251.5	859.0	292.1	31.0	17.0	17.8	761.4	319	4.71	44.8	11	148	49
			187	278.3	865.1	294.1	34.0	19.1	17.8	761.5	355	4.33	39.9	12	148	52
			204	303.6	871.2	295.7	37.1	20.6	17.8	761.4	386	3.99	37.0	12	148	55
			219	325.9	877.1	297.2	39.9	22.1	17.8	761.7	416	3.72	34.5	13	148	58
			243	361.6	885.2	299.7	43.9	24.4	17.8	761.8	460	3.41	31.2	14	148	62
			271	403.3	895.1	302.1	49.0	26.9	17.8	761.5	513	3.08	28.3	15	148	67
	301	447.9	905.0	305.2	54.1	30.0	17.8	761.2	572	2.82	25.4	17	148	72		
	332	494.1	915.2	308.1	58.9	33.0	17.8	761.8	629	2.62	23.1	19	148	77		
	361	537.2	925.1	310.6	64.0	35.6	17.8	761.5	684	2.43	21.4	20	148	82		
	33 x 15 3/4	(838 x 400)	201	299.1	855.5	399.9	29.2	18.2	17.8	761.5	381	6.85	41.9	11	201	47
			221	328.9	861.8	401.4	32.4	19.7	17.8	761.4	420	6.20	38.7	12	201	50
			241	358.6	868.2	402.8	35.6	21.1	17.8	761.5	457	5.66	36.1	13	201	53
			263	391.4	877.1	401.4	39.9	22.1	17.8	761.7	499	5.03	34.5	13	200	58
			291	433.1	884.9	404.0	43.9	24.4	17.8	761.4	552	4.60	31.2	14	200	62
			318	473.2	893.1	406.0	48.0	26.4	17.8	761.5	603	4.23	28.8	15	200	66
			354	526.8	903.0	408.9	53.1	29.5	17.8	761.2	672	3.85	25.8	17	200	71
387			575.9	913.1	411.5	57.9	32.0	17.8	761.7	734	3.55	23.8	18	200	76	
424			631.0	923.0	414.0	63.0	35.1	20.0	757.0	805	3.29	21.6	20	199	83	
468			696.5	935.0	418.0	69.1	38.6	20.0	756.8	889	3.02	19.6	21	200	89	
W36	36 x 12	(914 x 305)	135	200.9	903.0	303.3	20.2	15.1	19.1	824.4	256	7.51	54.6	10	154	39
			150	223.2	910.4	304.1	23.9	15.9	19.1	824.4	286	6.36	51.8	10	154	43
			160	238.1	914.7	304.8	25.9	16.5	19.0	824.9	304	5.88	50.0	10	154	45
			170	253.0	918.4	305.5	27.9	17.3	19.1	824.4	323	5.47	47.7	11	154	47
			182	270.8	922.8	306.7	30.0	18.4	19.0	824.9	346	5.12	44.8	11	154	49
			194	288.7	926.6	307.7	32.0	19.5	19.1	824.4	368	4.81	42.3	12	154	51
			210	312.5	931.9	309.4	34.5	21.1	19.0	824.8	399	4.48	39.1	13	154	54
			232	345.3	942.9	307.8	39.9	22.1	19.1	824.9	440	3.86	37.3	13	153	59
			256	381.0	950.7	310.3	43.9	24.4	19.1	824.7	486	3.53	33.8	14	153	63
			286	425.6	960.9	312.8	48.0	26.9	19.1	826.7	536	3.26	30.7	15	153	67
	318	473.2	970.8	315.7	54.1	29.9	19.1	824.4	603	2.92	27.6	17	153	73		
	350	520.9	980.7	318.8	58.9	33.0	19.1	824.7	663	2.71	25.0	19	153	78		
	387	575.9	992.9	321.8	65.0	36.1	19.1	824.7	733	2.48	22.8	20	153	84		
	36 x 16 1/2	(914 x 419)	230	342.3	911.8	418.5	32.0	19.4	24.1	799.6	437	6.54	41.2	12	210	56
			245	364.6	916.4	419.4	34.3	20.3	24.1	799.6	465	6.12	39.4	12	210	58
			260	386.9	921.0	420.5	36.6	21.4	24.1	799.6	494	5.74	37.4	13	210	61
			280	416.7	927.6	421.5	39.9	22.5	24.1	799.6	532	5.28	35.6	13	210	64
			300	446.4	933.2	423.0	42.7	24.0	24.1	799.7	569	4.96	33.3	14	210	67
			328	488.1	942.1	422.4	47.0	25.9	24.1	799.9	622	4.49	30.9	15	208	71
			359	534.2	950.0	424.9	51.1	28.5	24.1	799.7	680	4.16	28.1	16	208	75
393			584.8	960.1	427.5	55.9	31.0	24.1	800.1	746	3.83	25.8	17	208	80	
439			653.3	972.0	431.0	62.0	34.5	24.0	800.0	832	3.48	23.2	19	208	86	
527			784.3	996.0	437.0	73.9	40.9	24.0	800.2	998	2.96	19.6	22	208	98	
650	967.3	1028.0	446.0	89.9	50.0	24.0	800.2	1232	2.48	16.0	27	208	114			

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Metrics Units) - Part II

Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size			
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y							Axis x-x	Axis y-y
lb/ft	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J	in			
118	175.60	2.78	246000	7800	33.1	5.90	5893	535	6808	842	0.856	46.5	13.0	221	33 x 11 1/2	W33		
130	193.46	2.79	279200	9067	33.6	6.06	6642	620	7640	974	0.862	41.6	15.2	306				
141	209.83	2.80	310200	10250	34.0	6.18	7334	700	8416	1097	0.867	37.9	17.3	404				
152	226.20	2.81	339700	11360	34.3	6.27	7985	773	9155	1212	0.870	35.0	19.3	514				
169	251.50	2.82	386500	12920	34.8	6.36	8999	884	10310	1383	0.875	30.9	22.1	735				
187	278.29	2.84	430400	14470	34.8	6.38	9950	984	11450	1547	0.874	28.3	25.0	983				
204	303.58	2.85	473000	16050	35.0	6.45	10860	1086	12530	1710	0.874	26.1	27.9	1265				
219	325.91	2.87	513500	17540	35.1	6.49	11710	1180	13550	1864	0.874	24.4	30.7	1569				
243	361.62	2.89	573400	19800	35.3	6.56	12960	1321	15060	2095	0.874	22.3	35.0	2095				
271	403.29	2.91	648200	22660	35.5	6.64	14480	1500	16910	2385	0.875	20.2	40.5	2884				
301	447.94	2.94	729200	25820	35.7	6.72	16120	1692	18920	2704	0.874	18.4	46.7	3910				
332	494.07	2.97	810000	28960	35.9	6.79	17700	1880	20890	3018	0.873	17.0	53.1	5088				
361	537.23	2.99	892800	32280	36.1	6.87	19300	2078	22880	3346	0.873	15.8	59.8	6494				
201	299.12	3.24	479800	31180	35.5	9.05	11220	1559	12640	2405	0.881	31.2	53.2	855			33 x 15 3/4	
221	328.88	3.26	534700	34970	35.7	9.13	12410	1742	14020	2690	0.882	28.4	60.1	1146				
241	358.65	3.27	590000	38800	35.9	9.21	13590	1927	15380	2977	0.884	26.1	67.3	1491				
263	391.39	3.29	659000	43070	36.3	9.29	15030	2146	17020	3314	0.888	23.6	75.5	2008				
291	433.05	3.31	735400	48390	36.5	9.36	16620	2396	18910	3709	0.887	21.6	85.6	2687				
318	473.24	3.33	812500	53680	36.7	9.43	18200	2644	20780	4101	0.888	19.9	95.8	3488				
354	526.81	3.35	913500	60680	36.9	9.50	20330	2968	23230	4616	0.887	18.1	110	4737				
387	575.92	3.38	1012000	67480	37.1	9.59	22170	3280	25570	5113	0.887	16.7	123	6135				
424	630.98	3.40	1120000	74810	37.3	9.64	24260	3614	28140	5652	0.886	15.5	138	7983				
468	696.46	3.43	1253000	84520	37.6	9.75	26810	4044	31270	6342	0.886	14.2	158	10569				
135	200.90	2.96	325300	9424	35.7	6.07	7204	621	8351	982	0.854	46.8	18.4	291	36 x 12	W36		
150	223.22	2.97	376400	11240	36.3	6.27	8269	739	9535	1163	0.861	41.3	22.1	422				
160	238.11	2.98	406100	12270	36.6	6.36	8879	805	10230	1266	0.864	38.6	24.2	515				
170	252.99	2.99	436300	13300	36.8	6.42	9501	871	10940	1371	0.866	36.2	26.4	626				
182	270.85	3.00	470700	14460	36.9	6.47	10200	943	11770	1487	0.866	33.9	28.8	767				
194	288.70	3.01	504200	15600	37.0	6.51	10880	1014	12570	1601	0.867	31.9	31.2	926				
210	312.51	3.03	549000	17130	37.1	6.55	11780	1107	13650	1754	0.866	29.7	34.5	1164				
232	345.25	3.04	625200	19480	37.7	6.66	13260	1266	15340	2000	0.872	26.4	39.7	1648				
256	380.97	3.06	696900	21980	37.9	6.72	14660	1416	17030	2247	0.872	24.1	45.2	2199				
286	425.61	3.09	777000	24640	38.1	6.78	16170	1575	18870	2510	0.871	22.2	51.3	2891				
318	473.24	3.11	884100	28580	38.3	6.89	18210	1810	21350	2895	0.872	19.9	60.0	4091				
350	520.86	3.14	981300	32080	38.5	6.95	20010	2013	23590	3235	0.871	18.4	68.1	5337				
387	575.92	3.17	110100	36460	38.8	7.05	22180	2266	26260	3654	0.871	16.8	78.5	7127				
230	342.28	3.42	625800	39160	37.8	9.46	13730	1871	15480	2890	0.883	30.1	75.8	1193	36 x 16 1/2			
245	364.60	3.43	671700	42240	38.0	9.53	14660	2014	16550	3111	0.884	28.3	82.2	1442				
260	386.92	3.44	719600	45440	38.2	9.59	15630	2161	17670	3341	0.885	26.7	88.9	1734				
280	416.69	3.45	785700	49870	38.4	9.68	16940	2366	19170	3658	0.887	24.8	98.3	2188				
300	446.45	3.47	846900	53940	38.6	9.73	18150	2550	20600	3948	0.887	23.3	107	2671				
328	488.12	3.48	936400	59170	38.8	9.76	19880	2801	22640	4344	0.887	21.4	119	3500				
359	534.25	3.50	1031000	65450	38.9	9.81	21700	3081	24820	4790	0.886	19.8	132	4508				
393	584.85	3.53	1144000	73000	39.2	9.89	23840	3415	27390	5320	0.887	18.2	149	5890				
439	653.30	3.56	1292000	83050	39.4	9.99	26590	3854	30730	6014	0.887	16.5	171	8124				
527	784.26	3.62	1593000	103300	40.0	10.2	31980	4728	37340	7439	0.887	14.0	218	13730				
650	967.30	3.70	2033000	133900	40.6	10.4	39540	6003	46810	9504	0.886	11.8	292	24930				

