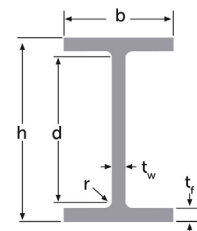


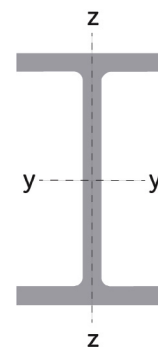
British Steel, the only UK manufacturer of structural sections, is BES 6001 certified, guaranteeing commitment to responsibly sourced materials. Our structural sections are CE marked and tested to the highest standards, providing quality and assurance for the global construction market.



Design parameters

Designation serial size	Mass per foot	ASTM metric equivalent	Depth of section	Width of section	Thickness		Root radius	Depth between fillets	Ratios for local buckling		Second moment of area	
					of web	of flange			Flange	Web	Axis	Axis
					t _w	t _f			B/2T	d/t	y-y	z-z
in	lb/ft		h mm	b mm	t _w mm	t _f mm	r mm	d mm			cm ⁴	cm ⁴
W 6 x 6	15	W 150 x 150 x 22.5	152	152	5.8	6.6	10.0	118.8	11.5	20.5	1229	387
W 6 x 6	20	W 150 x 150 x 29.8	157	153	6.6	9.3	10.0	118.4	8.23	17.9	1738	556
W 6 x 6	25	W 150 x 150 x 37.1	162	154	8.1	11.6	10.0	118.8	6.64	14.7	2244	707
W 8 x 5.25	18	W 200 x 135 x 26.6	207	133	5.8	8.4	10.0	170.2	7.92	29.3	2611	330
W 8 x 5.25	21	W 200 x 135 x 31.3	210	134	6.4	10.2	10.0	169.6	6.57	26.5	3168	410
W 8 x 8	31	W 200 x 200 x 46.1	203	203	7.2	11.0	10.4	160.2	9.23	22.3	4548	1535
W 8 x 8	35	W 200 x 200 x 52	206	204	7.9	12.6	10.4	160.0	8.10	20.3	5275	1784
W 8 x 8	40	W 200 x 200 x 59	210	205	9.1	14.2	10.4	160.8	7.22	17.7	6117	2041
W 8 x 8	48	W 200 x 200 x 71	216	206	10.2	17.4	10.4	160.4	5.92	15.7	7665	2537
W 8 x 8	58	W 200 x 200 x 86	222	209	13.0	20.6	10.4	160.0	5.07	12.3	9475	3138
W 8 x 8	67	W 200 x 200 x 100	229	210	14.5	23.7	10.4	160.8	4.43	11.1	11332	3664
W 8 x 8	76*	W 200 x 200 x 113	235	212.1	16.3	26.9	10.4	160.4	3.94	9.84	13303	4285
W 8 x 8	86*	W 200 x 200 x 128	241.4	213.9	18.1	30.1	10.4	160.4	3.55	8.86	15440	4920
W 10 x 4	15	W 250 x 100 x 22.3	254	102	5.8	6.9	10.0	220.2	7.36	38.0	2930	121
W 10 x 4	17	W 250 x 100 x 25.3	257	102	6.1	8.4	10.0	220.4	6.07	36.1	3476	149
W 10 x 4	19	W 250 x 100 x 28.4	260	102	6.4	10.0	10.0	220.4	5.11	34.4	4066	179
W 10 x 5.75	22	W 250 x 145 x 32.7	258	146	6.1	9.1	10.0	220.1	8.03	36.1	4953	474
W 10 x 5.75	26	W 250 x 145 x 38.5	262	147	6.6	11.2	10.0	220.0	6.54	33.3	6063	589
W 10 x 5.75	30	W 250 x 145 x 44.8	266	148	7.6	13.0	10.0	219.9	5.68	28.9	7135	698
W 10 x 10	49	W 250 x 250 x 73	253	254	8.6	14.2	20.0	184.6	8.94	21.5	11508	3883
W 10 x 10	54	W 250 x 250 x 80	256	255	9.4	15.6	20.0	184.8	8.17	19.7	12801	4316
W 10 x 10	60	W 250 x 250 x 89	260	256	10.7	17.3	20.0	185.4	7.40	17.3	14489	4844
W 10 x 10	68	W 250 x 250 x 101	264	257	11.9	19.6	20.0	184.8	6.56	15.5	16603	5552
W 10 x 10	72*	W 250 x 250 x 107	266.7	258.8	12.8	20.5	20.0	185.7	6.31	14.5	17747	5931
W 10 x 10	77	W 250 x 250 x 115	269	259	13.5	22.1	20.0	184.8	5.86	13.7	19171	6409
W 10 x 10	88	W 250 x 250 x 131	275	261	15.4	25.1	20.0	184.8	5.20	12.0	22383	7450
W 10 x 10	100	W 250 x 250 x 149	282	263	17.3	28.4	20.0	185.2	4.63	10.7	26167	8627
W 10 x 10	112	W 250 x 250 x 167	289	265	19.2	31.8	20.0	185.4	4.17	9.66	30250	9884
W 12 x 4	16	W 310 x 100 x 23.8	305	101	5.6	6.7	10.0	271.6	7.54	48.5	4345	116
W 12 x 4	19	W 310 x 100 x 28.3	309	102	6.0	8.9	10.0	271.2	5.73	45.2	5500	158
W 12 x 4	22	W 310 x 100 x 32.7	313	102	6.6	10.8	10.0	271.4	4.72	41.1	6570	192
W 12 x 12	65	W 310 x 310 x 97	308	305	9.9	15.4	20.0	237.2	9.90	24.0	22501	7288
W 12 x 12	72	W 310 x 310 x 107	311	306	10.9	17.0	20.0	237.0	9.00	21.7	25055	8125
W 12 x 12	79	W 310 x 310 x 117	314	307	11.9	18.7	20.0	236.6	8.21	19.9	27778	9026
W 12 x 12	87	W 310 x 310 x 129	318	308	13.1	20.6	20.0	236.8	7.48	18.1	31035	10041
W 12 x 12	92*	W 310 x 310 x 137	320.5	309.2	13.8	21.7	20.0	237.1	7.12	17.2	33070	10702
W 12 x 12	96	W 310 x 310 x 143	323	309	14.0	22.9	20.0	237.2	6.75	16.9	35029	11272
W 12 x 12	106	W 310 x 310 x 158	327	310	15.5	25.1	20.0	236.8	6.18	15.3	38897	12477
W 12 x 12	120	W 310 x 310 x 179	333	313	18.0	28.1	20.0	236.8	5.57	13.2	44796	14381
W 12 x 12	133*	W 310 x 310 x 198	339.9	314.5	19.1	31.4	20.0	237.1	5.01	12.4	51159	16303
W 12 x 12	136	W 310 x 310 x 202	341	315	20.1	31.8	20.0	237.4	4.95	11.8	52247	16592
W 12 x 12	152	W 310 x 310 x 226	348	317	22.1	35.6	20.0	236.8	4.45	10.7	59829	18934

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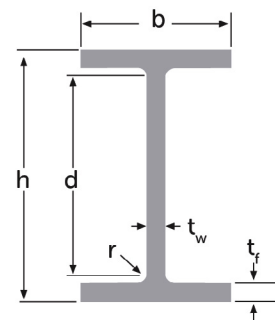


