

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Source Reference Number*	Wt. per ft lb	Area	Depth	Web Thickness	Flange Width	Average Flange Thickness	Distance	Distance
			A	d	t _w	b _f	t _f	T	k
			in. ²	in.	in.	in.	in.	in.	in.
H11s	1	46.8	13.76	10.75	0.360	9.000	0.572	8.475	1.137
H11s	1	43.3	12.73	10.75	0.360	8.040	0.577	8.475	1.137
H11s	1	38.4	11.30	10.63	0.320	8.000	0.515	8.474	1.075
H10/12	6	246.0	72.30	13.00	1.220	14.570	2.107	7.693	2.654
H10/12	6	238.0	70.04	12.88	1.180	14.530	2.047	7.688	2.594
H10/12	6	230.0	67.77	12.75	1.150	14.500	1.982	7.693	2.529
H10/12	6	222.0	65.38	12.63	1.110	14.460	1.917	7.698	2.464
H10/12	6	215.0	63.27	12.50	1.080	14.430	1.857	7.693	2.404
H10/12	6	208.0	61.17	12.38	1.050	14.400	1.797	7.688	2.344
H10/12	6	200.0	58.80	12.25	1.010	14.360	1.732	7.693	2.279
H10/12	6	192.0	56.45	12.13	0.970	14.320	1.667	7.698	2.214
H10/12	6	185.0	54.37	12.00	0.940	14.290	1.607	7.693	2.154
H10/12	6	177.0	52.18	11.88	0.900	14.250	1.547	7.688	2.094
H10/12	6	170.0	49.98	11.75	0.870	14.220	1.482	7.693	2.029
H10/12	6	162.0	47.78	11.63	0.840	14.190	1.417	7.698	1.964
H10a	1	155.2	45.64	12.00	1.020	11.320	1.622	7.693	2.154
H10/12	6	155.0	45.62	11.50	0.800	14.150	1.357	7.693	1.904
H10a	1	148.8	43.75	11.88	0.980	11.280	1.560	7.692	2.092
H10/12	6	148.0	43.46	11.38	0.760	14.110	1.297	7.688	1.844
H10a	1	142.4	41.87	11.75	0.940	11.240	1.497	7.693	2.029
H10/12	6	140.0	41.29	11.25	0.730	14.080	1.232	7.693	1.779
CB105	10	140.0	41.17	10.00	1.777	13.177	1.016	6.643	1.679
H10	5 6	136.5	40.08	11.75	0.940	10.550	1.500	7.693	2.029
H10	4	136.5	39.88	11.75	0.940	10.550	1.500	7.693	2.029
10WF	7 8 13	136.0	40.03	11.88	0.915	10.575	1.498	7.759	2.061
CB103N	12	136.0	40.01	11.88	0.915	10.575	1.498	7.659	2.111
H10a	1	136.0	40.00	11.63	0.900	11.200	1.435	7.692	1.967
H10/12	6	133.0	39.02	11.13	0.690	14.040	1.167	7.698	1.714
CB105	10	132.0	38.81	10.00	1.541	12.941	1.016	6.643	1.679
H10	5 6	130.0	38.30	11.63	0.900	10.510	1.438	7.692	1.967
H10	7	130.0	38.24	11.75	0.880	10.540	1.433	7.759	1.996
CB103N	12	130.0	38.23	11.75	0.880	10.540	1.433	7.659	2.046
H10	4	130.0	38.09	11.63	0.900	10.510	1.438	7.692	1.967
H10a	1	129.7	38.14	11.50	0.860	11.160	1.372	7.693	1.904
H10/12	6	125.0	36.89	11.00	0.650	14.000	1.107	7.693	1.654
H10	5 6	124.0	36.52	11.50	0.860	10.470	1.375	7.693	1.904
10WF	7 8 13	124.0	36.46	11.62	0.845	10.505	1.368	7.759	1.931
CB105	10	124.0	36.46	10.00	1.306	12.706	1.016	6.643	1.679
CB103N	12	124.0	36.45	11.62	0.845	10.505	1.368	7.659	1.981

* Source Reference Number is found in the following tables: Table 5-3.3a, Table 5-3.3b, Table 5-3.3c, Table 5-3.3d and Table 5-3.3e.