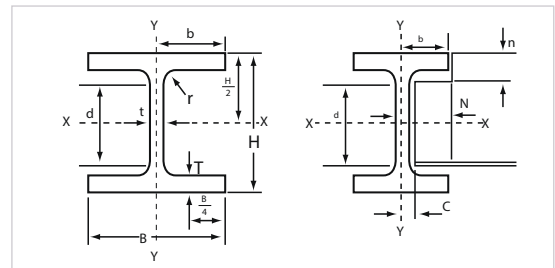
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part I

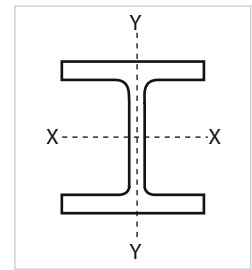
	Designation Size		Unit Weight		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
							Flange	Web				Flange	Web	End Clearance	Notch	
	H	B	T	t	r	d	A	b/T	d/t	C	N	n				
	in	(mm)	lb/ft	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm
W40	40 x 12	(1016 x 305)	149	221.7	970.3	300.0	21.1	16.0	30.0	868.1	283	7.11	54.3	10	152	51
			167	248.5	980.2	300.0	26.0	16.5	30.0	868.2	317	5.77	52.6	10	152	56
			183	272.3	990.1	300.0	31.0	16.5	30.0	868.1	347	4.84	52.6	10	152	61
			211	314.0	1000.0	300.0	35.9	19.1	30.0	868.2	400	4.18	45.5	12	150	66
			235	349.7	1008.1	302.0	40.0	21.1	30.0	868.1	445	3.78	41.1	13	150	70
			264	392.9	1016.0	303.0	43.9	24.4	30.0	868.2	500	3.45	35.6	14	149	74
			278	413.7	1020.0	304.0	46.0	26.0	30.0	868.0	529	3.30	33.4	15	149	76
			294	437.5	1025.9	305.4	49.0	26.9	30.0	867.9	557	3.12	32.3	15	149	79
			327	486.6	1036.1	308.5	54.1	30.0	30.0	867.9	620	2.85	28.9	17	149	84
			331	492.6	1036.0	309.0	54.0	31.0	30.0	868.0	629	2.86	28.0	18	149	84
	359	534.2	1046.0	311.4	58.9	33.0	30.0	868.2	681	2.64	26.3	19	149	89		
	392	583.4	1056.0	314.0	64.0	36.0	30.0	868.0	744	2.45	24.1	20	149	94		
	40 x 16	(1016 x 406)	199	296.1	982.0	400.0	27.1	16.5	30.0	868.0	377	12.12	32.0	10	202	57
			215	320.0	990.0	400.0	31.0	16.5	30.0	868.0	409	12.12	28.0	10	202	61
			249	370.6	1000.0	400.0	36.1	19.0	30.0	868.0	472	10.53	24.0	12	201	66
			277	412.2	1008.0	402.0	40.0	21.1	30.0	868.0	524	9.53	21.7	13	200	70
			297	442.0	1012.0	402.0	41.9	23.6	30.0	868.2	564	8.52	20.7	14	199	72
			324	482.2	1020.0	404.0	46.0	25.4	30.0	868.0	615	7.95	18.9	15	199	76
			362	538.7	1030.0	407.0	51.1	28.4	30.0	867.8	687	7.17	17.0	16	199	81
			397	590.8	1040.0	409.0	55.9	31.0	30.0	868.2	753	6.60	15.5	18	199	86
431			641.4	1048.0	412.0	60.0	34.0	30.0	868.0	818	6.06	14.5	19	199	90	
503			748.5	1068.0	417.0	70.0	39.0	30.0	868.0	953	5.35	12.4	22	199	100	
593	882.5	1092.0	424.0	82.0	45.5	30.0	868.0	1125	4.66	10.6	25	199	112			
W44	44 x 16	(1118 x 406)	230	342.3	1090.0	400.0	31.0	18.0	20.0	988.0	437	11.11	31.9	11	201	51
			262	389.9	1100.0	400.0	36.0	20.0	20.0	988.0	497	10.00	27.4	12	200	56
			290	431.6	1108.0	402.0	40.0	22.0	20.0	988.0	551	9.14	24.7	13	200	60
			335	498.5	1118.0	405.0	45.0	26.0	20.0	988.0	635	7.79	22.0	15	200	65

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (i) Beams (Imperial Units) - Part II

Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size			
			Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y								
lb/ft	kg/m	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J	in			
149	221.74	3.06	408000	9553	38.0	5.81	8409	637	9807	1020	0.850	45.7	21.5	390	40 x 12	W40		
167	248.52	3.08	481300	11760	39.0	6.09	9821	784	11350	1245	0.861	39.9	26.8	582				
183	272.33	3.10	554000	14010	40.0	6.36	11190	934	12830	1470	0.873	35.0	32.2	835				
211	314.00	3.11	644200	16240	40.1	6.37	12880	1083	14850	1713	0.872	30.7	37.7	1264				
235	349.72	3.13	723100	18470	40.3	6.44	14350	1223	16590	1941	0.872	27.9	43.3	1718				
264	392.87	3.14	807700	20500	40.2	6.40	15900	1353	18540	2168	0.868	25.5	48.4	2330				
278	413.71	3.15	853100	21710	40.2	6.41	16728	1428	19571	2298	0.868	24.2	51.1	2713				
294	437.52	3.17	909900	23450	40.4	6.49	17740	1536	20760	2469	0.868	23.1	56.0	3185				
327	486.63	3.19	1021000	26730	40.6	6.57	19720	1733	23200	2800	0.867	21.1	64.4	4299				
331	492.58	3.19	1028000	26820	40.4	6.53	19845	1736	23413	2818	0.867	20.8	64.0	4433				
359	534.25	3.22	1131000	29970	40.8	6.63	21620	1925	25570	3126	0.866	19.5	73.0	5576				
392	583.36	3.24	1246100	33430	40.9	6.70	23600	2130	28039	3475	0.869	17.9	81.2	7230				
199	296.14	3.48	618700	28850	40.5	8.75	12600	1443	14220	2235	0.878	38.0	65.9	762.6			40 x 16	
215	319.95	3.50	696400	33120	41.3	9.00	14070	1656	15800	2555	0.887	34.3	76.0	1021				
249	370.55	3.51	812100	38480	41.5	9.03	16240	1924	18330	2976	0.887	29.9	89.4	1575				
277	412.22	3.53	909800	43410	41.7	9.10	18050	2160	20440	3348	0.887	27.1	101.5	2134				
297	441.98	3.53	966510	45500	41.4	8.98	19101	2264	21777	3529	0.882	25.8	106.7	2545				
324	482.16	3.55	1067480	50710	41.7	9.08	20931	2510	23923	3919	0.884	23.7	119.9	3311				
362	538.71	3.58	1202540	57630	41.8	9.16	23350	2832	26824	4436	0.883	21.5	137.6	4546				
397	590.80	3.60	1331040	64010	42.1	9.22	25597	3130	29530	4916	0.883	19.8	154.3	5927				
431	641.40	3.62	1450590	70280	42.1	9.27	27683	3412	32097	5379	0.882	18.5	170.7	7440				
503	748.55	3.67	1731940	85110	42.6	9.45	32433	4082	37881	6459	0.882	16.1	210.7	11670				
593	882.48	3.74	2096420	104970	43.2	9.66	38396	4952	45265	7874	0.883	14.0	265.7	18750				
230	342.28	3.71	867400	33120	44.6	8.71	15920	1656	18060	2568	0.876	38.9	92.7	1037	44 x 16	W44		
262	389.90	3.73	1005000	38480	45.0	8.80	18280	1924	20780	2988	0.878	33.9	108.7	1564				
290	431.57	3.75	1126000	43410	45.2	8.87	20320	2160	23160	3362	0.879	30.7	123.5	2130				
335	498.53	3.77	1294000	49980	45.1	8.87	23150	2468	26600	3870	0.876	27.3	143.4	3135				

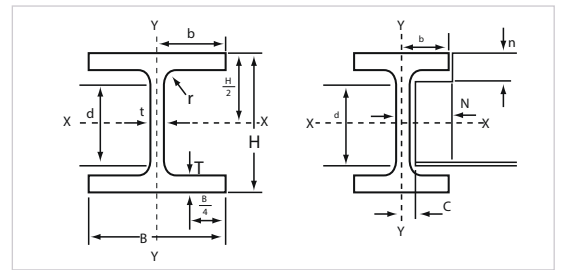
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (ii) Beams (Imperial Units) - Part I