Design parameters

Radius of gyration		Elastic modulus		Plastic modulus		Buckling parameter	Torsional index	Warping constant	Torsional constant	Area of section	Designation serial size	Mass per foot
Axis	Axis	Axis	Axis	Axis	Axis							
y-y	z-z	y-y	z-z	y-y	z-z	u	x	H	J			
cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴	cm ²	in	lb/ft
6.51	3.65	162	51	180	78	0.840	20.3	0.0204	4.75	29.0	W 6 x 6	15
6.72	3.80	221	73	248	111	0.848	15.7	0.0303	11.0	38.5	W 6 x 6	20
6.85	3.84	277	92	313	140	0.849	13.0	0.0400	20.6	47.8	W 6 x 6	25
8.73	3.10	252	50	282	76	0.881	23.8	0.0325	7.65	34.2	W 8 x 5.25	18
8.86	3.19	302	61	339	94	0.886	20.2	0.0409	12.6	40.3	W 8 x 5.25	21
8.81	5.12	448	151	496	229	0.847	17.7	0.141	22.2	58.6	W 8 x 8	31
8.90	5.17	512	175	570	266	0.848	15.7	0.167	32.5	66.6	W 8 x 8	35
8.99	5.19	583	199	653	303	0.848	14.1	0.196	46.6	75.7	W 8 x 8	40
9.17	5.28	710	246	804	375	0.853	11.8	0.250	82.0	91.1	W 8 x 8	48
9.26	5.33	854	300	982	458	0.849	10.1	0.318	140	111	W 8 x 8	58
9.45	5.38	990	349	1150	533	0.852	9.04	0.386	210	127	W 8 x 8	67
9.59	5.44	1132	404	1329	618	0.853	8.10	0.464	306	145	W 8 x 8	76*
9.75	5.50	1279	460	1517	704	0.854	7.38	0.549	427	162	W 8 x 8	86*
10.1	2.05	231	24	267	38	0.857	34.4	0.0185	4.77	28.8	W 10 x 4	15
10.3	2.14	270	29	311	46	0.866	30.3	0.0230	7.07	32.6	W 10 x 4	17
10.5	2.21	312	35	359	55	0.874	26.7	0.0280	10.4	36.7	W 10 x 4	19
10.8	3.35	383	65	429	100	0.882	28.3	0.0735	10.5	42.1	W 10 x 5.75	22
11.1	3.45	462	80	518	123	0.889	23.8	0.0929	17.6	49.5	W 10 x 5.75	26
11.1	3.48	537	95	605	146	0.889	20.8	0.112	27.1	57.5	W 10 x 5.75	30
11.0	6.40	910	306	1007	465	0.851	16.2	0.554	66.0	94.9	W 10 x 10	49
11.1	6.44	1000	339	1112	515	0.851	15.0	0.624	85.4	104	W 10 x 10	54
11.2	6.46	1115	378	1248	576	0.850	13.8	0.713	115	116	W 10 x 10	60
11.3	6.51	1258	432	1419	658	0.851	12.4	0.829	163	131	W 10 x 10	68
11.3	6.55	1331	458	1507	699	0.849	12.0	0.899	188	138	W 10 x 10	72*
11.4	6.57	1425	495	1621	755	0.850	11.2	0.977	231	148	W 10 x 10	77
11.5	6.64	1628	571	1869	872	0.850	10.1	1.16	335	169	W 10 x 10	88
11.7	6.71	1856	656	2151	1003	0.851	9.08	1.39	479	192	W 10 x 10	100
11.9	6.78	2093	746	2449	1142	0.852	8.28	1.63	666	215	W 10 x 10	112
11.9	1.94	285	23	333	37	0.847	43.4	0.0257	4.66	30.7	W 12 x 4	16
12.3	2.08	356	31	412	49	0.861	36.0	0.0356	8.14	36.5	W 12 x 4	19
12.5	2.14	420	38	485	60	0.867	30.9	0.0438	12.9	42.1	W 12 x 4	22
13.4	7.64	1461	478	1611	726	0.852	18.7	1.56	98.3	125	W 12 x 12	65
13.5	7.68	1611	531	1785	807	0.851	17.1	1.76	130	138	W 12 x 12	72
13.6	7.73	1769	588	1969	894	0.851	15.8	1.97	170	151	W 12 x 12	79
13.6	7.76	1952	652	2184	992	0.852	14.5	2.22	224	167	W 12 x 12	87
13.7	7.80	2064	692	2316	1054	0.851	13.9	2.39	261	176	W 12 x 12	92*
13.8	7.83	2169	730	2439	1110	0.853	13.3	2.54	300	184	W 12 x 12	96
13.9	7.86	2379	805	2692	1227	0.853	12.2	2.84	394	202	W 12 x 12	106
14.0	7.92	2690	919	3073	1403	0.851	11.1	3.34	558	229	W 12 x 12	120
14.2	8.01	3010	1037	3460	1583	0.854	10.1	3.88	758	254	W 12 x 12	133*
14.2	8.00	3064	1053	3530	1610	0.853	9.97	3.97	800	260	W 12 x 12	136
14.4	8.08	3438	1195	3995	1827	0.853	9.05	4.62	1109	290	W 12 x 12	152

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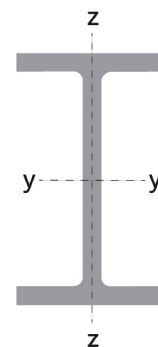


Design parameters

Designation serial size	Mass per foot	ASTM metric equivalent	Depth of section	Width of section	Thickness		Root radius	Depth between fillets	Ratios for local buckling		Second moment of area	
					of web	of flange			Flange	Web	Axis	Axis
					t _w	t _f			B/2T	d/t	y-y	z-z
in	lb/ft		h mm	b mm	t _w mm	t _f mm	r mm	d mm			cm ⁴	cm ⁴
W 12 x 12	161*	W 310 x 310 x 240	352.5	318.4	23.0	37.7	20.0	237.1	4.22	10.3	64458	20319
W 12 x 12	170	W 310 x 310 x 253	356	319	24.4	39.6	20.0	236.8	4.03	9.70	68490	21468
W 12 x 12	190	W 310 x 310 x 283	365	322	26.9	44.1	20.0	236.8	3.65	8.80	78945	24595
W 14 x 6.75	30	W 360 x 170 x 44.6	352	171	6.9	9.8	12.7	307.0	8.72	44.5	12296	818
W 14 x 6.75	34	W 360 x 170 x 51	355	171	7.2	11.6	12.7	306.4	7.37	42.6	14260	968
W 14 x 6.75	38	W 360 x 170 x 58	358	172	7.9	13.1	12.7	306.4	6.56	38.8	16181	1113
W 14 x 6.75	45*	W 360 x 170 x 67	363.4	173.2	9.1	15.7	12.7	306.6	5.52	33.7	19592	1362
W 14 x 14.5	87*	W 360 x 370 x 129	355.6	368.6	10.4	17.5	20.0	280.6	10.5	27.0	40591	14613
W 14 x 14.5	90	W 360 x 370 x 134	356	369	11.2	18.0	20.0	280.0	10.3	25.0	41866	15081
W 14 x 14.5	99	W 360 x 370 x 147	360	370	12.3	19.8	20.0	280.4	9.34	22.8	46647	16725
W 14 x 14.5	103*	W 360 x 370 x 153	362	370.5	12.3	20.7	20.0	280.6	8.95	22.8	48935	17556
W 14 x 14.5	109	W 360 x 370 x 162	364	371	13.3	21.8	20.0	280.4	8.51	21.1	51897	18565
W 14 x 14.5	119*	W 360 x 370 x 177	368.2	372.6	14.4	23.8	20.0	280.6	7.83	19.5	57464	20532
W 14 x 14.5	120	W 360 x 370 x 179	368	374	15.0	23.9	20.0	280.2	7.82	18.7	57940	20853
W 14 x 14.5	132	W 360 x 370 x 196	372	374	16.4	26.2	20.0	279.6	7.14	17.0	63988	22861
W 14 x 14.5	136*	W 360 x 370 x 202	374.6	374.7	16.5	27.0	20.0	280.6	6.94	17.0	66607	23692
W 14 x 16	145	W 360 x 410 x 216	375	394	17.3	27.7	20.0	279.6	7.11	16.2	71495	28257
W 14 x 16	158*	W 360 x 410 x 235	381	394.8	18.4	30.2	20.0	280.6	6.54	15.3	79431	30997
W 14 x 16	159	W 360 x 410 x 237	380	395	18.9	30.2	20.0	279.6	6.54	14.8	79134	31045
W 14 x 16	176	W 360 x 410 x 262	387	398	21.1	33.3	20.0	280.4	5.98	13.3	89764	35023
W 14 x 16	193	W 360 x 410 x 287	393	399	22.6	36.6	20.0	279.8	5.45	12.4	100063	38788
W 14 x 16	211	W 360 x 410 x 314	399	401	24.9	39.6	20.0	279.8	5.06	11.2	110589	42609
W 14 x 16	228*	W 360 x 410 x 340	406.4	403	26.6	42.9	20.0	280.6	4.70	10.5	122889	46859
W 14 x 16	233	W 360 x 410 x 347	407	404	27.2	43.7	20.0	279.6	4.62	10.3	125301	48091
W 14 x 16	257	W 360 x 410 x 382	416	406	29.8	48.0	20.0	280.0	4.23	9.40	141674	53623
W 14 x 16	264*	W 360 x 410 x 393	419	407	30.6	49.2	20.0	280.6	4.14	9.17	146964	55374
W 14 x 16	283	W 360 x 410 x 421	425	409	32.8	52.6	20.0	279.8	3.89	8.53	159938	60089
W 14 x 16	311	W 360 x 410 x 463	435	412	35.8	57.4	20.0	280.2	3.59	7.83	180519	67044
W 14 x 16	314*	W 360 x 410 x 467	436.6	412.2	35.8	58.0	20.0	280.6	3.55	7.84	183349	67842
W 14 x 16	320*	W 360 x 410 x 477	427	424.4	48.0	53.6	20.0	279.8	3.96	5.83	173586	68610
W 14 x 16	342	W 360 x 410 x 509	446	416	39.1	62.7	20.0	280.6	3.32	7.18	204886	75411
W 14 x 16	370	W 360 x 410 x 551	455	418	42.0	67.6	20.0	279.8	3.09	6.66	226467	82506
W 14 x 16	398	W 360 x 410 x 592	465	421	45.0	72.3	20.0	280.4	2.91	6.23	250519	90184
W 14 x 16	426	W 360 x 410 x 634	474	424	47.6	77.1	20.0	279.8	2.75	5.88	274528	98264
W 14 x 16	455	W 360 x 410 x 677	483	428	51.2	81.5	20.0	280.0	2.63	5.47	299827	106887
W 14 x 16	500	W 360 x 410 x 744	498	432	55.6	88.9	20.0	280.2	2.43	5.04	342479	119949
W 14 x 16	550	W 360 x 410 x 818	514	437	60.5	97.0	20.0	280.0	2.25	4.63	392548	135549
W 14 x 16	605	W 360 x 410 x 900	531	442	65.9	106.0	20.0	279.0	2.08	4.23	450559	153363
W 14 x 16	665	W 360 x 410 x 990	550	448	71.9	115.0	20.0	280.0	1.95	3.89	519264	173386
W 14 x 16	730	W 360 x 410 x 1086	569	454	78.0	125.0	20.0	279.0	1.82	3.58	596078	196278
W 16 x 5.5	26	W 410 x 140 x 38.8	403	140	6.4	8.8	12.7	360.0	7.95	56.3	13126	404
W 16 x 5.5	31	W 410 x 140 x 46.1	403	140	7.0	11.2	12.7	355.2	6.25	50.7	15741	514