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Compact Section Criteria			X_1	$X_2 \times 10^6$	Elastic Properties						Plastic Modulus	
	$b_f/2t_f$	h/t_w	F_y'''			Axis x-x			Axis y-y			Z_x	Z_y
			ksi	ksi	(1/ksi) ²	I_x	S_x	r_x	I_y	S_y	r_y	in. ³	in. ³
H11s	7.87	23.5	–	3280	1164	293.5	54.6	4.62	67.0	14.9	2.21	60.7	22.9
H11s	6.97	23.5	–	3352	1106	266.8	49.6	4.58	48.4	12.0	1.95	55.5	18.6
H11s	7.77	26.5	–	3013	1667	234.1	44.1	4.55	42.4	10.6	1.94	49.0	16.3
H10/12	3.46	6.3	–	11317	9	1916.1	294.8	5.15	1071.6	147.1	3.85	357.9	224.9
H10/12	3.55	6.5	–	11019	10	1835.8	285.1	5.12	1031.9	142.0	3.84	344.7	217.1
H10/12	3.66	6.7	–	10717	11	1753.1	275.0	5.09	992.4	136.9	3.83	331.6	209.2
H10/12	3.77	6.9	–	10397	12	1670.5	264.7	5.05	951.3	131.6	3.81	318.2	201.1
H10/12	3.89	7.1	–	10105	14	1597.2	255.6	5.02	915.2	126.9	3.80	306.0	193.9
H10/12	4.01	7.3	–	9818	15	1525.5	246.4	4.99	879.6	122.2	3.79	293.9	186.7
H10/12	4.15	7.6	–	9486	17	1448.4	236.5	4.96	840.0	117.0	3.78	281.0	178.8
H10/12	4.30	7.9	–	9156	20	1373.2	226.6	4.93	801.1	111.9	3.77	268.3	171.0
H10/12	4.45	8.2	–	8860	22	1306.3	217.7	4.90	766.8	107.3	3.76	256.7	164.0
H10/12	4.61	8.5	–	8544	26	1239.6	208.7	4.87	731.3	102.6	3.74	244.9	156.8
H10/12	4.80	8.8	–	8222	30	1170.9	199.3	4.84	695.5	97.8	3.73	233.1	149.5
H10/12	5.01	9.2	–	7897	35	1103.9	190.0	4.81	660.0	93.0	3.72	221.4	142.2
H10a	3.49	7.5	–	9251	20	1053.6	175.6	4.80	387.2	68.4	2.91	210.0	105.3
H10/12	5.22	9.6	–	7577	41	1042.0	181.2	4.78	626.0	88.5	3.70	210.1	135.2
H10a	3.62	7.8	–	8925	23	997.6	168.0	4.78	368.0	65.3	2.90	200.2	100.4
H10/12	5.44	10.1	–	7253	48	981.5	172.5	4.75	592.6	84.0	3.69	199.0	128.4
H10a	3.76	8.2	–	8589	27	943.0	160.5	4.75	349.3	62.1	2.89	190.5	95.6
H10/12	5.72	10.5	–	6924	57	919.2	163.4	4.72	558.5	79.3	3.68	187.8	121.3
CB105	6.48	3.7	–	10785	13	623.2	124.6	3.89	391.4	59.4	3.08	148.5	94.5
H10	3.52	8.2	–	8639	27	893.3	152.1	4.72	290.0	55.0	2.69	180.2	84.7
H10	3.52	8.2	–	8658	27	889.7	151.4	4.72	289.9	55.0	2.70	180.2	84.7
10WF	3.53	8.5	–	8382	30	917.2	154.4	4.79	295.9	56.0	2.72	182.5	85.6
CB103N	3.53	8.4	–	8410	30	916.9	154.4	4.79	295.9	56.0	2.72	182.5	85.6
H10a	3.90	8.5	–	8256	31	889.8	153.1	4.72	330.8	59.1	2.88	181.0	90.8
H10/12	6.02	11.2	–	6576	70	857.4	154.2	4.69	523.7	74.6	3.66	176.4	114.0
CB105	6.37	4.3	–	9559	20	603.5	120.7	3.94	369.6	57.1	3.09	142.6	89.8
H10	3.66	8.5	–	8308	31	843.0	145.0	4.69	274.5	52.2	2.68	171.1	80.4
H10	3.68	8.8	–	8053	35	864.4	147.1	4.75	280.2	53.2	2.71	173.2	81.3
CB103N	3.68	8.7	–	8082	35	864.2	147.1	4.75	280.2	53.2	2.71	173.2	81.3
H10	3.66	8.5	–	8320	31	839.4	144.4	4.69	274.5	52.2	2.68	171.1	80.4
H10a	4.07	8.9	–	7918	37	838.0	145.7	4.69	312.7	56.0	2.86	171.5	86.1
H10/12	6.33	11.8	–	6247	84	801.4	145.7	4.66	491.7	70.2	3.65	165.8	107.4
H10	3.81	8.9	–	7965	36	794.0	138.1	4.66	259.4	49.5	2.66	162.2	76.2
