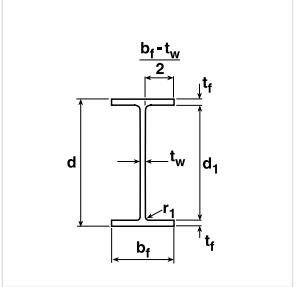
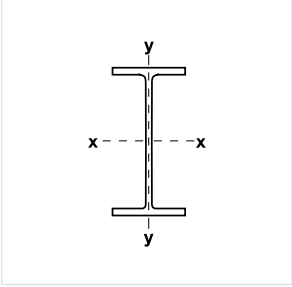
SUTTON STRUCTURAL STEEL

AUSTRALIAN MADE





Universal Beams

Table 13 Universal Beams – Dimensions and Properties

Designation	Depth of Section	Flange		Web Thickness	Root Radius	Depth Between Flanges	$\frac{d_1}{t_w}$	$\frac{(b_f-t_w)}{2t_f}$	Gross Area of Cross Section	About x-axis				About y-axis				Torsion Constant	Warping Constant	Designation
		Width	Thickness																	
	d	b_f	t_f	t_w	r_1	d_1			A_g	I_x	Z_x	S_x	r_x	I_y	Z_y	S_y	r_y	J	I_w	
kg/m	mm	mm	mm	mm	mm	mm			mm^2	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^6mm^4	10^3mm^3	10^3mm^3	mm	10^3mm^4	10^9mm^6	
610 UB 125	612	229	19.6	11.9	14.0	572	48.1	5.54	16000	986	3230	3680	249	39.3	343	536	49.6	1560	3450	610 UB 125
113	607	228	17.3	11.2	14.0	572	51.1	6.27	14500	875	2880	3290	246	34.3	300	469	48.7	1140	2980	113
101	602	228	14.8	10.6	14.0	572	54.0	7.34	13000	761	2530	2900	242	29.3	257	402	47.5	790	2530	101
530 UB 92.4	533	209	15.6	10.2	14.0	502	49.2	6.37	11800	554	2080	2370	217	23.8	228	355	44.9	775	1590	530 UB 92.4
82.0	528	209	13.2	9.6	14.0	502	52.3	7.55	10500	477	1810	2070	213	20.1	193	301	43.8	526	1330	82.0
460 UB 82.1	460	191	16.0	9.9	11.4	428	43.3	5.66	10500	372	1610	1840	188	18.6	195	303	42.2	701	919	460 UB 82.1
74.6	457	190	14.5	9.1	11.4	428	47.1	6.24	9520	335	1460	1660	188	16.6	175	271	41.8	530	815	74.6
67.1	454	190	12.7	8.5	11.4	428	50.4	7.15	8580	296	1300	1480	186	14.5	153	238	41.2	378	708	67.1
410 UB 59.7	406	178	12.8	7.8	11.4	381	48.8	6.65	7640	216	1060	1200	168	12.1	135	209	39.7	337	467	410 UB 59.7
53.7	403	178	10.9	7.6	11.4	381	50.1	7.82	6890	188	933	1060	165	10.3	115	179	38.6	234	394	53.7
360 UB 56.7	359	172	13.0	8.0	11.4	333	41.6	6.31	7240	161	899	1010	149	11.0	128	198	39.0	338	330	360 UB 56.7
50.7	356	171	11.5	7.3	11.4	333	45.6	7.12	6470	142	798	897	148	9.60	112	173	38.5	241	284	50.7
44.7	352	171	9.7	6.9	11.4	333	48.2	8.46	5720	121	689	777	146	8.10	94.7	146	37.6	161	237	44.7
310 UB 46.2	307	166	11.8	6.7	11.4	284	42.3	6.75	5930	100	654	729	130	9.01	109	166	39.0	233	197	310 UB 46.2
40.4	304	165	10.2	6.1	11.4	284	46.5	7.79	5210	86.4	569	633	129	7.65	92.7	142	38.3	157	165	40.4
32.0	298	149	8.0	5.5	13.0	282	51.3	8.97	4080	63.2	424	475	124	4.42	59.3	91.8	32.9	86.5	92.9	32.0
250 UB 37.3	256	146	10.9	6.4	8.9	234	36.6	6.40	4750	55.7	435	486	108	5.66	77.5	119	34.5	158	85.2	250 UB 37.3
31.4	252	146	8.6	6.1	8.9	234	38.4	8.13	4010	44.5	354	397	105	4.47	61.2	94.2	33.4	89.3	65.9	31.4
25.7	248	124	8.0	5.0	12.0	232	46.4	7.44	3270	35.4	285	319	104	2.55	41.1	63.6	27.9	67.4	36.7	25.7
200 UB 29.8	207	134	9.6	6.3	8.9	188	29.8	6.65	3820	29.1	281	316	87.3	3.86	57.5	88.4	31.8	105	37.6	200 UB 29.8
25.4	203	133	7.8	5.8	8.9	188	32.3	8.15	3230	23.6	232	260	85.4	3.06	46.1	70.9	30.8	62.7	29.2	25.4
22.3	202	133	7.0	5.0	8.9	188	37.5	9.14	2870	21.0	208	231	85.5	2.75	41.3	63.4	31.0	45.0	26.0	22.3
18.2	198	99	7.0	4.5	11.0	184	40.9	6.75	2320	15.8	160	180	82.6	1.14	23.0	35.7	22.1	38.6	10.4	18.2
180 UB 22.2	179	90	10.0	6.0	8.9	159	26.5	4.20	2820	15.3	171	195	73.6	1.22	27.1	42.3	20.8	81.6	8.71	180 UB 22.2
18.1	175	90	8.0	5.0	8.9	159	31.8	5.31	2300	12.1	139	157	72.6	0.975	21.7	33.7	20.6	44.8	6.80	18.1
16.1	173	90	7.0	4.5	8.9	159	35.3	6.11	2040	10.6	123	138	72.0	0.853	19.0	29.4	20.4	31.5	5.88	16.1
150 UB 18.0	155	75	9.5	6.0	8.0	136	22.7	3.63	2300	9.05	117	135	62.8	0.672	17.9	28.2	17.1	60.5	3.56	150 UB 18.0
14.0	150	75	7.0	5.0	8.0	136	27.2	5.00	1780	6.66	88.8	102	61.1	0.495	13.2	20.8	16.6	28.1	2.53	14.0