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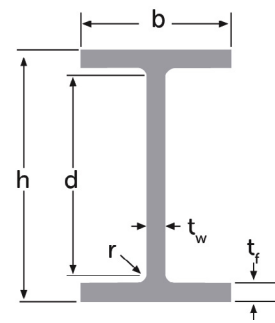


Design parameters

Radius of gyration		Elastic modulus		Plastic modulus		Buckling parameter	Torsional index	Warping constant	Torsional constant	Area of section	Designation serial size	Mass per foot
Axis	Axis	Axis	Axis	Axis	Axis							
y-y	z-z	y-y	z-z	y-y	z-z	u	x	H	J			
cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴	cm ²	in	lb/ft
14.5	8.13	3657	1276	4267	1953	0.854	8.64	5.03	1307	307	W 12 x 12	161*
14.5	8.14	3848	1346	4511	2061	0.854	8.27	5.37	1517	324	W 12 x 12	170
14.8	8.24	4326	1528	5118	2342	0.855	7.57	6.33	2086	362	W 12 x 12	190
14.6	3.76	699	96	787	148	0.876	35.7	0.240	17.0	57.8	W 14 x 6.75	30
14.8	3.86	803	113	902	175	0.884	31.3	0.285	25.1	64.9	W 14 x 6.75	34
14.9	3.91	904	129	1017	200	0.885	28.2	0.331	34.9	72.7	W 14 x 6.75	38
15.1	3.98	1078	157	1219	243	0.887	24.0	0.412	57.7	86.0	W 14 x 6.75	45*
15.6	9.39	2283	793	2502	1200	0.845	19.4	4.18	161	166	W 14 x 14.5	87*
15.6	9.36	2352	817	2585	1239	0.843	18.8	4.31	177	172	W 14 x 14.5	90
15.7	9.40	2591	904	2862	1371	0.844	17.3	4.84	233	189	W 14 x 14.5	99
15.8	9.46	2704	948	2987	1436	0.845	16.7	5.11	261	196	W 14 x 14.5	103*
15.8	9.45	2851	1001	3163	1518	0.844	15.9	5.43	307	208	W 14 x 14.5	109
15.9	9.51	3121	1102	3478	1672	0.845	14.8	6.09	396	227	W 14 x 14.5	119*
15.9	9.52	3149	1115	3514	1693	0.842	14.6	6.17	407	230	W 14 x 14.5	120
15.9	9.53	3440	1223	3861	1858	0.843	13.5	6.83	531	252	W 14 x 14.5	132
16.0	9.57	3556	1265	3994	1921	0.845	13.2	7.16	576	259	W 14 x 14.5	136*
16.1	10.1	3813	1434	4286	2178	0.832	12.8	8.52	652	277	W 14 x 16	145
16.2	10.1	4170	1570	4709	2385	0.835	11.9	9.54	834	301	W 14 x 16	158*
16.2	10.1	4165	1572	4709	2389	0.833	11.9	9.50	842	302	W 14 x 16	159
16.3	10.2	4639	1760	5283	2678	0.833	10.9	11.0	1134	336	W 14 x 16	176
16.5	10.3	5092	1944	5836	2959	0.835	10.0	12.3	1484	368	W 14 x 16	193
16.6	10.3	5543	2125	6397	3239	0.835	9.36	13.8	1891	401	W 14 x 16	211
16.8	10.4	6048	2326	7022	3546	0.836	8.77	15.5	2391	434	W 14 x 16	228*
16.8	10.4	6157	2381	7162	3631	0.835	8.60	15.9	2532	443	W 14 x 16	233
17.0	10.5	6811	2642	7988	4033	0.837	7.96	18.2	3348	489	W 14 x 16	257
17.1	10.5	7015	2721	8245	4156	0.837	7.80	18.9	3611	502	W 14 x 16	264*
17.2	10.6	7526	2938	8904	4492	0.838	7.36	20.8	4417	539	W 14 x 16	283
17.5	10.7	8300	3255	9901	4982	0.839	6.85	23.9	5747	591	W 14 x 16	311
17.5	10.7	8399	3292	10025	5037	0.840	6.81	24.3	5905	596	W 14 x 16	314*
16.8	10.6	8130	3233	9775	5021	0.816	6.80	23.9	5913	612	W 14 x 16	320*
17.7	10.8	9188	3626	11056	5556	0.840	6.38	27.7	7514	650	W 14 x 16	342
17.9	10.8	9955	3948	12074	6055	0.841	6.00	31.0	9396	703	W 14 x 16	370
18.2	10.9	10775	4284	13162	6578	0.842	5.69	34.8	11530	756	W 14 x 16	398
18.4	11.0	11583	4635	14246	7121	0.843	5.41	38.7	13960	809	W 14 x 16	426
18.6	11.1	12415	4995	15370	7684	0.843	5.17	43.1	16680	865	W 14 x 16	455
19.0	11.2	13754	5553	17190	8554	0.845	4.85	50.2	21660	950	W 14 x 16	500
19.4	11.4	15274	6204	19279	9566	0.846	4.54	58.9	28220	1045	W 14 x 16	550
19.8	11.5	16970	6939	21642	10713	0.848	4.25	69.3	36890	1151	W 14 x 16	605
20.3	11.7	18882	7740	24306	11968	0.849	4.02	82.0	47500	1264	W 14 x 16	665
20.7	11.9	20952	8647	27235	13382	0.851	3.78	96.7	61230	1387	W 14 x 16	730
16.1	2.82	651	58	750	91	0.859	45.8	0.157	12.0	50.7	W 16 x 5.5	26
16.3	2.94	781	73	894	115	0.869	37.8	0.197	20.4	59.4	W 16 x 5.5	31

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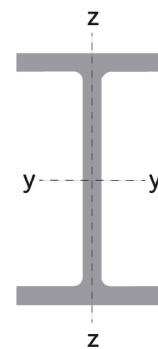


Design parameters

Designation serial size	Mass per foot	ASTM metric equivalent	Depth of section	Width of section	Thickness		Root radius	Depth between fillets	Ratios for local buckling		Second moment of area	
					of web	of flange			Flange	Web	Axis	Axis
					t_w	t_f			B/2T	d/t	y-y cm ⁴	z-z cm ⁴
in	lb/ft		h mm	b mm	t_w mm	t_f mm	r mm	d mm				
W 16 x 5.5	35*	W 410 x 140 x 53	406.6	143.3	7.9	12.9	12.7	355.4	5.55	45.0	18454	635
W 16 x 7	36	W 410 x 180 x 53	403	177	7.5	10.9	12.7	355.8	8.12	47.4	18785	1009
W 16 x 7	40	W 410 x 180 x 60	407	178	7.7	12.8	12.7	356.0	6.95	46.2	21757	1205
W 16 x 7	45	W 410 x 180 x 67	410	179	8.8	14.4	12.7	355.8	6.22	40.4	24729	1379
W 16 x 7	50	W 410 x 180 x 75	413	180	9.7	16.0	12.7	355.6	5.63	36.7	27666	1559
W 16 x 7	57	W 410 x 180 x 85	417	181	10.9	18.2	12.7	355.2	4.97	32.6	31708	1804
W 16 x 10.25	67	W 410 x 260 x 100	415	260	10.0	16.9	12.7	355.8	7.69	35.6	39944	4995
W 16 x 10.25	77	W 410 x 260 x 114	420	261	11.6	19.3	12.7	356.0	6.76	30.7	46323	5725
W 16 x 10.25	89	W 410 x 260 x 132	425	263	16.3	22.2	12.7	355.2	5.92	21.8	55388	6746
W 16 x 10.25	100	W 410 x 260 x 149	431	265	14.9	25.0	12.7	355.6	5.30	23.9	62026	7766
W 18 x 6	35	W 460 x 150 x 52	450	152	7.6	10.8	12.7	403.0	7.04	53.0	21434	634
W 18 x 6	40	W 460 x 150 x 60	455	153	8.0	13.3	12.7	403.0	5.75	50.4	25716	796
W 18 x 6	46	W 460 x 150 x 68	459	154	9.1	15.4	12.7	402.8	5.00	44.3	29916	941
W 18 x 6	50*	W 460 x 150 x 74	462	154.4	9.6	17.0	12.7	402.6	4.54	41.9	32891	1047
W 18 x 6	55*	W 460 x 150 x 82	465.8	155.3	10.5	18.9	12.7	402.6	4.11	38.3	36806	1185
W 18 x 7.5	45*	W 460 x 190 x 67	453.4	189.9	8.5	12.7	12.7	402.6	7.48	47.4	29597	1452
W 18 x 7.5	50	W 460 x 190 x 74	457	190	9.0	14.5	12.7	402.6	6.55	44.7	33480	1661
W 18 x 7.5	55	W 460 x 190 x 82	460	191	9.9	16.0	12.7	402.6	5.97	40.7	37221	1862
W 18 x 7.5	60	W 460 x 190 x 89	463	192	10.5	17.7	12.7	402.2	5.42	38.3	41169	2093
W 18 x 7.5	65	W 460 x 190 x 97	466	193	11.4	19.0	12.7	402.6	5.08	35.3	44723	2283
W 18 x 7.5	71	W 460 x 190 x 106	469	194	12.6	20.6	12.7	402.4	4.71	31.9	49042	2515
W 18 x 7.5	89*	W 460 x 190 x 133	480.6	196.7	15.3	26.3	12.7	402.6	3.74	26.3	64058	3350
W 18 x 7.5	108*	W 460 x 190 x 161	492	199.4	18.0	32.0	12.7	402.6	3.12	22.4	79996	4251
W 18 x 11	76	W 460 x 280 x 113	463	280	10.8	17.3	20.0	388.4	8.09	36.0	56724	6338
W 18 x 11	86	W 460 x 280 x 128	467	282	12.2	19.6	20.0	387.8	7.19	31.8	64820	7337
W 18 x 11	97	W 460 x 280 x 144	472	283	13.6	22.1	20.0	387.8	6.40	28.5	73727	8362
W 18 x 11	106	W 460 x 280 x 158	476	284	15.0	23.9	20.0	388.2	5.94	25.9	80756	9142
W 18 x 11	119	W 460 x 280 x 177	482	286	16.6	26.9	20.0	388.2	5.32	23.4	92134	10511
W 18 x 11	130	W 460 x 280 x 193	489	283	17.0	30.5	20.0	388.0	4.64	22.8	103476	11545
W 18 x 11	143	W 460 x 280 x 213	495	285	18.5	33.5	20.0	388.0	4.25	21.0	115446	12954
W 18 x 11	158	W 460 x 280 x 235	501	287	20.6	36.6	20.0	387.8	3.92	18.8	128452	14459
W 18 x 11	175	W 460 x 280 x 260	509	289	22.6	40.4	20.0	388.2	3.58	17.2	144803	16303
W 18 x 11	192	W 460 x 280 x 286	517	291	24.4	44.4	20.0	388.2	3.28	15.9	162187	18297
W 18 x 11	211	W 460 x 280 x 315	525	293	26.9	48.5	20.0	388.0	3.02	14.4	180967	20414
W 21 x 6.5	44	W 530 x 165 x 66	525	165	8.9	11.4	12.7	476.8	7.24	53.6	35060	857
W 21 x 6.5	50	W 530 x 165 x 74	529	166	9.7	13.6	12.7	476.4	6.10	49.1	41058	1042
W 21 x 6.5	57	W 530 x 165 x 85	535	166	10.3	16.5	12.7	476.6	5.03	46.3	48542	1263
W 21 x 8.25	55	W 530 x 210 x 82	528	209	9.5	13.3	12.7	476.0	7.86	50.1	47657	2028
W 21 x 8.25	62	W 530 x 210 x 92	533	209	10.2	15.6	12.7	476.4	6.70	46.7	55246	2379
W 21 x 8.25	68	W 530 x 210 x 101	537	210	10.9	17.4	12.7	476.8	6.03	43.7	61703	2692
W 21 x 8.25	73	W 530 x 210 x 109	539	211	11.6	18.8	12.7	476.0	5.61	41.0	66732	2951
W 21 x 8.25	83	W 530 x 210 x 123	544	212	13.1	21.2	12.7	476.2	5.00	36.4	76083	3377
W 21 x 8.25	93	W 530 x 210 x 138	549	214	14.7	23.6	12.7	476.4	4.53	32.4	86084	3870
W 21 x 12.25	101	W 530 x 310 x 150	543	312	12.7	20.3	12.7	477.0	7.68	37.6	100840	10285
W 21 x 12.25	111	W 530 x 310 x 165	546	313	14.0	22.2	12.7	476.2	7.05	34.0	110955	11359
W 21 x 12.25	122	W 530 x 310 x 182	551	315	15.2	24.4	12.7	476.8	6.45	31.4	123542	12727