10WF	3.84	9.2	–	7720	41	813.1	139.9	4.72	264.8	50.4	2.69	164.0	77.1
CB105	6.25	5.1	–	8471	31	583.9	116.8	4.00	349.0	54.9	3.09	136.7	85.4
CB103N	3.84	9.1	–	7749	41	812.9	139.9	4.72	264.8	50.4	2.70	164.0	77.1

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Source Reference Number*	Wt. per ft lb	Area	Depth	Web Thickness	Flange Width	Average Flange Thickness	Distance	Distance
			A	d	t _w	b _f	t _f	T	k
			in. ²	in.	in.	in.	in.	in.	in.
H10	4	124.0	36.32	11.50	0.860	10.470	1.375	7.693	1.904
H10	2	123.5	36.32	11.50	0.860	10.470	1.375	7.693	1.904
H10a	1	123.4	36.29	11.38	0.820	11.120	1.310	7.692	1.842
H10	5 6	118.0	34.76	11.38	0.820	10.430	1.313	7.692	1.842
CB103N	12	118.0	34.68	11.50	0.801	10.461	1.308	7.659	1.921
H10	7	118.0	34.69	11.50	0.800	10.460	1.308	7.759	1.871
H10	4	118.0	34.55	11.38	0.820	10.430	1.313	7.692	1.842
H10	2	117.5	34.55	11.38	0.820	10.430	1.313	7.692	1.842
H10a	1	117.1	34.45	11.25	0.780	11.080	1.247	7.693	1.779
CB105	10	116.0	34.11	10.00	1.071	12.471	1.016	6.643	1.679
H10/12	6	113.0	33.25	11.00	0.650	12.260	1.115	7.693	1.654
H10	5 6	112.0	33.00	11.25	0.780	10.390	1.250	7.693	1.779
CB103N	12	112.0	32.92	11.38	0.756	10.416	1.248	7.659	1.861
10WF	7 8 9 13 14	112.0	32.92	11.38	0.755	10.415	1.248	7.759	1.811
H10	4	112.0	32.80	11.25	0.780	10.390	1.250	7.693	1.779
H10	2	111.5	32.80	11.25	0.780	10.390	1.250	7.693	1.779
H10a	1	110.9	32.62	11.13	0.740	11.040	1.185	7.692	1.717
CB105	10	108.0	31.76	10.00	0.836	12.236	1.016	6.643	1.679
H10/12	6	107.0	31.45	10.88	0.620	12.230	1.055	7.688	1.594
H10	5 6	106.5	31.26	11.13	0.740	10.350	1.188	7.692	1.717
H10	4	106.5	31.06	11.13	0.740	10.350	1.188	7.692	1.717
H10	7	106.0	31.17	11.25	0.720	10.380	1.183	7.759	1.746
CB103N	12	106.0	31.16	11.25	0.720	10.380	1.183	7.659	1.796
H10	2	105.5	31.06	11.13	0.740	10.350	1.188	7.692	1.717
H10a	1	104.7	30.80	11.00	0.700	11.000	1.121	7.697	1.652
H10	5 6	100.5	29.53	11.00	0.700	10.310	1.125	7.693	1.654
H10	4	100.5	29.32	11.00	0.700	10.310	1.125	7.693	1.654
H10/12	6	100.0	29.54	10.75	0.590	12.200	0.990	7.693	1.529
10WF	7 8 9 13 14	100.0	29.43	11.12	0.685	10.345	1.118	7.759	1.681
CB103N	12	100.0	29.42	11.12	0.685	10.345	1.118	7.659	1.731
CB105	10	100.0	29.40	10.00	0.600	12.000	1.016	6.643	1.679
H10	1	99.7	29.32	11.00	0.700	10.310	1.125	7.693	1.654
H10	2	99.5	29.32	11.00	0.700	10.310	1.125	7.693	1.654
CB103N	12	95.0	27.92	11.00	0.662	10.322	1.058	7.659	1.671
H10	7	95.0	27.92	11.00	0.660	10.320	1.058	7.759	1.621
H10	5 6	95.0	27.91	10.88	0.670	10.280	1.063	7.692	1.592
H10	4	95.0	27.71	10.88	0.670	10.280	1.063	7.692	1.592
H10	1	94.2	27.71	10.88	0.670	10.280	1.063	7.692	1.592
H10	2	94.0	27.71	10.88	0.670	10.280	1.063	7.692	1.592

* Source Reference Number is found in the following tables: Table 5-3.3a, Table 5-3.3b, Table 5-3.3c, Table 5-3.3d and Table 5-3.3e.