Universal Beams

Table 14 Universal Beams – Properties for Assessing Section Capacity

Designation	Yield Stress		Form Factor	About x-axis		About y-axis		Yield Stress		Form Factor	About x-axis		About y-axis		Designation
	Flange	Web		Compactness		Compactness		Flange	Web		Compactness		Compactness		
	f_y	f_y	k_f		Z_{ex}		Z_{ey}	f_y	f_y	k_f		Z_{ex}		Z_{ey}	
	MPa	MPa			10^3mm^3		10^3mm^3	MPa	MPa			10^3mm^3		10^3mm^3	
	300PLUS® *							**AS/NZS 3679.1-350**							
610 UB 125	280	300	0.950	C	3680	C	515	340	340	0.916	C	3680	C	515	610 UB 125
113	280	300	0.926	C	3290	C	451	340	340	0.891	C	3290	C	451	113
101	300	320	0.888	C	2900	C	386	340	360	0.867	C	2900	C	386	101
530 UB 92.4	300	320	0.928	C	2370	C	342	340	360	0.907	C	2370	C	342	530 UB 92.4
82.0	300	320	0.902	C	2070	C	289	340	360	0880	C	2070	C	289	82.0
460 UB 82.1	300	320	0.979	C	1840	C	292	340	360	0.956	C	1840	C	292	460 UB 82.1
74.6	300	320	0.948	C	1660	C	262	340	360	0.926	C	1660	C	262	74.6
67.1	300	320	0.922	C	1480	C	230	340	360	0.901	C	1480	C	230	67.1
410 UB 59.7	300	320	0.938	C	1200	C	203	340	360	0.918	C	1200	C	203	410 UB 59.7
53.7	320	320	0.913	C	1060	C	173	360	360	0.894	N	1050	N	172	53.7
360 UB 56.7	300	320	0.996	C	1010	C	193	340	360	0.974	C	1010	C	193	360 UB 56.7
50.7	300	320	0.963	C	897	C	168	340	360	0.943	C	897	C	168	50.7
44.7	320	320	0.930	N	770	N	140	360	360	0.911	N	762	N	139	44.7
310 UB 46.2	300	320	0.991	C	729	C	163	340	360	0.972	C	729	C	163	310 UB 46.2
40.4	320	320	0.952	C	633	C	139	360	360	0.936	N	629	N	138	40.4
32.0	320	320	0.915	N	467	N	86.9	360	360	0.898	N	462	N	85.7	32.0
250 UB 37.3	320	320	1.00	C	486	C	116	360	360	1.00	C	486	C	116	250 UB 37.3
31.4	320	320	1.00	N	395	N	91.4	360	360	0.991	N	392	N	90.3	31.4
25.7	320	320	0.949	C	319	C	61.7	360	360	0.932	C	319	C	61.7	25.7
200 UB 29.8	320	320	1.00	C	316	C	86.3	360	360	1.00	C	316	C	86.3	200 UB 29.8
25.4	320	320	1.00	N	259	N	68.8	360	360	1.00	N	257	N	68.0	25.4
22.3	320	320	1.00	N	227	N	60.3	360	360	1.00	N	225	N	59.4	22.3
18.2	320	320	0.990	C	180	C	34.4	360	360	0.970	C	180	C	34.4	18.2
180 UB 22.2	320	320	1.00	C	195	C	40.7	360	360	1.00	C	195	C	40.7	180 UB 22.2
18.1	320	320	1.00	C	157	C	32.5	360	360	1.00	C	157	C	32.5	18.1
16.1	320	320	1.00	C	138	C	28.4	360	360	1.00	C	138	C	28.4	16.1
150 UB 18.0	320	320	1.00	C	135	C	26.9	360	360	1.00	C	135	C	26.9	150 UB 18.0
14.0	320	320	1.00	C	102	C	19.8	360	360	1.00	C	102	C	19.8	14.0

* 300PLUS® replaced Grade 250 as the base grade for these sections in 1994.
300PLUS® hot rolled sections are produced to exceed the minimum requirements of AS/NZS 3679.1-300.

Notes

1. For 300PLUS® sections the tensile strength (f_u) is 440 MPa.
2. For Grade 350 sections the tensile strength (f_u) is 480 MPa.
3. C: Compact Section; N: Non-compact Section; S: Slender Section.

AUSTRALIAN MADE