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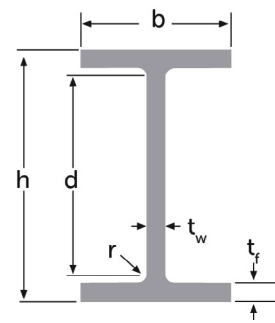


Design parameters

Radius of gyration		Elastic modulus		Plastic modulus		Buckling parameter	Torsional index	Warping constant	Torsional constant	Area of section	Designation serial size	Mass per foot
Axis	Axis	Axis	Axis	Axis	Axis							
y-y	z-z	y-y	z-z	y-y	z-z	u	x	H	J			
cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴	cm ²	in	lb/ft
16.4	3.05	908	89	1040	139	0.871	33.4	0.246	30.4	68.4	W 16 x 5.5	35*
16.6	3.84	932	114	1055	177	0.874	37.7	0.388	23.8	68.6	W 16 x 7	36
16.9	3.97	1069	135	1204	209	0.882	33.3	0.468	34.2	76.3	W 16 x 7	40
16.9	3.99	1206	154	1365	239	0.881	29.8	0.540	48.7	86.5	W 16 x 7	45
17.0	4.03	1340	173	1521	269	0.881	27.1	0.614	65.9	95.9	W 16 x 7	50
17.1	4.07	1521	199	1735	310	0.881	24.1	0.717	95.3	109	W 16 x 7	57
17.7	6.24	1925	381	2139	582	0.888	25.2	1.96	102	127	W 16 x 10.25	67
17.8	6.25	2206	439	2466	671	0.887	22.3	2.30	152	146	W 16 x 10.25	77
17.5	6.12	2607	513	2968	794	0.875	19.0	2.74	260	180	W 16 x 10.25	89
18.0	2.38	2878	586	3257	900	0.887	17.5	3.20	327	191	W 16 x 10.25	100
17.9	3.08	953	83	1099	132	0.859	43.1	0.306	22.2	66.8	W 18 x 6	35
18.4	3.23	1130	104	1295	163	0.870	36.9	0.388	35.1	76.4	W 18 x 6	40
18.5	3.27	1304	122	1499	192	0.870	32.3	0.463	52.9	87.8	W 18 x 6	46
18.6	3.32	1424	136	1637	213	0.873	29.7	0.518	68.2	95.0	W 18 x 6	50*
18.7	3.36	1580	153	1822	241	0.874	27.0	0.592	92.0	105	W 18 x 6	55*
18.6	4.11	1306	153	1481	238	0.873	37.2	0.705	38.7	86.0	W 18 x 7.5	45*
18.8	4.18	1465	175	1661	271	0.878	33.4	0.813	53.5	95.0	W 18 x 7.5	50
18.8	4.21	1618	195	1840	303	0.878	30.5	0.918	71.3	105	W 18 x 7.5	55
19.0	4.28	1778	218	2023	339	0.880	27.9	1.04	93.3	114	W 18 x 7.5	60
19.0	4.30	1919	237	2191	369	0.879	26.1	1.14	116	124	W 18 x 7.5	65
19.0	4.31	2091	259	2398	406	0.878	24.2	1.26	149	135	W 18 x 7.5	71
19.4	4.43	2666	341	3080	535	0.880	19.4	1.73	298	170	W 18 x 7.5	89*
19.7	4.54	3252	426	3789	672	0.882	16.3	2.25	524	206	W 18 x 7.5	108*
19.7	6.58	2450	453	2727	694	0.887	26.5	3.15	132	147	W 18 x 11	76
19.8	6.64	2776	520	3103	799	0.887	23.7	3.67	189	166	W 18 x 11	86
19.9	6.69	3124	591	3508	908	0.887	21.3	4.23	266	187	W 18 x 11	97
19.9	6.70	3393	644	3829	992	0.885	19.9	4.67	337	203	W 18 x 11	106
20.1	6.78	3823	735	4335	1134	0.886	17.9	5.44	473	228	W 18 x 11	119
20.4	6.81	4232	816	4808	1256	0.891	16.2	6.07	641	249	W 18 x 11	130
20.5	6.88	4664	909	5326	1402	0.892	14.9	6.90	843	274	W 18 x 11	143
20.6	6.92	5128	1008	5893	1557	0.890	13.7	7.80	1106	302	W 18 x 11	158
20.8	6.99	5690	1128	6579	1747	0.890	12.6	8.95	1479	334	W 18 x 11	175
21.0	7.07	6274	1258	7297	1949	0.891	11.6	10.2	1942	366	W 18 x 11	192
21.2	7.12	6894	1393	8076	2165	0.890	10.7	11.6	2537	403	W 18 x 11	211
20.5	3.20	1336	104	1562	166	0.847	47.0	0.565	32.0	83.7	W 21 x 6.5	44
20.8	3.31	1552	125	1809	200	0.853	41.1	0.692	48.0	95.2	W 21 x 6.5	50
21.2	3.42	1815	152	2104	242	0.862	35.5	0.849	73.7	108	W 21 x 6.5	57
21.3	4.40	1805	194	2062	303	0.866	41.4	1.34	51.8	105	W 21 x 8.25	55
21.7	4.49	2073	228	2363	355	0.871	36.4	1.59	76.2	118	W 21 x 8.25	62
21.9	4.56	2298	256	2620	400	0.874	33.2	1.82	102	129	W 21 x 8.25	68
21.9	4.61	2476	280	2827	436	0.875	30.9	2.00	126	139	W 21 x 8.25	73
22.0	4.64	2797	319	3208	499	0.874	27.6	2.31	180	157	W 21 x 8.25	83
22.1	4.69	3136	362	3613	569	0.874	24.9	2.67	250	176	W 21 x 8.25	93
22.9	7.32	3714	659	4146	1009	0.885	27.9	7.03	216	192	W 21 x 12.25	101
23.0	7.34	4064	726	4555	1113	0.885	25.6	7.79	283	211	W 21 x 12.25	111
23.1	7.42	4484	808	5040	1241	0.885	23.4	8.82	374	231	W 21 x 12.25	122