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Compact Section Criteria			X_1	$X_2 \times 10^6$	Elastic Properties						Plastic Modulus	
	$b_f/2t_f$	h/t_w	F_y'''			Axis x-x			Axis y-y			Z_x	Z_y
			ksi	ksi	(1/ksi) ²	I_x	S_x	r_x	I_y	S_y	r_y	in. ³	in. ³
H10	3.81	8.9	–	7978	36	790.4	137.5	4.67	259.3	49.5	2.67	162.2	76.2
H10	3.81	8.9	–	7978	36	790.4	137.5	4.67	259.3	49.5	2.67	162.2	76.2
H10a	4.25	9.4	–	7583	43	787.4	138.4	4.66	295.0	53.1	2.85	162.3	81.5
H10	3.97	9.4	–	7627	43	746.3	131.2	4.63	244.5	46.9	2.65	153.4	72.1
CB103N	4.00	9.6	–	7413	48	765.2	133.1	4.70	250.0	47.8	2.68	155.3	73.0
H10	4.00	9.7	–	7382	49	765.3	133.1	4.70	249.9	47.8	2.68	155.2	73.0
H10	3.97	9.4	–	7638	43	742.7	130.6	4.64	244.4	46.9	2.66	153.4	72.1
H10	3.97	9.4	–	7638	43	742.7	130.6	4.64	244.4	46.9	2.66	153.4	72.1
H10a	4.44	9.9	–	7237	52	738.2	131.2	4.63	277.6	50.1	2.84	153.1	76.9
CB105	6.14	6.2	–	7554	46	564.3	112.9	4.07	329.4	52.8	3.11	130.8	81.3
H10/12	5.50	11.8	–	6350	82	710.8	129.2	4.62	334.3	54.5	3.17	147.6	83.4
H10	4.16	9.9	–	7282	51	699.9	124.4	4.60	229.9	44.3	2.64	144.8	68.1
CB103N	4.17	10.1	–	7076	57	718.6	126.3	4.67	235.4	45.2	2.67	146.6	69.0
10WF	4.17	10.3	–	7046	58	718.7	126.3	4.67	235.4	45.2	2.67	146.6	69.0
H10	4.16	9.9	–	7295	51	696.2	123.8	4.61	229.9	44.3	2.65	144.8	68.1
H10	4.16	9.9	–	7295	51	696.2	123.8	4.61	229.9	44.3	2.65	144.8	68.1
H10a	4.66	10.4	–	6896	62	690.3	124.1	4.60	260.5	47.2	2.83	144.2	72.5
CB105	6.02	7.9	–	6835	64	544.8	109.0	4.14	310.7	50.8	3.13	125.0	77.4
H10/12	5.80	12.4	–	6570	84	663.5	112.0	4.59	313.5	51.3	3.16	138.6	78.4
H10	4.36	10.4	–	6935	62	654.7	117.7	4.58	215.7	41.7	2.63	136.3	64.1
H10	4.36	10.4	–	6954	61	651.0	117.0	4.58	215.6	41.7	2.64	136.3	64.1
H10	4.39	10.8	–	6707	70	671.2	119.3	4.64	220.8	42.5	2.66	137.8	64.9
CB103N	4.39	10.6	–	6735	69	671.0	119.3	4.64	220.8	42.5	2.66	137.8	64.9
H10	4.36	10.4	–	6954	61	651.0	117.0	4.58	215.6	41.7	2.64	136.3	64.1
H10a	4.91	11.0	–	6540	76	643.6	117.0	4.57	243.7	44.3	2.81	135.2	68.0
H10	4.58	11.0	–	6590	75	610.6	111.0	4.55	201.7	39.1	2.61	127.9	60.1