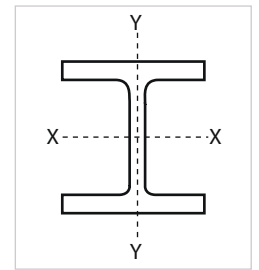
	Designation Size		Unit Weight		Height Of Column	Width Of Column	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
							Flange	Web				Flange	Web	End Clearance	Notch	
	H	B	T	t	r	d	A	b/T	d/t	C	N	n				
in	(mm)	lb/ft	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm	
W4	4 x 4	(102 x 102)	13	19.3	105.7	103.1	8.8	7.1	6.4	75.5	24.7	5.88	10.6	6	58	15
			13.8	20.5	102.0	102.0	9.4	8.0	6.0	71.2	26.1	5.43	8.90	6	57	15
			16.3	24.3	107.0	100.0	12.0	7.9	6.0	71.0	30.9	4.17	8.99	6	56	18
W5	5 x 5	(127 x 127)	16	23.8	127.3	127.0	9.1	6.1	7.6	93.8	30.4	6.95	15.4	5	70	17
			19	28.3	130.8	127.8	10.9	6.9	7.6	93.8	35.8	5.86	13.7	5	70	19
W6	6 x 6	(152 x 152)	15	22.3	152.1	152.1	6.6	5.8	6.4	126.2	28.5	11.5	21.6	5	83	13
			16	23.8	152.4	152.2	6.8	5.8	7.6	123.6	29.2	11.2	21.3	5	83	14
			20	29.8	157.6	152.9	9.4	6.5	7.6	123.6	38.3	8.13	19.0	5	83	17
			25	37.2	161.8	154.4	11.5	8.0	7.6	123.6	47.1	6.71	15.5	6	83	19
W8	8 x 8	(203 x 203)	31	46.1	203.2	203.6	11.0	7.2	10.2	160.8	58.7	9.25	22.3	6	108	21
			35	52.1	206.2	204.3	12.5	7.9	10.2	160.8	66.3	8.17	20.4	6	108	23
			40	59.5	209.6	205.8	14.2	9.4	10.2	160.8	76.4	7.25	17.1	7	108	24
			48	71.4	215.8	206.4	17.3	10.0	10.2	160.8	90.4	5.97	16.1	7	108	28
			58	86.3	222.2	209.1	20.5	12.7	10.2	160.8	110	5.10	12.7	8	108	31
			67	99.7	228.6	210.3	23.8	14.5	10.2	160.7	127	4.43	11.1	9	108	34
W10	10 x 10	(254 x 254)	49	72.9	254.1	254.6	14.2	8.6	12.7	200.3	93.1	8.96	23.3	6	133	27
			54	80.4	256.3	254.8	15.6	9.4	12.7	199.7	102	8.17	21.2	7	133	28
			60	89.3	260.3	256.3	17.3	10.3	12.7	200.3	113	7.41	19.4	7	133	30
			68	101.2	264.2	257.3	19.6	11.9	12.7	199.7	129	6.58	16.7	8	133	32
			72	107.1	266.7	258.8	20.5	12.8	12.7	200.3	136	6.31	15.6	8	133	33
			77	114.6	269.2	258.8	22.1	13.5	12.7	199.6	146	5.86	14.8	9	133	35
			88	131.0	275.3	260.7	25.2	15.4	12.7	199.6	167	5.18	13.0	10	133	38
			89	132.4	276.3	261.3	25.3	15.3	12.7	200.3	168	5.16	13.1	10	133	38
			100	148.8	281.9	262.6	28.5	17.3	12.7	199.6	190	4.62	11.6	11	133	41
			112	166.7	289.1	265.2	31.7	19.2	12.7	200.3	213	4.18	10.4	12	133	44
W12	12 x 12	(305 x 305)	65	96.7	307.9	305.3	15.4	9.9	15.2	246.7	123	9.91	24.9	7	158	31
			72	107.1	311.1	305.8	17.0	10.9	15.2	246.7	136	8.98	22.6	7	157	32
			79	117.6	314.5	307.4	18.7	12.0	15.2	246.7	150	8.22	20.6	8	158	34
			87	129.5	318.3	308.0	20.6	13.1	15.2	246.8	165	7.49	18.9	9	157	36
			92	136.9	320.5	309.2	21.7	13.8	15.2	246.7	174	7.12	17.9	9	158	37
			96	142.9	322.8	308.9	22.9	14.0	15.2	246.7	182	6.76	17.7	9	157	38
			106	157.7	327.1	311.2	25.0	15.8	15.2	246.7	201	6.22	15.6	10	158	40
			120	178.6	333.2	312.9	28.1	18.0	15.2	246.7	228	5.57	13.7	11	157	43
			133	197.9	339.9	314.5	31.4	19.1	15.2	246.7	252	5.01	12.9	12	158	47
			136	202.4	340.6	315.0	31.8	20.1	15.2	246.7	258	4.96	12.3	12	157	47
			152	226.2	348.2	317.0	35.6	22.1	15.2	246.7	289	4.46	11.2	13	157	51
			161	239.6	352.5	318.4	37.7	23.0	15.2	246.7	306	4.22	10.7	14	158	53
			170	253.0	356.4	319.3	39.6	24.4	15.2	246.8	323	4.03	10.1	14	157	55
			190	282.8	365.3	322.2	44.1	26.8	15.2	246.7	360	3.65	9.21	15	158	59
			210	312.5	373.6	324.9	48.3	30.0	15.2	246.7	399	3.37	8.23	17	157	63
			230	342.3	382.3	327.5	52.6	32.6	15.2	246.7	437	3.11	7.57	18	157	68
			252	375.0	391.4	330.3	57.2	35.4	15.2	246.6	478	2.89	6.97	20	157	72
			278	413.7	402.6	333.8	62.7	38.9	15.2	246.7	529	2.66	6.35	21	157	78
279	415.2	402.6	333.8	62.7	38.9	15.2	246.8	528	2.66	6.34	21	157	78			
305	453.9	414.5	336.2	68.7	41.3	15.2	246.7	578	2.45	5.97	23	157	84			
336	500.0	427.2	340.0	75.1	45.1	15.2	246.6	638	2.26	5.47	25	157	90			

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4a (ii) Beams (Imperial Units) - Part II

Unit Weight		Surface Area per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation Size	
lb/ft	kg/m		Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y						
		m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J	in	
13	19.35	0.599	472	160	4.38	2.55	89.4	31.1	103	47.8	0.836	10.9	0.0038	6.29	4 x 4	W4
13.8	20.54	0.586	456	167	4.18	2.53	89.4	32.7	104	50.4	0.827	9.61	0.0036	7.78		
16.3	24.26	0.588	587	200	4.36	2.55	110	40.1	129	61.5	0.844	8.13	0.0045	13.5		
16	23.81	0.737	892	312	5.42	3.21	140	49.2	158	75.0	0.842	13.0	0.0109	8.00	5 x 5	W5
19	28.28	0.746	1092	380	5.52	3.25	167	59.4	190	90.6	0.845	11.2	0.0136	13.1		
15	22.32	0.890	1210	387	6.51	3.68	159	50.9	177	77.7	0.837	21.4	0.0205	4.21	6 x 6	W6
15.7	23.36	0.889	1250	400	6.54	3.70	164	52.6	182	80.2	0.840	20.7	0.0212	4.63		
20	29.76	0.901	1748	560	6.76	3.83	222	73.3	248	112	0.849	16.0	0.0308	10.5		
25	37.20	0.912	2210	706	6.85	3.87	273	91.5	309	140	0.848	13.3	0.0399	19.2		
31	46.13	1.19	4568	1548	8.82	5.13	450	152	497	231	0.847	17.7	0.143	22.2	8 x 8	W8
35	52.09	1.20	5259	1778	8.91	5.18	510	174	567	264	0.848	15.8	0.167	31.8		
40	59.53	1.21	6125	2065	8.96	5.20	584	201	656	305	0.846	14.1	0.197	47.2		
48	71.43	1.22	7618	2537	9.18	5.30	706	246	799	374	0.853	11.9	0.250	80.2		
58	86.31	1.24	9449	3128	9.28	5.34	850	299	977	456	0.850	10.2	0.318	137		
67	99.71	1.25	11310	3687	9.44	5.39	990	351	1150	536	0.852	9.0	0.387	211		
49	72.92	1.49	11410	3908	11.1	6.48	898	307	992	465	0.849	17.3	0.562	57.6		
54	80.36	1.49	12590	4304	11.1	6.49	983	338	1091	512	0.849	15.8	0.623	75.6		
60	89.29	1.50	14270	4858	11.2	6.55	1096	379	1224	575	0.850	14.5	0.717	102		
68	101.19	1.51	16390	5558	11.3	6.57	1241	432	1398	657	0.849	12.9	0.832	148		
72	107.15	1.52	17510	5928	11.3	6.59	1313	458	1484	697	0.848	12.4	0.898	172		
77	114.59	1.52	18950	6391	11.4	6.61	1408	494	1599	752	0.849	11.6	0.976	213		
88	130.96	1.54	22210	7436	11.5	6.67	1613	570	1850	869	0.850	10.3	1.16	314		
89	132.45	1.55	22530	7531	11.6	6.69	1631	576	1869	878	0.850	10.3	1.19	319		
100	148.82	1.56	25900	8598	11.7	6.73	1838	655	2127	999	0.851	9.3	1.38	452		
112	166.67	1.58	30000	9870	11.9	6.81	2075	744	2424	1137	0.851	8.5	1.63	626		
65	96.73	1.79	22250	7308	13.4	7.69	1445	479	1592	726	0.850	19.3	1.56	91.2	12 x 12	W12
72	107.15	1.80	24830	8117	13.5	7.72	1596	531	1767	806	0.850	17.6	1.75	122		
79	117.56	1.81	27670	9060	13.6	7.77	1760	589	1958	895	0.850	16.2	1.98	161		
87	129.47	1.82	30810	10030	13.7	7.80	1936	651	2164	990	0.851	14.9	2.22	212		
92	136.91	1.82	32820	10700	13.7	7.83	2048	692	2297	1053	0.851	14.2	2.39	249		
96	142.86	1.83	34670	11240	13.8	7.86	2148	728	2413	1106	0.853	13.6	2.53	285		
106	157.75	1.84	38750	12570	13.9	7.90	2369	808	2680	1230	0.851	12.5	2.87	378		
120	178.58	1.86	44560	14350	14.0	7.94	2675	917	3053	1399	0.851	11.2	3.34	537		
133	197.93	1.87	50900	16300	14.2	8.04	2995	1037	3440	1581	0.853	10.2	3.88	734		
136	202.39	1.87	51790	16560	14.2	8.02	3041	1052	3501	1606	0.852	10.1	3.95	771		
152	226.20	1.89	59610	18910	14.4	8.09	3424	1193	3975	1823	0.853	9.2	4.62	1074		
161	239.59	1.91	64200	20320	14.5	8.15	3643	1276	4247	1951	0.854	8.7	5.03	1271		
170	252.99	1.92	68490	21540	14.6	8.17	3844	1349	4502	2064	0.854	8.4	5.40	1480		
190	282.75	1.94	78870	24640	14.8	8.27	4318	1529	5105	2342	0.855	7.7	6.35	2034		
210	312.51	1.96	89270	27660	15.0	8.33	4779	1702	5703	2613	0.855	7.1	7.32	2693		
230	342.28	1.98	100600	30880	15.2	8.41	5261	1886	6332	2898	0.856	6.6	8.39	3490		
252	375.02	2.01	113200	34470	15.4	8.49	5783	2087	7020	3211	0.856	6.2	9.62	4495		
278	413.71	2.04	129600	39040	15.7	8.59	6437	2339	7890	3604	0.857	5.7	11.3	5953		
279	415.20	2.04	129500	39010	15.7	8.59	6435	2338	7888	3602	0.857	5.7	11.3	5946		
305	453.89	2.07	147600	43690	16.0	8.69	7122	2599	8807	4006	0.860	5.4	13.1	7719		
336	500.02	2.10	169000	49420	16.3	8.80	7913	2907	9882	4487	0.861	5.0	15.3	10110		

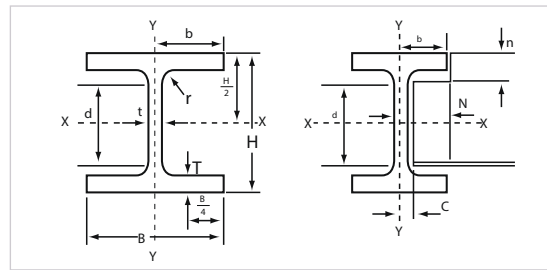
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties