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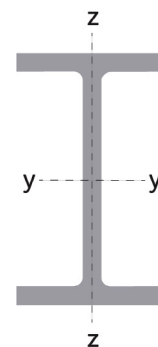


Design parameters

Designation serial size	Mass per foot	ASTM metric equivalent	Depth of section	Width of section	Thickness		Root radius	Depth between fillets	Ratios for local buckling		Second moment of area	
					of web	of flange			Flange	Web	Axis	Axis
					t_w	t_f			B/2T	d/t	y-y cm ⁴	z-z cm ⁴
in	lb/ft		h mm	b mm	mm	mm	r mm	d mm				
W 21 x 12.25	132	W 530 x 310 x 196	554	316	16.5	26.3	12.7	476.0	6.01	28.8	133993	13852
W 21 x 12.25	147	W 530 x 310 x 219	560	318	18.3	29.2	12.7	476.2	5.45	26.0	151040	15678
W 21 x 12.25	166	W 530 x 310 x 248	571	315	19.0	34.5	12.7	476.6	4.57	25.1	177499	18003
W 21 x 12.25	182	W 530 x 310 x 272	577	317	21.1	37.6	12.7	476.4	4.22	22.6	196746	20004
W 24 x 7	55	W 610 x 182 x 82	599	178	10.0	12.8	20.0	533.4	6.95	53.3	57599	1211
W 24 x 7	62	W 610 x 182 x 92	603	179	10.9	15.0	20.0	533.0	5.97	48.9	66247	1444
W 24 x 7	67*	W 610 x 182 x 100	607	179.2	11.3	17.2	20.0	532.6	5.21	47.1	74032	1661
W 24 x 9	68	W 610 x 230 x 101	603	228	10.5	14.9	20.0	533.2	7.65	50.8	77973	2953
W 24 x 9	76	W 610 x 230 x 113	608	228	11.2	17.3	20.0	533.4	6.59	47.6	89166	3428
W 24 x 9	84	W 610 x 230 x 125	612	229	11.9	19.6	20.0	532.8	5.84	44.8	100153	3935
W 24 x 9	94	W 610 x 230 x 140	617	230	13.1	22.2	20.0	532.6	5.18	40.7	113586	4517
W 24 x 12	100*	W 610 x 300 x 149	612.4	304.8	11.8	19.7	20.0	533.0	7.74	45.2	126738	9309
W 24 x 12	120*	W 610 x 300 x 179	620.2	307.1	14.4	23.6	20.0	533.0	6.51	37.0	154357	11411
W 24 x 12	160*	W 610 x 300 x 238	635.8	311.4	18.4	31.4	20.0	533.0	4.96	29.0	210333	15839
W 24 x 12.75	104	W 610 x 325 x 155	611	324	12.7	19.0	20.0	533.0	8.53	42.0	130552	10785
W 24 x 12.75	117	W 610 x 325 x 174	616	325	14.0	21.6	20.0	532.8	7.52	38.1	148722	12376
W 24 x 12.75	131	W 610 x 325 x 195	622	327	15.4	24.4	20.0	533.2	6.70	34.6	169453	14242
W 24 x 12.75	146	W 610 x 325 x 217	628	328	16.5	27.7	20.0	532.6	5.92	32.3	192362	16319
W 24 x 12.75	162	W 610 x 325 x 241	635	329	17.9	31.0	20.0	533.0	5.31	29.8	216996	18433
W 24 x 12.75	176	W 610 x 325 x 262	641	327	19.0	34.0	20.0	533.0	4.81	28.1	237554	19854
W 24 x 12.75	192	W 610 x 325 x 285	647	329	20.6	37.1	20.0	532.8	4.43	25.9	262288	22069
W 24 x 12.75	207	W 610 x 325 x 307	653	330	22.1	39.9	20.0	533.2	4.14	24.1	285235	23958
W 24 x 12.75	229	W 610 x 325 x 341	661	333	24.4	43.9	20.0	533.2	3.79	21.9	319846	27097
W 24 x 12.75	250	W 610 x 325 x 372	669	335	26.4	48.0	20.0	533.0	3.49	20.2	354794	30175
W 27 x 10	84	W 690 x 250 x 125	678	253	11.7	16.3	20.0	605.4	7.76	51.7	119989	4412
W 27 x 10	94	W 690 x 250 x 140	684	254	12.4	18.9	20.0	606.2	6.72	28.3	157815	5223
W 27 x 10	102	W 690 x 250 x 152	688	254	13.1	21.1	20.0	605.8	6.02	46.2	152106	5780
W 27 x 10	114	W 690 x 250 x 170	693	256	14.5	23.6	20.0	605.8	5.42	41.8	171444	6621
W 30 x 10.5	90	W 760 x 265 x 134	750	264	11.9	15.5	20.0	679.0	8.52	57.1	151584	4768
W 30 x 10.5	99	W 760 x 265 x 147	753	265	13.2	17.0	20.0	679.0	7.79	51.4	167254	5291
W 30 x 10.5	108	W 760 x 265 x 161	758	266	13.8	19.3	20.0	679.4	6.89	49.2	187252	6075
W 30 x 10.5	116	W 760 x 265 x 173	762	267	14.4	21.6	20.0	678.8	6.18	47.1	207014	6875
W 30 x 10.5	124	W 760 x 265 x 185	766	267	14.9	23.6	20.0	678.8	5.66	45.6	224146	7512
W 30 x 10.5	132	W 760 x 265 x 196	770	268	15.6	25.4	20.0	679.2	5.28	43.5	241470	8177
W 33 x 11.5	118	W 840 x 295 x 176	835	292	14.0	18.8	20.0	757.4	7.77	54.1	247376	7824
W 33 x 11.5	130	W 840 x 295 x 193	840	292	14.7	21.7	20.0	756.6	6.73	51.5	279447	9031
W 33 x 11.5	141	W 840 x 295 x 210	846	293	15.4	24.4	20.0	757.2	6.00	49.2	311719	10259
W 33 x 11.5	152	W 840 x 295 x 226	851	294	16.1	26.8	20.0	757.4	5.49	47.0	341076	11384
W 36 x 12	135	W 920 x 310 x 201	903	304	15.2	20.1	19.1	824.6	7.56	54.3	325268	9442
W 36 x 12	150	W 920 x 310 x 223	911	304	15.9	23.9	19.1	825.0	6.36	51.9	376892	11225
W 36 x 12	160	W 920 x 310 x 238	915	305	16.5	25.9	19.1	825.0	5.89	50.0	406472	12285
W 36 x 12	170	W 920 x 310 x 253	919	306	17.3	27.9	19.1	825.0	5.48	47.7	437515	13366

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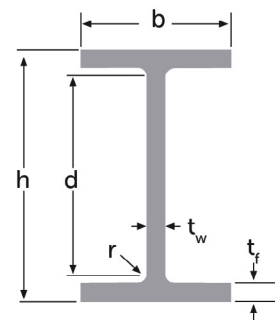


