



Welded Columns

Table 11 Welded Columns - Dimensions and Properties

Designation	Depth of Section d	Flange		Web Thickness t _w	Depth Between Flanges d ₁	Gross Area of Cross Section		About x-axis				About y-axis				Torsion Constant J	Warping Constant I _w	Designation
		Width b _f	Thickness t _f			A _g	(b _f - t _w)	I _x	Z _x	S _x	r _x	I _y	Z _y	S _y	r _y			
kg/m	mm	mm	mm	mm	mm	mm ²	mm ²	10 ⁶ mm ⁴	10 ³ mm ³	10 ³ mm ³	mm	10 ⁶ mm ⁴	10 ³ mm ³	10 ³ mm ³	mm	10 ³ mm ⁴	10 ⁹ mm ⁶	
500 WC 440	480	500	40	40	400	56000	56000	2150	8980	10400	196	835	3340	5160	122	30100	40400	500 WC 440
414	480	500	40	32	400	52800	52800	2110	8800	10100	200	834	3340	5100	126	25400	40400	414
383	472	500	36	32	400	48800	48800	1890	7990	9130	197	751	3000	4600	124	19900	35700	383
340	514	500	32	25	450	43200	43200	2050	7980	8980	218	667	2670	4070	124	13100	38800	340
290	506	500	28	20	450	37000	37000	1750	6930	7700	218	584	2330	3540	126	8420	33300	290
267	500	500	25	20	450	34000	34000	1560	6250	6950	214	521	2080	3170	124	6370	29400	267
228	490	500	20	20	450	29000	29000	1260	5130	5710	208	417	1670	2540	120	3880	23000	228
400 WC 361	430	400	40	40	350	46000	46000	1360	6340	7460	172	429	2140	3340	96.5	24800	16300	400 WC 361
328	430	400	40	28	350	41800	41800	1320	6140	7100	178	427	2140	3270	101	19200	16200	328
303	422	400	36	28	350	38600	38600	1180	5570	6420	175	385	1920	2950	99.8	14800	14300	303
270	414	400	32	25	350	34400	34400	1030	4950	5660	173	342	1710	2610	99.8	10400	12500	270
212	400	400	25	20	350	27000	27000	776	3880	4360	169	267	1330	2040	99.4	5060	9380	212
181	390	400	20	20	350	23000	23000	620	3180	3570	164	214	1070	1640	96.4	3080	7310	181
144	382	400	16	16	350	18400	18400	486	2550	2830	163	171	854	1300	96.3	1580	5720	144
350 WC 280	355	350	40	28	275	35700	35700	747	4210	4940	145	286	1640	2500	89.6	16500	7100	350 WC 280
258	347	350	36	28	275	32900	32900	661	3810	4450	142	258	1470	2260	88.5	12700	6230	258
230	339	350	32	25	275	29300	29300	573	3380	3910	140	229	1310	2000	88.4	8960	5400	230
197	331	350	28	20	275	25100	25100	486	2940	3350	139	200	1140	1740	89.3	5750	4600	197

Notes

- All welds to AS/NZS 1554.1 Category SP (deep penetration).
- Web to flange joints develop the minimum tensile strength of a 16mm web only.
- Flame cut surfaces not incorporated in welds have a minimum surface roughness of class 2, as defined in WTIA Technical Note 5.

Welded Columns

Table 12 Welded Columns - Properties for Assessing Section Capacity

Designation	Yield Stress		Form Factor k_f	About x-axis		About y-axis		Yield Stress Flange f_y MPa	Yield Stress Web f_y MPa	Form Factor k_f	About x-axis		About y-axis		Designation
	Flange f_y MPa	Web f_y MPa		Compactness	Z_{ex} 10^3mm^3	Compactness	Z_{ey} 10^3mm^3				Compactness	Z_{ex} 10^3mm^3	Compactness	Z_{ey} 10^3mm^3	
300PLUS® *								AS/NZS 3679.2-400							
500 WC 440	280	280	1.00	C	10400	C	5010	360	360	1.00	C	10400	C	5010	500 WC 440
414	280	280	1.00	C	10100	C	5010	360	360	1.00	C	10100	C	5010	414
383	280	280	1.00	C	9130	C	4510	360	360	1.00	C	9130	C	4510	383
340	280	280	1.00	C	8980	C	4000	360	360	1.00	N	8830	N	3920	340
290	280	300	1.00	N	7570	N	3410	360	380	1.00	N	7410	N	3310	290
267	280	300	1.00	N	6700	N	2970	360	380	1.00	N	6540	N	2860	267
228	300	300	1.00	N	5210	N	2200	380	380	0.964	S	4920	N	2100	228
400 WC 361	280	280	1.00	C	7470	C	3210	360	360	1.00	C	7470	C	3210	400 WC 361
328	280	280	1.00	C	7100	C	3200	360	360	1.00	C	7100	C	3200	328
303	280	280	1.00	C	6420	C	2880	360	360	1.00	C	6420	C	2880	303
270	280	280	1.00	C	5660	C	2560	360	360	1.00	C	5660	C	2560	270
212	280	300	1.00	N	4360	N	2000	360	380	1.00	N	4270	N	1950	212
181	300	300	1.00	N	3410	N	1510	380	380	1.00	N	3330	N	1460	181
144	300	300	1.00	N	2590	N	1120	380	380	0.964	S	2440	N	1070	144
350 WC 280	280	280	1.00	C	4940	C	2450	360	360	1.00	C	4940	C	2450	350 WC 280
258	280	280	1.00	C	4450	C	2210	360	360	1.00	C	4450	C	2210	258
230	280	280	1.00	C	3910	C	1960	360	360	1.00	C	3910	C	1960	230
197	280	300	1.00	C	3350	C	1720	360	380	1.00	C	3350	C	1720	197

* 300PLUS® welded sections are produced to exceed the minimum requirements of AS/NZS 3679.2-300.

Notes

1. For 300PLUS® sections the tensile strength (f_u) is 430 MPa.
2. For Grade 400 sections the tensile strength (f_u) is 480 MPa.
3. C: Compact Section; N: Non-compact Section; S: Slender Section.