4b (i) Beams (Metric Units) - Part I

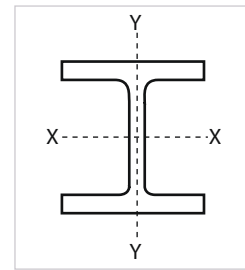


Designation		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing				
Size	Units Weight								Flange	Web	Flange	Web	End Clearance	Notch	
				H	B									b/T	d/t
mm	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm		
100 x 50	9.30	100	50	7	5	8	70	11.8	3.57	14.0	5	33	15		
125 x 60	13.2	125	60	8	6	9	91	16.8	3.75	15.2	5	37	17		
150 x 75	14.0	150	75	7	5	8	120	17.8	5.36	24.0	5	45	15		
150 x 100	20.7	148	100	9	6	8	114	26.3	5.56	19.0	5	57	17		
	21.1	148	100	9	6	11	108	26.8	5.56	18.0	5	57	20		
175 x 90	18.0	175	90	8	5	8	143	22.9	5.63	28.6	5	53	16		
	18.1	175	90	8	5	9	141	23.0	5.63	28.2	5	53	17		
175 x 125	23.3	169	125	8	5.5	12	129	29.7	7.81	23.5	5	70	20		
200 x 100	17.8	198	99	7	4.5	8	168	22.7	7.07	37.3	4	57	15		
	18.2	198	99	7	4.5	11	162	23.2	7.07	36.0	4	57	18		
	20.9	200	100	8	5.5	8	168	26.7	6.25	30.5	5	57	16		
	21.3	200	100	8	5.5	11	162	27.2	6.25	29.5	5	57	19		
200 x 150	29.9	194	150	9	6	8	160	38.1	8.33	26.7	5	82	17		
	30.6	194	150	9	6	13	150	39.0	8.33	25.0	5	82	22		
	36.9	198	151	11	7	13	150	47.0	6.86	21.4	6	82	24		
250 x 125	25.1	248	124	8	5	8	216	32.0	7.75	43.2	5	70	16		
	25.7	248	124	8	5	12	208	32.7	7.75	41.6	5	70	20		
	29.0	250	125	9	6	8	216	37.0	6.94	36.0	5	70	17		
	29.6	250	125	9	6	12	208	37.7	6.94	34.7	5	70	21		
250 x 175	43.6	244	175	11	7	13	196	55.5	7.95	28.0	6	94	24		
	44.1	244	175	11	7	16	190	56.2	7.95	27.1	6	94	27		
	51.6	248	176	13	8	16	190	65.7	6.77	23.8	6	94	29		
	59.1	252	177	15	9	16	190	75.3	5.90	21.1	7	94	31		
300 x 150	25.0	294	148	6	4.5	16	250	32.6	12.3	55.6	4	82	22		
	32.0	298	149	8	5.5	13	256	40.8	9.31	46.5	5	82	21		
	36.7	300	150	9	6.5	13	256	46.8	8.33	39.4	5	82	22		
	41.4	304	150	11	6.5	13	256	52.8	6.82	39.4	5	82	24		
	46.2	306	151	12	7.5	13	256	58.8	6.29	34.1	6	82	25		
	69.0	318	154	18	11	13	256	87.9	4.28	23.3	8	82	31		
300 x 200	48.3	290	199	10	7	18	234	61.5	9.95	33.4	6	106	28		
	55.8	294	200	12	8	13	244	71.1	8.33	30.5	6	106	25		
	56.8	294	200	12	8	18	234	72.4	8.33	29.3	6	106	30		
	65.4	298	201	14	9	18	234	83.4	7.18	26.0	7	106	32		
	77.3	304	202	17	10	18	234	98.5	5.94	23.4	7	106	35		
350 x 175	41.2	346	174	9	6	13	302	52.5	9.67	50.3	5	94	22		
	41.4	346	174	9	6	14	300	52.7	9.67	50.0	5	94	23		
	49.4	350	175	11	7	13	302	62.9	7.95	43.1	6	94	24		
	49.6	350	175	11	7	14	300	63.1	7.95	42.9	6	94	25		
	57.8	354	176	13	8	14	300	73.7	6.77	37.5	6	94	27		
	66.2	358	177	15	9	14	300	84.3	5.90	33.3	7	94	29		
	71.8	360	178	16	10	14	300	91.4	5.56	30.0	7	94	30		
	79.7	364	177	18	11	14	300	101	4.92	27.3	8	93	32		
350 x 250	69.2	336	249	12	8	20	272	88.2	10.4	34.0	6	131	32		
	78.1	340	250	14	9	13	286	100	8.93	31.8	7	131	27		
	79.7	340	250	14	9	20	272	102	8.93	30.2	7	131	34		
	94.2	346	251	17	10	20	272	120	7.38	27.2	7	131	37		
	108	350	253	19	12	20	272	137	6.66	22.7	8	131	39		
400 x 200	56.1	396	199	11	7	13	348	71.4	9.05	49.7	6	106	24		
	56.6	396	199	11	7	16	342	72.2	9.05	48.9	6	106	27		
	65.4	400	200	13	8	13	348	83.4	7.69	43.5	6	106	26		
	66.0	400	200	13	8	16	342	84.1	7.69	42.8	6	106	29		
	75.5	404	201	15	9	16	342	96.2	6.70	38.0	7	106	31		
	88.2	410	202	18	10	16	342	112	5.61	34.2	7	106	34		
	140	430	208	28	16	16	342	179	3.71	21.4	10	106	44		
	187	446	214	36	22	16	342	239	2.97	15.5	13	106	52		
400 x 300	94.3	386	299	14	9	22	314	120	10.7	34.9	7	155	36		
	105	390	300	16	10	13	332	133	9.38	33.2	7	155	29		
	107	390	300	16	10	22	314	136	9.38	31.4	7	155	38		
	127	396	302	19	12	22	314	162	7.95	26.2	8	155	41		
	144	402	303	22	13	22	314	184	6.89	24.2	9	155	44		

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.