Design parameters

Radius of gyration		Elastic modulus		Plastic modulus		Buckling parameter	Torsional index	Warping constant	Torsional constant	Area of section	Designation serial size	Mass per foot
Axis	Axis	Axis	Axis	Axis	Axis							
y-y	z-z	y-y	z-z	y-y	z-z							
cm	cm	cm ³	cm ³	cm ³	cm ³	u	x	H dm ⁶	J cm ⁴	cm ²	in	lb/ft
23.1	7.44	4837	877	5457	1349	0.884	21.8	9.64	470	250	W 21 x 12.25	132
23.3	7.50	5394	986	6114	1520	0.884	19.8	11.0	642	279	W 21 x 12.25	147
23.8	7.57	6217	1143	7062	1759	0.891	17.2	13.0	977	314	W 21 x 12.25	166
23.9	7.61	6820	1262	7792	1947	0.890	15.9	14.6	1277	346	W 21 x 12.25	182
23.3	3.38	1923	136	2255	220	0.846	45.3	1.04	57.0	106	W 24 x 7	55
23.5	3.47	2197	161	2571	260	0.850	40.4	1.25	81.1	120	W 24 x 7	62
23.9	3.58	2439	185	2841	298	0.857	36.8	1.44	107	130	W 24 x 7	67*
24.3	4.74	2586	259	2958	406	0.866	40.7	2.55	87.9	132	W 24 x 9	68
24.7	4.84	2933	301	3348	471	0.871	36.4	2.99	124	147	W 24 x 9	76
24.9	4.94	3273	344	3732	537	0.875	32.8	3.45	168	161	W 24 x 9	84
25.1	5.00	3682	393	4208	615	0.876	29.5	4.00	236	181	W 24 x 9	94
25.8	6.98	4139.1	610.9	4624.7	938.3	0.887	32.2	8.18	208	191	W 24 x 12	100*
25.9	7.03	4977.6	743.2	5603.1	1146.2	0.885	27.2	10.2	355	231	W 24 x 12	120*
26.3	7.21	6616.3	1017.3	7517.3	1575.3	0.886	21.1	14.5	803	304	W 24 x 12	160*
25.6	7.36	4273	666	4784	1024	0.881	32.7	9.45	210	199	W 24 x 12.75	104
25.8	7.43	4829	762	5418	1172	0.883	29.2	10.9	298	224	W 24 x 12.75	117
26.0	7.53	5449	871	6130	1342	0.884	26.2	12.7	418	251	W 24 x 12.75	131
26.2	7.64	6126	995	6904	1533	0.887	23.5	14.7	586	280	W 24 x 12.75	146
26.5	7.71	6835	1121	7727	1728	0.889	21.3	16.8	802	310	W 24 x 12.75	162
26.6	7.70	7412	1214	8405	1874	0.890	19.6	18.3	1028	335	W 24 x 12.75	176
26.8	7.77	8108	1342	9231	2073	0.890	18.1	20.5	1329	366	W 24 x 12.75	192
26.9	7.80	8736	1452	9985	2248	0.890	17.0	22.5	1646	393	W 24 x 12.75	207
27.1	7.89	9678	1627	11123	2525	0.890	15.6	25.8	2196	436	W 24 x 12.75	229
27.3	7.96	10607	1802	12250	2799	0.890	14.4	29.1	2850	476	W 24 x 12.75	250
27.3	5.23	3540	349	4057	547	0.863	42.4	4.83	126	161	W 27 x 10	84
25.8	4.69	4614	411	5537	689	0.830	30.3	5.78	366	238	W 27 x 10	94
27.9	5.44	4422	455	5050	712	0.872	34.6	6.43	232	195	W 27 x 10	102
28.0	5.51	4948	517	5666	811	0.873	31.3	7.42	319	218	W 27 x 10	114
29.8	5.28	4042	361	4666	569	0.856	48.8	6.43	124	171	W 30 x 10.5	90
29.8	5.30	4442	399	5144	632	0.854	44.8	7.17	163	188	W 30 x 10.5	99
30.2	5.44	4941	457	5700	721	0.860	40.8	8.29	215	205	W 30 x 10.5	108
30.5	5.56	5433	515	6252	811	0.864	37.4	9.42	279	222	W 30 x 10.5	116
30.8	5.64	5852	563	6725	885	0.868	34.9	10.4	343	237	W 30 x 10.5	124
31.0	5.70	6272	610	7208	960	0.869	32.8	11.3	417	252	W 30 x 10.5	132
33.2	5.90	5925	536	6842	844	0.857	46.0	13.0	227	225	W 33 x 11.5	118
33.6	6.04	6654	619	7653	972	0.863	41.2	15.1	312	247	W 33 x 11.5	130
34.0	6.17	7369	700	8456	1098	0.867	37.6	17.3	413	269	W 33 x 11.5	141
34.3	6.27	8016	774	9189	1214	0.870	34.7	19.3	523	289	W 33 x 11.5	152
35.6	6.07	7204	621	8358	982	0.853	46.9	18.4	291	256	W 36 x 12	135
36.3	6.27	8274	738	9541	1162	0.861	41.3	22.1	422	286	W 36 x 12	150
36.6	6.36	8885	806	10231	1267	0.864	38.6	24.3	515	304	W 36 x 12	160
36.8	6.43	9522	874	10964	1375	0.866	36.2	26.5	627	323	W 36 x 12	170

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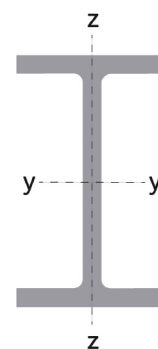


Design parameters

Designation serial size	Mass per foot	ASTM metric equivalent	Depth of section	Width of section	Thickness		Root radius	Depth between fillets	Ratios for local buckling		Second moment of area	
					of web	of flange			Flange	Web	Axis	Axis
					t_w	t_f			B/2T	d/t	y-y cm ⁴	z-z cm ⁴
in	lb/ft		h mm	b mm	t_w mm	t_f mm	r mm	d mm				
W 36 x 12	182	W 920 x 310 x 271	923	307	18.4	30.0	19.1	824.8	5.12	44.8	471633	14518
W 36 x 12	194	W 920 x 310 x 289	927	308	19.4	32.0	19.1	824.8	4.81	42.5	504539	15642
W 36 x 12	210	W 920 x 310 x 313	932	309	21.1	34.5	19.1	824.8	4.48	39.1	548297	17039
W 36 x 16.5	231	W 920 x 420 x 344	927	418	19.3	32.0	19.1	824.8	6.53	42.7	645044	39010
W 36 x 16.5	247	W 920 x 420 x 368	931	419	20.3	34.3	19.1	824.2	6.11	40.6	692286	42119
W 36 x 16.5	262	W 920 x 420 x 390	936	420	21.3	36.6	19.1	824.6	5.74	38.7	741799	45271
W 40 x 12	149	W 1000 x 300 x 222	970	300	16.0	21.1	30.0	867.8	7.11	54.2	407667	9546
W 40 x 12	167	W 1000 x 300 x 249	980	300	16.5	26.0	30.0	868.0	5.77	52.6	481079	11754
W 40 x 12	183	W 1000 x 300 x 272	990	300	16.5	31.0	30.0	868.0	4.84	52.6	553846	14004
W 40 x 12	211	W 1000 x 300 x 314	1000	300	19.1	35.9	30.0	868.2	4.18	45.5	644212	16232
W 40 x 12	235	W 1000 x 300 x 350	1008	302	21.1	40.0	30.0	868.0	3.78	41.1	722965	18460
W 40 x 12	264	W 1000 x 300 x 393	1016	303	24.4	43.9	30.0	868.2	3.45	35.6	807689	20496
W 40 x 12	294	W 1000 x 300 x 438	1026	305	26.9	49.0	30.0	868.0	3.11	32.3	909178	23355
W 40 x 12	327	W 1000 x 300 x 486	1036	308	30.0	54.1	30.0	867.8	2.85	28.9	1019883	26593

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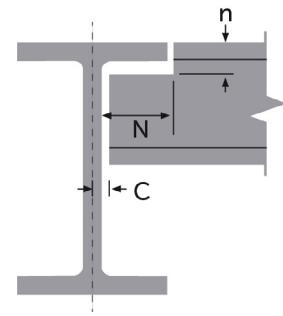


Design parameters

Radius of gyration		Elastic modulus		Plastic modulus		Buckling parameter	Torsional index	Warping constant	Torsional constant	Area of section	Designation serial size	Mass per foot
Axis	Axis	Axis	Axis	Axis	Axis							
y-y	z-z	y-y	z-z	y-y	z-z	u	x	H	J	cm ²	in	lb/ft
cm	cm	cm ³	cm ³	cm ³	cm ³			dm ⁶	cm ⁴			
36.9	6.48	10220	946	11785	1491	0.866	33.9	28.9	770	346	W 36 x 12	182
37.0	6.52	10885	1016	12567	1603	0.867	32.0	31.3	923	368	W 36 x 12	194
37.1	6.54	11766	1103	13631	1747	0.866	29.8	34.3	1162	398	W 36 x 12	210
38.4	9.45	13917	1867	15699	2880	0.882	31.1	78.1	1160	437	W 36 x 16.5	231
38.6	9.51	14872	2010	16796	3104	0.883	29.2	84.7	1409	466	W 36 x 16.5	247
38.7	9.57	15850	2156	17924	3330	0.884	27.5	91.6	1692	494	W 36 x 16.5	262
38.0	5.81	8406	636	9804	1019	0.850	45.7	21.5	390	283	W 40 x 12	149
39.0	6.09	9818	784	11348	1244	0.861	39.8	26.7	582	317	W 40 x 12	167
40.0	6.35	11189	934	12826	1469	0.873	35.0	32.2	835	347	W 40 x 12	183
40.1	6.37	12884	1082	14852	1712	0.872	30.7	37.7	1264	400	W 40 x 12	211
40.3	6.44	14345	1223	16591	1940	0.872	27.9	43.2	1718	445	W 40 x 12	235
40.2	6.40	15899	1353	18541	2167	0.868	25.5	48.4	2330	500	W 40 x 12	264
40.4	6.48	17723	1531	20747	2461	0.868	23.1	55.7	3182	556	W 40 x 12	294
40.6	6.55	19689	1727	23172	2790	0.867	21.1	64.1	4294	619	W 40 x 12	327

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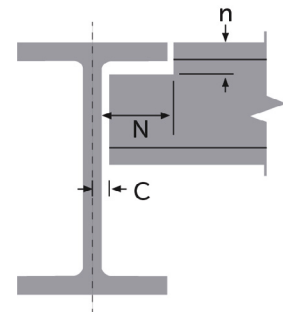


Fabrication detail

Designation serial size	Mass per foot	End clearance	Notch		Surface area			A/V ratio (m ⁻¹)			
					Per metre	Per tonne	Two end faces	Profile 3 sides	Profile 4 sides	Box 3 sides	Box 4 sides
		C	N	n							
in	lb/ft	mm	mm	mm	m ²	m ²	m ²				
W 6 x 6	15	5	84	18	0.883	58.9	0.0058	250	305	155	210
W 6 x 6	20	5	84	20	0.896	44.8	0.0077	195	235	120	160
W 6 x 6	25	6	84	22	0.907	36.3	0.0096	155	190	100	130
W 8 x 5.25	18	5	74	20	0.917	50.9	0.0068	230	270	160	200
W 8 x 5.25	21	5	74	22	0.926	44.1	0.0081	195	230	135	170
W 8 x 8	31	6	108	22	1.19	38.4	0.0117	170	200	105	140
W 8 x 8	35	6	110	24	1.19	34.0	0.0133	150	180	90	125
W 8 x 8	40	7	108	26	1.20	30.0	0.0151	130	160	85	110
W 8 x 8	48	7	108	28	1.22	25.4	0.0182	110	135	70	95
W 8 x 8	58	9	108	32	1.24	21.4	0.0222	95	110	60	80
W 8 x 8	67	9	108	36	1.25	18.7	0.0254	80	100	55	70
W 8 x 8	76*	10	108	38	1.27	16.7	0.0290	75	90	45	60
W 8 x 8	86*	11	108	42	1.28	14.9	0.0324	65	80	45	55
W 10 x 4	15	5	58	18	0.886	59.1	0.0058	270	305	210	245
W 10 x 4	17	5	58	20	0.893	52.5	0.0065	240	275	190	220
W 10 x 4	19	5	58	20	0.900	47.4	0.0073	215	245	170	200
W 10 x 5.75	22	5	80	20	1.07	48.6	0.0084	220	255	155	190
W 10 x 5.75	26	5	80	22	1.08	41.5	0.0099	190	220	135	165
W 10 x 5.75	30	6	80	24	1.09	36.3	0.0115	165	190	120	145
W 10 x 10	49	6	134	36	1.47	30.0	0.0190	130	155	80	105
W 10 x 10	54	7	134	36	1.48	27.4	0.0208	120	140	75	100
W 10 x 10	60	7	134	38	1.49	24.8	0.0232	105	130	65	90
W 10 x 10	68	8	134	40	1.50	22.1	0.0262	95	115	60	80
W 10 x 10	72*	8	134	42	1.51	21.0	0.0276	90	110	55	75
W 10 x 10	77	9	134	44	1.51	19.6	0.0296	85	100	55	70
W 10 x 10	88	10	134	46	1.53	17.4	0.0338	75	90	50	65
W 10 x 10	100	11	134	50	1.55	15.5	0.0384	65	80	45	55
W 10 x 10	112	12	134	52	1.57	14.0	0.0430	60	75	40	50
W 12 x 4	16	5	58	18	0.986	61.6	0.0061	290	320	230	265
W 12 x 4	19	5	58	20	0.997	52.5	0.0073	245	275	195	225
W 12 x 4	22	5	58	22	1.00	45.5	0.0084	215	240	175	195
W 12 x 12	65	7	158	36	1.78	27.4	0.0250	120	145	75	100
W 12 x 12	72	7	158	38	1.79	24.9	0.0276	110	130	65	90
W 12 x 12	79	8	158	40	1.80	22.8	0.0302	100	120	60	80
W 12 x 12	87	9	158	42	1.81	20.8	0.0334	90	110	55	75
W 12 x 12	92*	9	158	42	1.82	19.8	0.0352	85	105	55	70
W 12 x 12	96	9	158	44	1.82	19.0	0.0368	80	100	50	70
W 12 x 12	106	10	158	46	1.83	17.3	0.0404	75	90	50	65
W 12 x 12	120	11	158	50	1.85	15.4	0.0458	65	80	45	55
W 12 x 12	133*	12	158	52	1.87	14.1	0.0508	60	75	40	50
W 12 x 12	136	12	158	52	1.87	13.8	0.0520	60	70	40	50
W 12 x 12	152	13	158	56	1.89	12.4	0.0580	55	65	35	45

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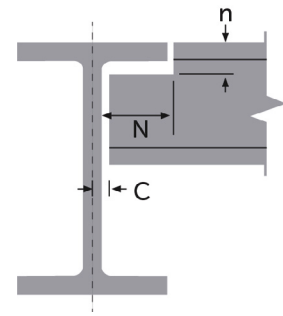


Fabrication detail

Designation serial size	Mass per foot	End clearance	Notch		Surface area			A/V ratio (m ⁻¹)			
					Per metre	Per tonne	Two end faces	Profile 3 sides	Profile 4 sides	Box 3 sides	Box 4 sides
		C	N	n							
in	lb/ft	mm	mm	mm	m ²	m ²	m ²				
W 12 x 12	161*	14	158	58	1.90	11.8	0.0614	50	60	35	45
W 12 x 12	170	14	158	60	1.90	11.2	0.0648	50	60	30	40
W 12 x 12	190	15	158	66	1.93	10.2	0.0724	45	55	30	40
W 14 x 6.75	30	5	94	24	1.35	45.0	0.0116	205	235	150	180
W 14 x 6.75	34	6	92	26	1.36	40.0	0.0130	185	210	135	160
W 14 x 6.75	38	6	94	26	1.37	36.1	0.0145	165	190	120	145
W 14 x 6.75	45*	7	94	30	1.38	30.7	0.0172	140	160	105	125
W 14 x 14.5	87*	7	190	38	2.13	24.5	0.0332	105	130	65	85
W 14 x 14.5	90	8	190	38	2.13	23.7	0.0344	100	125	65	85
W 14 x 14.5	99	8	190	40	2.14	21.6	0.0378	95	115	60	75
W 14 x 14.5	103*	8	190	42	2.15	20.9	0.0392	90	110	55	75
W 14 x 14.5	109	9	190	42	2.15	19.7	0.0416	85	105	55	70
W 14 x 14.5	119*	9	190	44	2.16	18.2	0.0454	80	95	50	65
W 14 x 14.5	120	10	190	44	2.17	18.1	0.0460	80	95	50	65
W 14 x 14.5	132	10	190	48	2.17	16.4	0.0504	70	85	45	60
W 14 x 14.5	136*	10	190	48	2.18	16.0	0.0518	70	85	45	60
W 14 x 16	145	11	200	48	2.26	15.6	0.0554	65	80	40	55
W 14 x 16	158*	11	200	52	2.27	14.4	0.0602	60	75	40	50
W 14 x 16	159	11	200	52	2.27	14.3	0.0604	60	75	40	50
W 14 x 16	176	13	200	54	2.29	13.0	0.0672	55	70	35	45
W 14 x 16	193	13	200	58	2.30	11.9	0.0736	50	65	30	45
W 14 x 16	211	14	200	60	2.32	11.0	0.0802	50	60	30	40
W 14 x 16	228*	15	200	64	2.34	10.3	0.0868	45	55	30	35
W 14 x 16	233	16	200	64	2.34	10.0	0.0886	45	55	25	35
W 14 x 16	257	17	200	68	2.36	9.18	0.0978	40	50	25	35
W 14 x 16	264*	17	200	70	2.37	9.0	0.100	40	45	25	35
W 14 x 16	283	18	200	74	2.39	8.45	0.108	35	45	25	30
W 14 x 16	311	20	200	78	2.41	7.75	0.118	35	40	20	30
W 14 x 16	314*	20	200	78	2.42	7.7	0.119	35	40	20	30
W 14 x 16	320*	26	200	74	2.42	7.6	0.122	35	40	20	30
W 14 x 16	342	22	200	84	2.44	7.13	0.130	30	40	20	25
W 14 x 16	370	23	198	88	2.46	6.65	0.141	30	35	20	25
W 14 x 16	398	25	198	94	2.49	6.26	0.151	25	35	20	25
W 14 x 16	426	26	200	98	2.51	5.89	0.162	25	30	15	20
W 14 x 16	455	28	200	102	2.54	5.58	0.173	25	30	15	20
W 14 x 16	500	30	200	110	2.58	5.16	0.190	25	25	15	20
W 14 x 16	550	32	200	118	2.62	4.76	0.209	20	25	15	20
W 14 x 16	605	35	200	126	2.66	4.40	0.230	20	25	15	15
W 14 x 16	665	38	200	136	2.71	4.08	0.253	20	20	10	15
W 14 x 16	730	41	198	146	2.76	3.78	0.277	15	20	10	15
W 16 x 5.5	26	5	78	22	1.33	51.2	0.0101	235	265	185	215
W 16 x 5.5	31	6	78	24	1.33	42.9	0.0119	200	225	160	185

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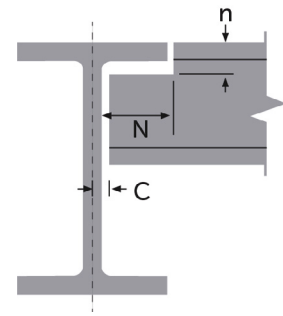