Universal Beams & Columns

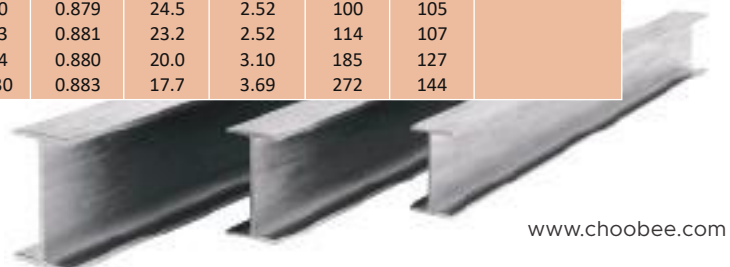
Dimensions & Properties



4b (i) Beams (Metric Units) - Part II

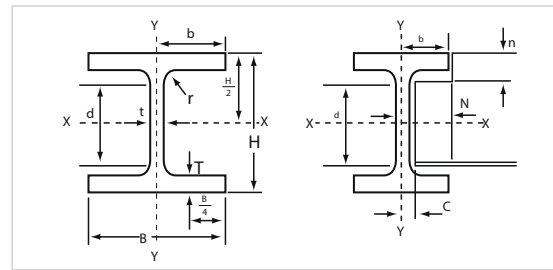
Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter	Torsional Index	Warping Constant	Torsional Constant	Designation	
	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	x-x	y-y					Unit Weight	Size
	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H	J	kg/m
0.376	188	14.8	3.98	1.12	37.5	5.93	44.1	9.5	0.876	12.7	0.00032	2.03	9.3	100 x 50
0.463	413	29.2	4.95	1.32	66.1	9.75	77.6	15.7	0.872	14.0	0.00100	3.75	13.2	125 x 60
0.576	666	49.5	6.11	1.67	88.8	13.2	102	20.8	0.876	20.4	0.00253	2.81	14.0	150 x 75
0.670	1003	150	6.17	2.39	135	30.1	154	46.4	0.880	15.8	0.00727	6.56	20.7	150 x 100
0.665	1021	151	6.17	2.37	138	30.1	157	46.7	0.881	15.0	0.00728	7.37	21.1	150 x 100
0.686	1205	97.5	7.26	2.06	138	21.7	156	33.6	0.885	21.8	0.00680	4.31	18.0	175 x 90
0.685	1214	97.6	7.26	2.06	139	21.7	157	33.7	0.885	21.4	0.00680	4.50	18.1	175 x 90
0.806	1529	261	7.18	2.97	181	41.8	202	64.3	0.879	19.1	0.0169	6.76	23.3	175 x 125
0.769	1543	113	8.25	2.24	156	22.9	175	35.5	0.883	28.4	0.0103	3.30	17.8	200 x 100
0.764	1582	114	8.26	2.22	160	23.0	180	35.7	0.884	26.5	0.0104	3.86	18.2	200 x 100
0.775	1806	134	8.23	2.24	181	26.7	205	41.6	0.878	24.9	0.0123	5.08	20.9	200 x 100
0.770	1844	134	8.24	2.22	184	26.8	209	41.9	0.880	23.6	0.0124	5.77	21.3	200 x 100
0.962	2625	507	8.30	3.65	271	67.6	301	103	0.876	21.2	0.0434	9.32	29.9	200 x 150
0.954	2690	507	8.30	3.61	277	67.7	309	104	0.878	19.8	0.0434	10.9	30.6	200 x 150
0.964	3331	633	8.42	3.67	336	83.8	377	128	0.879	16.9	0.0553	18.5	36.9	200 x 150
0.968	3450	255	10.4	2.82	278	41.1	312	63.2	0.884	32.0	0.0367	5.78	25.1	250 x 125
0.961	3537	255	10.4	2.79	285	41.1	319	63.6	0.886	29.9	0.0367	6.74	25.7	250 x 125
0.974	3965	294	10.4	2.82	317	47.0	358	72.7	0.880	28.4	0.0426	8.51	29.0	250 x 125
0.967	4052	294	10.4	2.79	324	47.0	366	73.1	0.881	26.9	0.0427	9.68	29.6	250 x 125
1.15	6037	984	10.4	4.21	495	112	550	172	0.883	21.3	0.134	21.2	43.6	250 x 175
1.15	6122	985	10.4	4.19	502	113	558	173	0.884	20.5	0.134	23.2	44.1	250 x 175
1.16	7308	1184	10.5	4.24	589	135	660	207	0.884	18.0	0.163	36.1	51.6	250 x 175
1.17	8541	1390	10.7	4.30	678	157	764	241	0.885	16.0	0.195	53.2	59.1	250 x 175
1.14	4940	326	12.3	3.16	336	44.0	375	68.4	0.878	39.7	0.0676	5.51	25.0	300 x 150
1.16	6318	442	12.4	3.29	424	59.4	475	91.8	0.880	35.6	0.0930	8.65	32.0	300 x 150
1.16	7210	508	12.4	3.29	481	67.7	542	105	0.876	32.0	0.107	12.4	36.7	300 x 150
1.17	8578	620	12.7	3.43	564	82.7	633	128	0.888	27.8	0.133	18.8	41.4	300 x 150
1.18	9514	691	12.7	3.43	622	91.5	702	142	0.884	25.6	0.149	24.9	46.2	300 x 150
1.21	14820	1100	13.0	3.54	932	143	1070	223	0.884	17.9	0.248	79.0	69.0	300 x 150
1.33	9431	1317	12.4	4.63	650	132	721	203	0.882	26.0	0.258	22.8	48.3	300 x 200
1.35	11110	1602	12.5	4.75	756	160	842	245	0.882	24.0	0.319	31.4	55.8	300 x 200
1.34	11340	1604	12.5	4.71	771	160	859	247	0.883	22.7	0.319	35.8	56.8	300 x 200
1.35	13310	1900	12.6	4.77	893	189	1000	291	0.884	20.1	0.383	53.4	65.4	300 x 200
1.37	16280	2341	12.9	4.88	1071	232	1204	356	0.888	17.2	0.482	87.8	77.3	300 x 200
1.35	11040	792	14.5	3.88	638	91.0	712	140	0.881	38.1	0.225	13.2	41.2	350 x 175
1.35	11100	792	14.5	3.88	641	91.0	716	140	0.882	37.5	0.225	13.6	41.4	350 x 175
1.36	13500	984	14.6	3.96	771	113	864	173	0.883	32.2	0.283	22.4	49.4	350 x 175
1.36	13560	985	14.7	3.95	775	113	868	174	0.884	31.8	0.283	23.0	49.6	350 x 175
1.37	16100	1184	14.8	4.01	909	135	1022	208	0.885	27.6	0.344	36.1	57.8	350 x 175
1.38	18710	1390	14.9	4.06	1045	157	1180	243	0.886	24.4	0.409	53.6	66.2	350 x 175
1.39	20240	1508	14.9	4.06	1124	169	1276	263	0.883	22.9	0.446	66.3	71.8	350 x 175
1.39	22760	1669	15.0	4.06	1250	189	1425	293	0.884	20.6	0.499	91.3	79.7	350 x 175
1.62	18510	3093	14.5	5.92	1102	248	1215	380	0.881	25.8	0.812	44.6	69.2	350 x 250
1.64	21230	3649	14.6	6.05	1249	292	1382	445	0.881	24.2	0.969	58.0	78.1	350 x 250
1.63	21680	3652	14.6	6.00	1275	292	1412	447	0.882	22.8	0.970	66.3	79.7	350 x 250
1.64	26440	4488	14.8	6.12	1528	358	1699	547	0.886	19.5	1.21	109	94.2	350 x 250
1.65	30190	5138	14.8	6.12	1725	406	1935	623	0.882	17.6	1.41	155	108	350 x 250
1.55	19770	1447	16.6	4.50	999	145	1114	223	0.883	36.8	0.536	25.0	56.1	400 x 200
1.55	20020	1448	16.7	4.48	1011	145	1128	224	0.884	35.6	0.536	27.1	56.6	400 x 200
1.56	23460	1736	16.8	4.56	1173	174	1313	267	0.885	31.8	0.650	39.6	65.4	400 x 200
1.56	23710	1737	16.8	4.54	1185	174	1326	268	0.886	30.9	0.650	42.2	66.0	400 x 200
1.57	27490	2035	16.9	4.60	1361	202	1528	312	0.887	27.4	0.770	62.3	75.5	400 x 200
1.58	33060	2478	17.2	4.70	1612	245	1815	378	0.891	23.4	0.952	101	88.2	400 x 200
1.63	54850	4216	17.5	4.86	2551	405	2941	632	0.887	15.7	1.70	373	140	400 x 300
1.68	75250	5919	17.8	4.98	3374	553	3968	873	0.883	12.5	2.49	825	187	400 x 300
1.91	33680	6246	16.7	7.21	1745	418	1918	637	0.880	25.8	2.16	79.9	94.3	400 x 300
1.94	37860	7204	16.9	7.35	1942	480	2141	730	0.879	24.5	2.52	100	105	400 x 300
1.92	38680	7210	16.9	7.28	1983	481	2188	733	0.881	23.2	2.52	114	107	400 x 300
1.94	46660	8735	17.0	7.35	2357	578	2620	884	0.880	20.0	3.10	185	127	400 x 300
1.95	54420	10220	17.2	7.45	2707	674	3022	1030	0.883	17.7	3.69	272	144	400 x 300

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
*Please contact us for further clarification.



Universal Beams & Columns

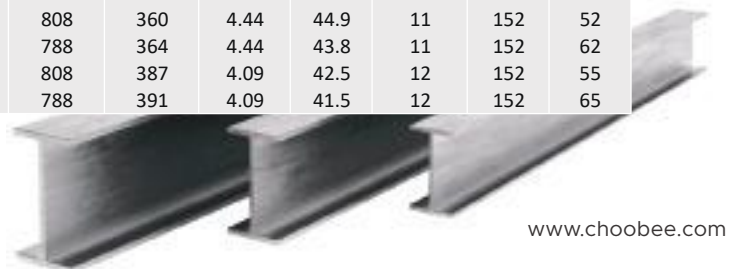
Dimensions & Properties



4b (i) Beams (Metric Units) - Part I

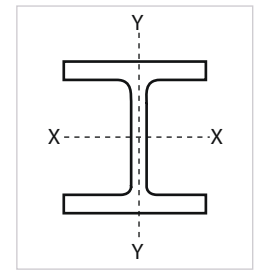
Designation		Height Of Beam	Width Of Beam	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
Size	Units Weight			Flange	Web				Flange	Web	Clearance	End	
		H	B			T	t	r				d	A
mm	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm
450 x 200	65.1	446	199	12	8	13	396	83.0	8.29	49.5	6	106	25
	66.2	446	199	12	8	18	386	84.3	8.29	48.3	6	106	30
	74.9	450	200	14	9	13	396	95.4	7.14	44.0	7	106	27
	76.0	450	200	14	9	18	386	96.8	7.14	42.9	7	106	32
	88.9	456	201	17	10	18	386	113	5.91	38.6	7	106	35
	98.9	460	202	19	11	18	386	126	5.32	35.1	8	106	37
	110	460	205	19	14	18	386	140	5.39	27.6	9	106	37
450 x 300	106	434	299	15	10	24	356	135	9.97	35.6	7	155	39
	121	440	300	18	11	13	378	154	8.33	34.4	8	155	31
	124	440	300	18	11	24	356	157	8.33	32.4	8	155	42
	145	446	302	21	13	24	356	184	7.19	27.4	9	155	45
500 x 200	77.9	496	199	14	9	13	442	99	7.11	49.1	7	105	27
	79.5	496	199	14	9	20	428	101	7.11	47.6	7	105	34
	88.2	500	200	16	10	13	442	112	6.25	44.2	7	105	29
	89.6	500	200	16	10	20	428	114	6.25	42.8	7	105	36
	102	506	201	19	11	13	442	129	5.29	40.2	8	105	32
	103	506	201	19	11	20	428	131	5.29	38.9	8	105	39
	117	512	202	22	12	20	428	148	4.59	35.7	8	105	42
500 x 300	111	482	300	15	11	13	426	141	10.0	38.7	8	155	28
	114	482	300	15	11	26	400	146	10.0	36.4	8	155	41
	125	488	300	18	11	13	426	159	8.33	38.7	8	155	31
	128	488	300	18	11	26	400	164	8.33	36.4	8	155	44
	150	494	302	21	13	26	400	191	7.19	30.8	9	155	47
600 x 200	79.0	592	197	13	8	22	522	101	7.58	65.3	6	105	35
	92.5	596	199	15	10	13	540	118	6.63	54.0	7	105	28
	94.6	596	199	15	10	22	522	120	6.63	52.2	7	105	37
	103	600	200	17	11	13	540	132	5.88	49.1	8	105	30
	106	600	200	17	11	22	522	134	5.88	47.5	8	105	39
	118	606	201	20	12	13	540	150	5.03	45.0	8	105	33
	120	606	201	20	12	22	522	152	5.03	43.5	8	105	42
	134	612	202	23	13	22	522	171	4.39	40.2	9	105	45
600 x 300	133	582	300	17	12	13	522	169	8.82	43.5	8	154	30
	137	582	300	17	12	28	492	174	8.82	41.0	8	154	45
	147	588	300	20	12	13	522	187	7.50	43.5	8	154	33
	151	588	300	20	12	28	492	192	7.50	41.0	8	154	48
	170	594	302	23	14	13	522	217	6.57	37.3	9	154	36
	175	594	302	23	14	28	492	222	6.57	35.1	9	154	51
	203	602	304	27	16	28	492	259	5.63	30.8	10	154	55
	217	608	304	30	16	28	492	277	5.07	30.8	10	154	58
700 x 300	166	692	300	20	13	28	596	211	7.50	45.8	9	154	48
	182	700	300	24	13	18	616	232	6.25	47.4	9	154	42
	185	700	300	24	13	28	596	235	6.25	45.8	9	154	52
	215	708	302	28	15	28	596	274	5.39	39.7	10	154	56
800 x 300	191	792	300	22	14	28	692	243	6.82	49.4	9	153	50
	207	800	300	26	14	18	712	264	5.77	50.9	9	153	44
	210	800	300	26	14	28	692	267	5.77	49.4	9	153	54
	241	808	302	30	16	28	692	308	5.03	43.3	10	153	58
	267	816	303	34	17	28	692	340	4.46	40.7	11	153	62
900 x 300	210	890	299	23	15	18	808	267	6.50	53.9	10	152	41
	213	890	299	23	15	28	788	271	6.50	52.5	10	152	51
	240	900	300	28	16	18	808	306	5.36	50.5	10	152	46
	243	900	300	28	16	28	788	310	5.36	49.3	10	152	56
	283	912	302	34	18	18	808	360	4.44	44.9	11	152	52
	286	912	302	34	18	28	788	364	4.44	43.8	11	152	62
	304	918	303	37	19	18	808	387	4.09	42.5	12	152	55
	307	918	303	37	19	28	788	391	4.09	41.5	12	152	65

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4b (i) Beams (Metric Units) - Part II

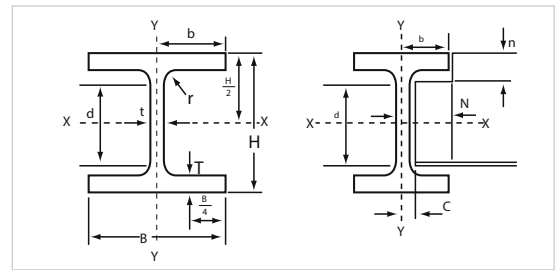
Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J	Designation	
	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	x-x	y-y					Unit Weight	Size
	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³	cm ³					kg/m	mm
1.65	28130	1579	18.4	4.36	1262	159	1423	245	0.876	38.4	0.744	33.9	65.1	450 x 200
1.64	28700	1581	18.5	4.33	1287	159	1450	247	0.878	36.5	0.744	38.3	66.2	
1.66	32890	1870	18.6	4.43	1462	187	1652	290	0.878	33.6	0.889	51.6	74.9	
1.65	33450	1872	18.6	4.40	1487	187	1679	291	0.879	32.2	0.890	56.9	76.0	
1.67	40400	2308	18.9	4.51	1772	230	2003	356	0.884	27.5	1.11	92.5	88.9	
1.68	45430	2619	19.0	4.56	1975	259	2240	403	0.885	25.0	1.27	126	98.9	
1.68	47860	2742	18.5	4.43	2081	268	2399	423	0.869	23.9	1.33	152	110	
2.00	46800	6695	18.6	7.04	2157	448	2384	686	0.883	27.0	2.94	104	106	
2.04	54730	8106	18.9	7.26	2488	540	2757	823	0.885	24.9	3.61	141	121	
2.02	56070	8114	18.9	7.18	2549	541	2825	828	0.887	23.4	3.61	163	124	
2.03	66380	9658	19.0	7.24	2977	640	3323	981	0.886	20.5	4.36	253	145	
1.75	40840	1843	20.3	4.31	1647	185	1869	288	0.874	37.5	1.07	52.5	77.9	500 x 200
1.74	41870	1846	20.3	4.27	1688	186	1914	290	0.876	35.2	1.07	60.8	79.5	
1.76	46810	2138	20.4	4.36	1872	214	2130	333	0.875	33.3	1.25	75.9	88.2	
1.75	47850	2142	20.5	4.33	1914	214	2175	335	0.877	31.6	1.25	85.9	89.6	
1.77	55480	2578	20.7	4.47	2193	257	2496	399	0.880	28.7	1.53	119	102	
1.76	56520	2582	20.7	4.43	2234	257	2541	401	0.881	27.5	1.53	132	103	
1.77	65450	3035	21.0	4.52	2557	300	2913	469	0.884	24.3	1.82	193	117	
2.12	58270	6756	20.3	6.92	2418	450	2696	690	0.877	32.4	3.68	93.9	111	500 x 300
2.10	60370	6768	20.4	6.82	2505	451	2791	695	0.880	29.4	3.69	118	114	
2.13	68860	8106	20.8	7.14	2822	540	3132	825	0.887	28.0	4.48	143	125	
2.11	70960	8118	20.8	7.05	2908	541	3228	830	0.889	25.9	4.48	172	128	
2.13	83810	9663	20.9	7.11	3393	640	3792	984	0.888	22.8	5.40	265	150	
1.92	58240	1665	24.1	4.07	1968	169	2239	265	0.870	45.2	1.40	53.0	79.0	600 x 200
1.95	66640	1976	23.8	4.10	2236	199	2576	312	0.861	42.9	1.67	69.2	92.5	
1.93	68720	1982	23.9	4.06	2306	199	2651	315	0.864	39.7	1.67	82.4	94.6	
1.96	75560	2274	24.0	4.16	2519	227	2904	358	0.863	38.4	1.93	97.3	103	
1.94	77630	2280	24.0	4.12	2588	228	2979	361	0.865	36.0	1.94	113	106	
1.97	88320	2716	24.3	4.26	2915	270	3357	426	0.868	33.4	2.33	147	118	
1.95	90400	2723	24.3	4.23	2983	271	3432	429	0.870	31.7	2.34	167	120	
1.97	103500	3178	24.6	4.32	3382	315	3893	498	0.873	28.3	2.76	237	134	
2.32	98950	7659	24.2	6.73	3400	511	3822	786	0.876	35.5	6.11	137	133	600 x 300
2.29	102700	7675	24.3	6.63	3530	512	3963	793	0.879	32.1	6.13	173	137	
2.33	114400	9009	24.7	6.94	3889	601	4348	921	0.886	31.2	7.27	199	147	
2.30	118100	9025	24.8	6.85	4018	602	4489	928	0.888	28.8	7.28	241	151	
2.35	133600	10570	24.8	6.98	4497	700	5057	1077	0.885	27.3	8.62	304	170	
2.32	137300	10590	24.9	6.90	4624	701	5197	1085	0.887	25.5	8.63	356	175	
2.34	162600	12680	25.1	7.00	5401	834	6101	1292	0.888	22.3	10.5	551	203	
2.35	179300	14090	25.4	7.13	5896	927	6653	1431	0.893	20.5	11.8	702	217	
2.51	172400	9030	28.6	6.53	4984	602	5629	936	0.878	34.3	10.2	260	166	700 x 300
2.54	197500	10820	29.2	6.83	5643	721	6338	1110	0.887	31.4	12.4	343	182	
2.53	201500	10830	29.3	6.78	5757	722	6464	1116	0.889	30.0	12.4	383	185	
2.55	237100	12890	29.4	6.86	6699	854	7559	1323	0.889	26.3	14.9	588	215	
2.71	253600	9936	32.3	6.39	6405	662	7288	1036	0.873	36.8	14.7	341	191	
2.74	286400	11720	33.0	6.67	7159	781	8098	1210	0.882	33.9	17.6	440	207	
2.72	291700	11740	33.0	6.62	7292	782	8243	1216	0.883	32.5	17.6	486	210	
2.74	339200	13820	33.2	6.70	8397	915	9534	1426	0.883	28.7	20.9	726	241	
2.76	383600	15820	33.6	6.82	9402	1044	10680	1625	0.887	25.8	24.2	1003	267	
2.92	338500	10280	35.6	6.20	7608	687	8750	1079	0.863	42.2	19.3	361	210	900 x 300
2.90	345300	10290	35.7	6.16	7760	688	8913	1085	0.865	40.2	19.3	403	213	
2.94	404500	12630	36.4	6.43	8989	842	10290	1317	0.872	35.9	24.0	580	240	
2.92	411300	12650	36.4	6.39	9139	843	10450	1324	0.873	34.5	24.0	633	243	
2.97	491000	15660	36.9	6.59	10770	1037	12340	1622	0.876	30.1	30.2	979	283	
2.95	497800	15670	37.0	6.56	10920	1038	12500	1629	0.877	29.3	30.2	1050	286	
2.98	535400	17210	37.2	6.67	11660	1136	13380	1778	0.878	27.9	33.4	1234	304	
2.96	542200	17230	37.2	6.63	11810	1137	13540	1785	0.879	27.2	33.4	1316	307	

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4b (ii) Columns (Metric Units) - Part I

Designation		Height Of Column	Width Of Column	Thickness		Root Radius	Depth Between Fillets	Area Of Section	Ratios For Local Buckling		Dimensions For Detailing		
Size	Unit Weight			Flange	Web				Flange	Web	Clearance	Notch	
												M	H
mm	kg/m	mm	mm	mm	mm	mm	mm	cm ²			mm	mm	mm
100 x 100	14.8	100	100	7	5	10	66	19.2	7.14	13.2	5	58	17
	16.9	100	100	8	6	8	68	21.6	6.25	11.3	5	57	16
	17.2	100	100	8	6	10	64	21.9	6.25	10.7	5	57	18
125 x 125	23.6	125	125	9	6.5	8	91	30.0	6.94	14.0	5	69	17
	23.8	125	125	9	6.5	10	87	30.3	6.94	13.4	5	69	19
150 x 150	31.1	150	150	10	7	8	114	39.6	7.50	16.3	6	82	18
	31.5	150	150	10	7	11	108	40.1	7.50	15.4	6	82	21
	37.4	154	151	12	8	11	108	47.7	6.29	13.5	6	82	23
175 x 175	32.8	171	174	9	6	12	129	41.7	9.67	21.5	5	94	21
	40.2	175	175	11	7.5	12	129	51.2	7.95	17.2	6	94	23
	40.4	175	175	11	7.5	13	127	51.4	7.95	16.9	6	94	24
200 x 200	41.4	196	199	10	6.5	13	150	52.7	9.95	23.1	5	106	23
	49.9	200	200	12	8	13	150	63.5	8.33	18.8	6	106	25
	57.8	204	201	14	9	13	150	73.6	7.18	16.7	7	106	27
	65.7	208	202	16	10	13	150	83.7	6.31	15.0	7	106	29
250 x 250	66.5	248	249	13	8	16	190	84.7	9.58	23.8	6	131	29
	71.8	250	250	14	9	13	196	91.4	8.93	21.8	7	131	27
	72.4	250	250	14	9	16	190	92.2	8.93	21.1	7	131	30
	98.1	260	253	19	12	16	190	125	6.66	15.8	8	131	35
300 x 300	87.0	298	299	14	9	18	234	111	10.7	26.0	7	155	32
	93.0	300	300	15	10	13	244	118	10.0	24.4	7	155	28
	94.0	300	300	15	10	18	234	120	10.0	23.4	7	155	33
	106	304	301	17	11	18	234	135	8.85	21.3	8	155	35
	125	310	303	20	13	18	234	159	7.58	18.0	9	155	38
	130	310	305	20	15	18	234	165	7.63	15.6	10	155	38
	147	312	310	21	20	18	234	187	7.38	11.7	12	155	39
350 x 350	113	344	348	16	10	13	286	144	10.9	28.6	7	179	29
	115	344	354	16	10	20	272	148	11.1	27.2	7	182	36
	135	350	350	19	12	13	286	172	9.21	23.8	8	179	32
	137	350	350	19	12	20	272	174	9.21	22.7	8	179	39
	159	356	352	22	14	20	272	202	8.00	19.4	9	179	42
	181	362	354	25	16	20	272	230	7.08	17.0	10	179	45
400 x 400	140	388	402	15	15	22	314	178	13.4	20.9	10	204	37
	147	394	398	18	11	22	314	187	11.1	28.5	8	204	40
	172	400	400	21	13	22	314	219	9.52	24.2	9	204	43
	200	406	403	24	16	22	314	255	8.40	19.6	10	204	46
	232	414	405	28	18	22	314	295	7.23	17.4	11	204	50
	283	428	407	35	20	22	314	361	5.81	15.7	12	204	57
	415	458	417	50	30	22	314	529	4.17	10.5	17	204	72
	605	498	432	70	45	22	314	770	3.09	7.0	25	204	92