Fabrication detail

Designation serial size	Mass per foot	End clearance	Notch		Surface area			A/V ratio (m ⁻¹)			
					Per metre	Per tonne	Two end faces	Profile 3 sides	Profile 4 sides	Box 3 sides	Box 4 sides
		C	N	n							
in	lb/ft	mm	mm	mm	m ²	m ²	m ²				
W 16 x 5.5	35*	6	78	26	1.35	38.6	0.0137	175	195	140	160
W 16 x 7	36	6	96	24	1.48	41.1	0.0137	190	215	145	170
W 16 x 7	40	6	96	26	1.49	37.3	0.0153	170	195	130	155
W 16 x 7	45	6	96	28	1.50	33.3	0.0173	150	175	115	135
W 16 x 7	50	7	96	30	1.50	30.0	0.0192	140	155	105	125
W 16 x 7	57	7	96	32	1.51	26.5	0.0218	125	140	95	110
W 16 x 10.25	67	7	136	30	1.83	27.3	0.0254	125	145	85	105
W 16 x 10.25	77	8	136	32	1.84	23.9	0.0292	110	125	75	95
W 16 x 10.25	89	10	134	36	1.85	20.8	0.0360	90	105	60	75
W 16 x 10.25	100	9	136	38	1.87	18.7	0.0382	85	100	60	75
W 18 x 6	35	6	84	24	1.47	42.0	0.0134	200	220	160	180
W 18 x 6	40	6	84	26	1.48	37.0	0.0153	175	195	140	160
W 18 x 6	46	7	84	30	1.49	32.4	0.0176	155	170	120	140
W 18 x 6	50*	7	84	30	1.50	30.0	0.0190	140	160	115	130
W 18 x 6	55*	7	84	32	1.51	27.5	0.0210	130	145	105	120
W 18 x 7.5	45*	6	102	26	1.63	36.2	0.0172	165	190	130	150
W 18 x 7.5	50	7	102	28	1.63	32.6	0.0190	150	170	115	135
W 18 x 7.5	55	7	102	30	1.64	29.8	0.0210	140	155	105	125
W 18 x 7.5	60	7	102	32	1.65	27.5	0.0228	130	145	100	115
W 18 x 7.5	65	8	102	32	1.66	25.5	0.0248	120	135	90	105
W 18 x 7.5	71	8	102	34	1.67	23.5	0.0270	110	125	85	100
W 18 x 7.5	89*	10	102	40	1.70	19.1	0.0340	90	100	70	80
W 18 x 7.5	108*	11	102	46	1.72	15.9	0.0412	75	85	55	65
W 18 x 11	76	7	146	38	1.99	26.2	0.0294	115	135	80	100
W 18 x 11	86	8	146	40	2.00	23.3	0.0332	105	120	75	90
W 18 x 11	97	9	146	44	2.01	20.7	0.0374	95	110	65	80
W 18 x 11	106	10	146	44	2.02	19.1	0.0406	85	100	60	75
W 18 x 11	119	10	146	48	2.04	17.1	0.0456	75	90	55	65
W 18 x 11	130	11	144	52	2.04	15.7	0.0498	70	80	50	60
W 18 x 11	143	11	144	54	2.06	14.4	0.0548	65	75	45	55
W 18 x 11	158	12	144	58	2.07	13.1	0.0604	60	70	45	50
W 18 x 11	175	13	144	62	2.09	11.9	0.0668	55	65	40	50
W 18 x 11	192	14	144	66	2.11	11.0	0.0732	50	60	35	45
W 18 x 11	211	15	144	70	2.13	10.1	0.0806	45	55	35	40
W 21 x 6.5	44	6	90	26	1.67	38.0	0.0167	180	200	145	165
W 21 x 6.5	50	7	90	28	1.68	33.6	0.0190	160	175	130	145
W 21 x 6.5	57	7	88	30	1.69	29.6	0.0216	140	155	115	130
W 21 x 8.25	55	7	110	26	1.85	33.6	0.0210	155	175	120	140
W 21 x 8.25	62	7	110	30	1.86	30.0	0.0236	140	160	110	125
W 21 x 8.25	68	7	110	32	1.87	27.5	0.0258	130	145	100	115
W 21 x 8.25	73	8	110	32	1.88	25.8	0.0278	120	135	95	110
W 21 x 8.25	83	9	110	34	1.89	22.8	0.0314	105	120	85	95

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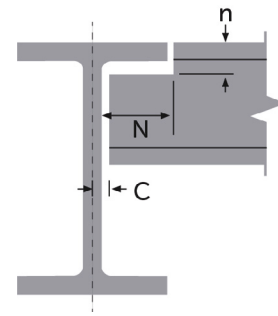


Fabrication detail

Designation serial size	Mass per foot	End clearance	Notch		Surface area			A/V ratio (m ⁻¹)			
					Per metre	Per tonne	Two end faces	Profile 3 sides	Profile 4 sides	Box 3 sides	Box 4 sides
		C	N	n							
in	lb/ft	mm	mm	mm	m ²	m ²	m ²				
W 21 x 8.25	93	9	110	38	1.90	20.4	0.0352	95	110	75	85
W 21 x 12.25	101	8	160	34	2.29	22.7	0.0384	105	120	75	90
W 21 x 12.25	111	9	160	36	2.29	20.6	0.0422	95	110	65	80
W 21 x 12.25	122	10	160	38	2.31	18.9	0.0462	85	100	60	75
W 21 x 12.25	132	10	160	40	2.32	17.6	0.0500	80	95	55	70
W 21 x 12.25	147	11	160	42	2.33	15.9	0.0558	70	85	50	65
W 21 x 12.25	166	12	158	48	2.34	14.1	0.0628	65	75	45	55
W 21 x 12.25	182	13	158	52	2.36	13.0	0.0692	60	70	45	50
W 24 x 7	55	7	94	34	1.86	33.8	0.0212	160	175	130	145
W 24 x 7	62	7	96	36	1.87	30.2	0.0240	140	155	115	130
W 24 x 7	67*	8	94	38	1.87	27.9	0.0260	130	145	105	120
W 24 x 9	68	7	120	36	2.06	30.3	0.0264	140	155	110	125
W 24 x 9	76	8	120	38	2.07	27.2	0.0294	125	140	100	115
W 24 x 9	84	8	120	40	2.08	24.8	0.0322	115	130	90	105
W 24 x 9	94	9	120	44	2.09	22.2	0.0362	105	115	80	95
W 24 x 12	100*	7.9	158	40	2.39	23.9	0.0382	110	125	80	95
W 24 x 12	120*	9.2	158	44	2.41	20.1	0.0462	90	105	65	80
W 24 x 12	160*	11.2	158	52	2.45	15.3	0.0608	70	80	50	60
W 24 x 12.75	104	8	166	40	2.46	23.7	0.0398	105	125	80	95
W 24 x 12.75	117	9	166	42	2.47	21.1	0.0448	95	110	70	85
W 24 x 12.75	131	10	166	46	2.49	19.0	0.0502	85	100	65	75
W 24 x 12.75	146	10	166	48	2.50	17.1	0.0560	80	90	55	70
W 24 x 12.75	162	11	166	52	2.52	15.6	0.0620	70	80	50	60
W 24 x 12.75	176	12	164	54	2.52	14.3	0.0670	65	75	50	60
W 24 x 12.75	192	12	166	58	2.53	13.2	0.0732	60	70	45	55
W 24 x 12.75	207	13	164	60	2.55	12.3	0.0786	55	65	40	50
W 24 x 12.75	229	14	166	64	2.57	11.2	0.0872	50	60	40	45
W 24 x 12.75	250	15	166	68	2.59	10.4	0.0952	45	55	35	40
W 27 x 10	84	8	132	38	2.31	27.5	0.0322	125	145	100	115
W 27 x 10	94	13	128	40	2.31	24.6	0.0476	85	95	70	80
W 27 x 10	102	9	132	42	2.33	22.8	0.0390	105	120	85	95
W 27 x 10	114	9	132	44	2.35	20.6	0.0436	95	110	75	85
W 30 x 10.5	90	8	138	36	2.50	27.8	0.0342	130	145	105	120
W 30 x 10.5	99	9	136	38	2.51	25.4	0.0376	120	135	95	110
W 30 x 10.5	108	9	138	40	2.52	23.3	0.0410	110	125	85	100
W 30 x 10.5	116	9	138	42	2.53	21.8	0.0444	100	115	80	95
W 30 x 10.5	124	9	138	44	2.54	20.5	0.0474	95	105	75	85
W 30 x 10.5	132	10	138	46	2.55	19.3	0.0504	90	100	70	80
W 33 x 11.5	118	9	150	40	2.78	23.6	0.0450	110	125	85	100
W 33 x 11.5	130	9	150	42	2.78	21.4	0.0494	100	115	80	90
W 33 x 11.5	141	10	150	46	2.80	19.9	0.0538	95	105	75	85
W 33 x 11.5	152	10	150	48	2.81	18.5	0.0578	85	95	70	80

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Fabrication detail

Designation serial size	Mass per foot	End clearance	Notch			Surface area			A/V ratio (m ⁻¹)			
						Per metre	Per tonne	Two end faces	Profile 3 sides	Profile 4 sides	Box 3 sides	Box 4 sides
in	lb/ft	C mm	N mm	n mm	m ²	m ²	m ²					
W 36 x 12	135	10	156	40	2.96	21.9	0.0512	105	115	80	95	
W 36 x 12	150	10	156	44	2.97	19.8	0.0572	95	105	75	85	
W 36 x 12	160	10	156	46	2.98	18.6	0.0608	90	100	70	80	
W 36 x 12	170	11	156	48	2.99	17.6	0.0646	85	95	65	75	
W 36 x 12	182	11	156	50	3.00	16.5	0.0692	80	85	60	70	
W 36 x 12	194	12	156	52	3.01	15.5	0.0736	75	80	60	65	
W 36 x 12	210	13	154	54	3.03	14.4	0.0796	70	75	55	60	
W 36 x 16.5	231	12	210	52	3.45	14.9	0.0874	70	80	50	60	
W 36 x 16.5	247	12	210	54	3.46	14.0	0.0932	65	75	50	60	
W 36 x 16.5	262	13	210	56	3.48	13.3	0.0988	60	70	45	55	
W 40 x 12	149	10	152	52	3.06	20.5	0.0566	95	110	80	90	
W 40 x 12	167	10	152	56	3.08	18.4	0.0634	90	95	70	80	
W 40 x 12	183	10	152	62	3.10	16.9	0.0694	80	90	65	75	
W 40 x 12	211	12	152	66	3.11	14.7	0.0800	70	80	55	65	
W 40 x 12	235	13	152	70	3.13	13.3	0.0890	65	70	50	60	
W 40 x 12	264	14	150	74	3.14	11.9	0.100	55	65	45	55	
W 40 x 12	294	15	150	80	3.17	10.8	0.111	50	55	40	50	
W 40 x 12	327	17	150	86	3.19	9.76	0.124	45	50	40	45	

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BRITISHSTEEL.CO.UK/CONSTRUCTION

A | PO Box 1, Brigg Road, Scunthorpe, North Lincolnshire, DN16 1BP
T | +44 (0)1724 404040 E | construction@britishsteel.co.uk

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