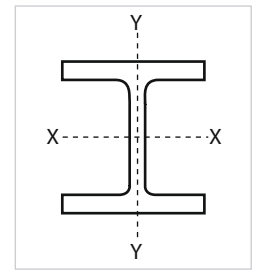
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4b (ii) Columns (Metric Units) - Part II

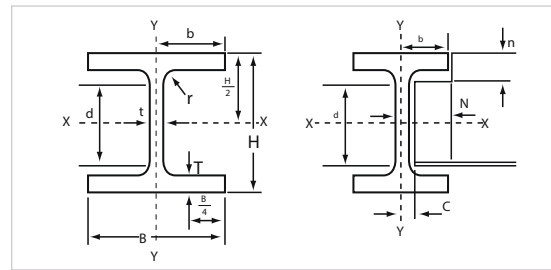
Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J	Designation	
	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	x-x	y-y					Unit Weight	Size
	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³					cm ³	kg/m
0.570	344	117	4.20	2.47	69.0	23.0	78.0	36.0	0.843	12.3	0.00253	3.53	14.8	100 x 100
0.574	378	134	4.18	2.49	75.6	26.7	86.4	41.0	0.836	11.1	0.00283	4.73	16.9	
0.571	383	134	4.18	2.47	76.5	26.8	87.6	41.2	0.837	10.7	0.00283	5.17	17.2	
0.723	840	293	5.29	3.13	134	46.9	152	71.7	0.839	12.8	0.00987	7.91	23.6	125 x 125
0.720	847	294	5.29	3.11	136	47.0	154	71.9	0.840	12.5	0.00988	8.43	23.8	
0.872	1623	563	6.40	3.77	216	75.1	243	114	0.841	14.1	0.0276	12.5	31.1	150 x 150
0.867	1641	563	6.39	3.75	219	75.1	246	115	0.842	13.7	0.0276	13.5	31.5	
0.877	2018	690	6.51	3.80	262	91.4	298	140	0.845	11.8	0.0348	22.2	37.4	
1.01	2304	791	7.43	4.35	269	90.9	298	138	0.845	17.5	0.0519	11.5	32.8	175 x 175
1.01	2884	984	7.50	4.38	330	112	369	171	0.844	14.7	0.0662	20.4	40.2	
1.01	2895	984	7.50	4.37	331	112	370	172	0.845	14.5	0.0662	21.0	40.4	
1.15	3846	1315	8.54	5.00	392	132	433	201	0.847	18.2	0.114	17.6	41.4	200 x 200
1.16	4716	1602	8.62	5.02	472	160	525	244	0.846	15.5	0.142	29.8	49.9	
1.17	5603	1897	8.73	5.08	549	189	617	287	0.847	13.6	0.171	45.8	57.8	
1.18	6531	2201	8.83	5.13	628	218	710	332	0.848	12.2	0.203	66.7	65.7	
1.45	9931	3348	10.8	6.29	801	269	883	408	0.850	17.9	0.462	46.7	66.5	250 x 250
1.46	10750	3648	10.8	6.32	860	292	953	443	0.847	17.1	0.508	55.8	71.8	
1.45	10830	3649	10.8	6.29	867	292	960	444	0.848	16.7	0.508	58.7	72.4	
1.48	15340	5134	11.1	6.41	1180	406	1330	618	0.849	12.8	0.745	141	98.1	
1.74	18850	6242	13.0	7.51	1265	418	1389	634	0.850	20.0	1.26	71.3	87.0	300 x 300
1.76	20190	6753	13.1	7.55	1346	450	1484	683	0.847	19.4	1.37	82.1	93.0	
1.75	20410	6756	13.1	7.51	1361	450	1501	684	0.848	18.8	1.37	88.1	94.0	
1.76	23380	7733	13.2	7.57	1538	514	1705	781	0.849	16.9	1.59	125	106	
1.78	28130	9282	13.3	7.64	1815	613	2031	932	0.849	14.6	1.95	200	125	
1.78	28630	9470	13.2	7.57	1847	621	2079	949	0.842	14.4	1.99	215	130	
1.79	31370	10450	13.0	7.48	2011	674	2295	1040	0.830	13.0	2.21	298	147	
2.04	32850	11240	15.1	8.84	1910	646	2092	978	0.848	21.1	3.02	111	113	350 x 350
2.05	33810	11840	15.1	8.95	1966	669	2153	1014	0.846	20.4	3.18	123	115	
2.05	39847	13583	15.2	8.89	2277	776	2515	1176	0.847	18.0	3.72	186	135	
2.04	40300	13590	15.2	8.84	2303	776	2545	1179	0.849	17.5	3.72	199	137	
2.06	47590	16000	15.3	8.90	2674	909	2979	1382	0.848	15.4	4.46	305	159	
2.07	55190	18500	15.5	8.96	3049	1045	3424	1591	0.848	13.7	5.25	445	181	
2.32	48970	16260	16.6	9.55	2524	809	2802	1237	0.830	22.5	5.66	156	140	
2.32	56150	18930	17.3	10.1	2850	951	3118	1441	0.850	20.9	6.69	194	147	
2.34	66620	22420	17.5	10.1	3331	1121	3672	1700	0.850	18.2	8.05	303	172	
2.35	78040	26200	17.5	10.1	3844	1300	4280	1977	0.846	16.1	9.56	462	200	
2.37	92770	31030	17.7	10.2	4482	1532	5026	2331	0.848	14.1	11.6	714	232	
2.41	119200	39360	18.2	10.4	5570	1934	6311	2941	0.854	11.6	15.2	1317	283	
2.49	187100	60530	18.8	10.7	8172	2903	9540	4436	0.853	8.5	25.2	3885	415	
2.60	297900	94360	19.7	11.1	11960	4369	14460	6724	0.852	6.4	43.2	11060	605	

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4c (i) H Bearing Pile (Imperial Units) - Part I

Designation				Height Of Bearing Pile H	Width Of Bearing Pile B	Thickness		Root Radius r	Depth Between Fillet d	Area Of Section A	Ratios For Local Buckling		Dimensions For Detailing		
Size H x B		Unit Weight				Flange T	Web t				Flange b/T	Web d/t	End Clearance C	Notch	
in	(mm)	lb/ft	kg/m			mm	mm							N	n
8 x 8	(203 x 203)	30	44.9	200.2	205.9	9.5	9.5	10.2	160.8	57.2	10.8	16.9	7	108	20
		36	53.9	204.0	207.7	11.4	11.3	10.2	160.8	68.7	9.11	14.2	8	108	22
10 x 10	(254 x 254)	42	63.0	247.1	256.6	10.7	10.6	12.7	200.3	80.2	12.0	18.9	7	133	23
		48	71.0	249.7	258.0	12	12	12.7	200.3	90.4	10.8	16.7	8	133	25
		57	85.1	254.3	260.4	14.3	14.4	12.7	200.3	108	9.10	13.9	9	133	27
12 x 12	(305 x 305)	53	78.9	299.3	306.4	11.1	11	15.2	246.7	100	13.8	22.4	8	158	26
		59	88.0	301.7	307.8	12.3	12.4	15.2	246.7	112	12.5	19.9	8	158	28
		63	93.0	303.3	308.0	13.1	13.1	15.2	246.7	119	11.8	18.8	9	157	28
		64	94.9	303.7	308.7	13.3	13.3	15.2	246.7	121	11.6	18.5	9	158	29
		74	110.0	307.9	310.7	15.4	15.3	15.2	246.7	140	10.1	16.1	10	158	31
		84	125.0	311.9	312.3	17.4	17.4	15.2	246.7	159	8.97	14.2	11	157	33
		85	126.1	312.3	312.9	17.6	17.5	15.2	246.7	161	8.89	14.1	11	158	33
		100	149.1	318.5	316.0	20.7	20.6	15.2	246.7	190	7.63	12.0	12	158	36
		121	180.0	326.7	319.7	24.8	24.8	15.2	246.7	229	6.45	9.95	14	157	40
		125	186.0	328.3	320.9	25.6	25.5	15.2	246.7	237	6.27	9.67	15	158	41
13 x 13	(330 x 330)	149	222.9	337.9	325.7	30.4	30.3	15.2	246.7	284	5.36	8.14	17	158	46
		60	89.3	318.5	327.7	11.68	11.68	15.2	264.7	113	14.0	22.7	8	168	27
		73	108.6	323.8	330.3	14.35	14.35	15.2	264.7	139	11.5	18.4	9	168	30
		87	129.5	328.9	332.9	16.89	16.89	15.2	264.7	164	9.85	15.7	10	168	32
14 x 14 1/2	(356 x 368)	100	148.8	334.0	335.4	19.43	19.43	15.2	264.7	190	8.63	13.6	12	168	35
		73	108.9	346.4	371.0	12.9	12.8	15.2	290.2	139	14.4	22.7	8	189	28
		89	133.0	352.0	373.8	15.7	15.6	15.2	290.2	169	11.9	18.6	10	189	31
		102	152.0	356.4	376.0	17.9	17.8	15.2	290.2	194	10.5	16.3	11	189	33
		117	173.9	361.4	378.5	20.4	20.3	15.2	290.2	221	9.28	14.3	12	189	36
121	180.0	362.9	378.8	21.1	21.1	15.2	290.3	230	8.98	13.8	13	189	36		

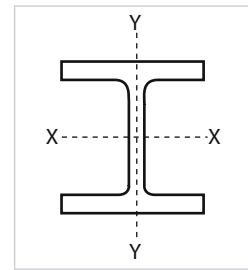
4c (i) Bearing Pile (Metric Units) - Part A

Designation				Height Of Bearing Pile H	Width Of Bearing Pile B	Thickness		Root Radius r	Depth Between Fillet d	Area Of Section A	Ratios For Local Buckling		Dimensions For Detailing		
Size H x B		Unit Weight				Flange T	Web t				Flange b/T	Web d/t	End Clearance C	Notch	
mm	(mm)	kg/m	kg/m			mm	mm							N	n
200 x 200	(200 x 200)	56.2	56.2	200	204	12	12	13	150	71.5	8.50	12.5	8	106	25
		63.8	63.8	244	252	11	11	13	196	81.3	11.5	17.8	8	131	24
250 x 250	(250 x 250)	64.4	64.4	244	252	11	11	16	190	82.1	11.5	17.3	8	131	27
		82.2	82.2	250	255	14	14	16	190	105	9.11	13.6	9	131	30
		83.4	83.4	294	302	12	12	13	244	106	12.6	20.3	8	155	25
300 x 300	(300 x 300)	84.5	84.5	294	302	12	12	18	234	108	12.6	19.5	8	155	30
		106	106	300	305	15	15	18	234	135	10.2	15.6	10	155	33
		142	142	310	310	20	20	18	234	181	7.75	11.7	12	155	38
		105	105	338	351	13	13	13	286	133	13.5	22.0	9	179	26
350 x 350	(350 x 350)	106	106	338	351	13	13	20	272	135	13.5	20.9	9	179	33
		129	129	344	354	16	16	13	286	165	11.1	17.9	10	179	29
		131	131	344	354	16	16	20	272	167	11.1	17.0	10	179	36
		154	154	350	357	19	19	13	286	196	9.39	15.1	12	179	32
		156	156	350	357	19	19	20	272	198	9.39	14.3	12	179	39
400 x 400	(400 x 400)	140	140	388	402	15	15	22	314	178	13.4	20.9	10	204	37
		168	168	394	405	18	18	22	314	214	11.3	17.4	11	204	40
		197	197	400	408	21	21	22	314	251	9.71	15.0	13	204	43
		235	235	408	412	25	25	22	314	300	8.24	12.6	15	204	47

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
*Please contact us for further clarification.

Universal Beams & Columns

Dimensions & Properties



4c (i) H Bearing Piles (Imperial Units) - Part II

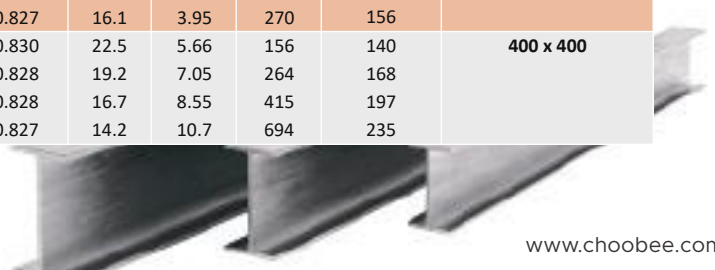
Surface Area Per metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J	Designation			
	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y					Unit Weight		Size H X B	
	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³					cm ³	lb/ft	kg/m	(mm)
1.19	4100	1384	8.46	4.92	410	134	459	206	0.827	18.6	0.126	19.2	30	44.9	(203 x 203)	8 x 8
1.20	5027	1705	8.55	4.98	493	164	557	252	0.827	15.8	0.158	32.7	36	53.9		
1.48	8861	3016	10.5	6.13	717	235	799	360	0.827	20.5	0.421	34.3	42	63.0	(254 x 254)	10 x 10
1.49	10070	3439	10.6	6.17	807	267	904	409	0.826	18.4	0.486	48.4	48	71.0		
1.50	12290	4216	10.6	6.24	966	324	1092	498	0.825	15.6	0.607	81.8	57	85.1		
1.78	16450	5327	12.8	7.28	1099	348	1218	531	0.832	23.9	1.11	46.9	53	78.9	(305 x 305)	12 x 12
1.78	18430	5985	12.8	7.31	1221	389	1360	595	0.830	21.6	1.25	64.2	59	88.0		
1.79	19690	6387	12.9	7.33	1298	415	1449	635	0.831	20.5	1.34	76.4	63	93.0		
1.79	20050	6529	12.9	7.35	1320	423	1474	648	0.830	20.2	1.38	80.0	64	94.9		
1.80	23560	7710	13.0	7.42	1531	496	1720	762	0.830	17.7	1.65	122	74	110.0		
1.81	27040	8849	13.0	7.46	1734	567	1961	872	0.829	15.8	1.92	177	84	125.0		
1.82	27410	9002	13.1	7.49	1755	575	1986	885	0.829	15.7	1.95	182	85	126.1		
1.83	33070	10910	13.2	7.58	2076	691	2370	1066	0.828	13.5	2.42	295	100	149.1		
1.86	40970	13550	13.4	7.69	2508	847	2897	1313	0.827	11.5	3.09	510	121	180.0		
1.86	42610	14140	13.4	7.73	2596	881	3003	1366	0.827	11.1	3.24	560	125	186.0		
1.89	52700	17580	13.6	7.87	3119	1079	3653	1680	0.826	9.55	4.16	943	149	222.9		
1.90	20940	6857	13.6	7.79	1315	418	1457	639	0.830	24.3	1.61	57.9	60	89.3	(330 x 330)	13 x 13
1.91	26200	8628	13.7	7.88	1618	522	1808	800	0.829	20.1	2.07	106	73	108.6		
1.93	31430	10400	13.8	7.96	1911	625	2151	959	0.828	17.3	2.53	171	87	129.5		
1.94	36860	12240	13.9	8.03	2207	730	2502	1123	0.828	15.2	3.03	260	100	148.8		
2.13	30630	10990	14.9	8.90	1769	592	1956	903	0.823	24.2	3.06	84.6	73	108.9	(356 x 368)	14 x 14 1/2
2.14	37980	13680	15.0	8.99	2158	732	2406	1119	0.822	20.1	3.87	151	89	133.0		
2.16	43970	15880	15.1	9.05	2468	845	2767	1293	0.821	17.8	4.55	223	102	152.0		
2.17	51010	18460	15.2	9.13	2823	976	3186	1497	0.821	15.8	5.37	330	117	173.9		
2.17	53040	19140	15.2	9.13	2923	1011	3306	1552	0.821	15.3	5.59	367	121	180.0		

4c (i) Bearing Pile (Metric Units) - Part B

Surface Area Per Metre	Second Moment Of Area		Radius Of Gyration		Elastic Modulus		Plastic Modulus		Buckling Parameter u	Torsional Index x	Warping Constant H	Torsional Constant J	Designation			
	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y	Axis x-x	Axis y-y					Unit Weight		Size H x B	
	m ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³	cm ³					cm ³	kg/m	mm	mm
1.17	4983	1702	8.35	4.88	498	167	565	257	0.826	14.3	0.150	39.6	56.2		200 x 200	
1.45	8703	2938	10.3	6.01	713	233	797	357	0.828	19.5	0.399	37.1	63.8		250 x 250	
1.45	8787	2939	10.3	5.98	720	233	805	358	0.829	19.0	0.399	39.5	64.4			
1.46	11480	3877	10.5	6.09	919	304	1039	468	0.827	15.4	0.540	79.0	82.2			
1.75	16640	5514	12.5	7.20	1132	365	1260	558	0.829	21.9	1.10	56.3	83.4		300 x 300	
1.74	16870	5517	12.5	7.16	1147	365	1277	560	0.831	21.1	1.10	61.4	84.5			
1.76	21540	7106	12.6	7.26	1436	466	1614	716	0.829	17.4	1.44	116	106			
1.79	29870	9955	12.9	7.42	1927	642	2199	992	0.828	13.4	2.09	271	142			
2.03	27740	9377	14.4	8.39	1642	534	1822	815	0.827	23.5	2.48	81.4	105		350 x 350	
2.02	28190	9381	14.4	8.33	1668	535	1851	818	0.829	22.5	2.48	90.3	106			
2.05	34880	11840	14.6	8.48	2028	669	2269	1024	0.826	19.4	3.19	151	129			
2.04	35330	11850	14.6	8.43	2054	669	2299	1027	0.828	18.7	3.19	164	131			
2.07	42350	14430	14.7	8.57	2420	808	2730	1241	0.826	16.5	3.95	252	154			
2.06	42800	14430	14.7	8.53	2446	809	2760	1244	0.827	16.1	3.95	270	156			
2.32	48970	16260	16.6	9.55	2524	809	2802	1237	0.830	22.5	5.66	156	140		400 x 400	
2.33	59720	19960	16.7	9.65	3031	986	3390	1511	0.828	19.2	7.05	264	168			
2.35	70890	23810	16.8	9.75	3545	1167	3992	1794	0.828	16.7	8.55	415	197			
2.38	86470	29200	17.0	9.87	4239	1418	4818	2185	0.827	14.2	10.7	694	235			

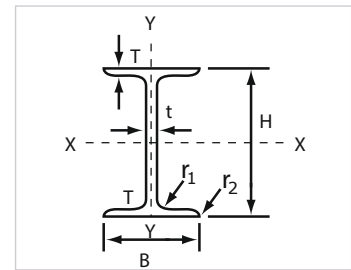
Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

*Please contact us for further clarification.



Universal Beams & Columns

Dimensions & Properties



4c (ii) i-Beams (Metric Units)

Designation		Height Of Beam	Width Of Beam	Thickness		Radius		Area Of Section	Moment Of Inertia		Radius Of Gyration		Section Modulus	
Size	Units Weight			Flange	Web	Root	Toe		lx	ly	ix	iy	Zx	Zy
mm	kg/m	mm	mm	mm	mm	mm	mm	cm ²	cm ⁴	cm ⁴	cm	cm	cm ³	cm ³
150 x 75	17.1	150	75	9.5	5.5	9	4.5	21.83	819	57.5	6.12	1.62	109	15.3
200 x 100	26.0	200	100	10.0	7.0	10	5.0	33.06	2170	138.0	8.11	2.05	217	27.7
200 x 150	50.4	200	150	16.0	9.0	15	7.5	64.16	4460	753.0	8.34	3.43	446	100.0
250 x 125	38.3	250	125	12.5	7.5	12	6.0	48.79	5180	337.0	10.30	2.63	414	53.9
	55.5	250	125	19.0	10.0	21	10.5	70.73	7310	538.0	10.20	2.76	585	86.0
300 x 150	48.3	300	150	13.0	8.0	12	6.0	61.58	9480	588.0	12.40	3.09	632	78.4
	65.5	300	150	18.5	10.0	19	9.5	83.47	12700	886.0	12.30	3.26	849	118.0
	76.8	300	150	22.0	11.5	23	11.5	97.88	14700	1080.0	12.20	3.32	978	143.0
350 X 150	58.5	350	150	15.0	9.0	13	6.5	74.58	15200	702.0	14.30	3.07	870	93.5
	87.2	350	150	24.0	12.0	25	12.5	111.10	22400	1180.0	14.20	3.26	1280	158.0
400 x 150	72.0	400	150	18.0	10.0	17	8.5	91.73	24100	864.0	16.20	3.07	1200	115.0
	95.8	400	150	25.0	12.5	27	13.5	122.10	31700	1240.0	16.10	3.18	1580	165.0
450 x 175	91.7	450	175	20.0	11.0	19	9.5	116.80	39200	1510.0	18.30	3.60	1740	173.0
	115.0	450	175	26.0	13.0	27	13.5	146.10	48800	2020.0	18.30	3.72	2170	231.0
600 x 190	133.0	600	190	25.0	13.0	25	12.5	169.40	98400	2460.0	24.10	3.81	3280	259.0
	176.0	600	190	35.0	16.0	38	19.0	224.50	130000	3540.0	24.10	3.97	4330	373.0

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet
 *Please contact us for further clarification.





聚美集團

CHOO BEE GROUP

Wisma Soon Teik Aun
Jalan Bendara, 31650 Ipoh, Perak
Tel : +605 255 8111 Fax : +605 255 0573
www.choobee.com