H10	4.58	11.0	–	6602	74	607.0	110.4	4.55	201.7	39.1	2.62	127.9	60.1
H10/12	6.16	13.0	–	5694	124	613.9	114.2	4.56	291.5	47.8	3.14	129.2	73.1
10WF	4.63	11.3	–	6365	86	625.0	112.4	4.61	206.6	39.9	2.65	129.2	60.9
CB103N	4.63	11.2	–	6392	84	624.7	112.4	4.61	206.6	39.9	2.65	129.2	60.9
CB105	5.91	11.1	–	6318	81	525.1	105.0	4.23	292.8	48.8	3.16	119.1	73.9
H10	4.58	11.0	–	6602	74	607.0	110.4	4.55	201.7	39.1	2.62	127.9	60.1
H10	4.58	11.0	–	6602	74	607.0	110.4	4.55	201.7	39.1	2.62	127.9	60.1
CB103N	4.88	11.6	–	6097	101	584.2	106.2	4.58	194.2	37.6	2.64	121.6	57.3
H10	4.88	11.8	–	6065	103	584.2	106.2	4.57	194.1	37.6	2.64	121.6	57.3
H10	4.84	11.5	–	6261	91	568.9	104.6	4.51	188.6	36.7	2.60	120.0	56.4
H10	4.84	11.5	–	6281	90	565.2	103.9	4.52	188.6	36.7	2.61	120.0	56.4
H10	4.84	11.5	–	6281	90	565.2	103.9	4.52	188.6	36.7	2.61	120.0	56.4
H10	4.84	11.5	–	6281	90	565.2	103.9	4.52	188.6	36.7	2.61	120.0	56.4

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Source Reference Number*	Wt. per ft lb	Area	Depth	Web Thickness	Flange Width	Average Flange Thickness	Distance	Distance
			A	d	t _w	b _f	t _f	T	k
			in. ²	in.	in.	in.	in.	in.	in.
H10/12	6	94.0	27.63	10.63	0.560	12.170	0.925	7.698	1.464
CB104	10	92.0	27.06	10.00	1.162	10.647	0.805	7.265	1.368
H10	5 6	89.0	26.20	10.75	0.630	10.240	1.000	7.693	1.529
10WF	7 8 9 13 14	89.0	26.19	10.88	0.615	10.275	0.998	7.759	1.561
CB103N	12	89.0	26.17	10.88	0.615	10.275	0.998	7.659	1.611
H10	4	89.0	25.99	10.75	0.630	10.240	1.000	7.693	1.529
H10	2	88.5	25.99	10.75	0.630	10.240	1.000	7.693	1.529
H10	1	88.4	25.99	10.75	0.630	10.240	1.000	7.693	1.529
H10/12	6	88.0	25.86	10.50	0.530	12.140	0.865	7.693	1.404
CB104	10	84.0	24.70	10.00	0.926	10.411	0.805	7.265	1.368
H10	5 6	83.5	24.49	10.63	0.590	10.200	0.938	7.692	1.467
H10	4	83.5	24.29	10.63	0.590	10.200	0.938	7.692	1.467
H10	7	83.0	24.42	10.75	0.575	10.235	0.933	7.759	1.496
CB103N	12	83.0	24.41	10.75	0.575	10.235	0.933	7.659	1.546
H10	1	82.6	24.29	10.63	0.590	10.200	0.938	7.692	1.467
H10	2	82.5	24.29	10.63	0.590	10.200	0.938	7.692	1.467
H10/12	6	82.0	23.98	10.38	0.490	12.100	0.805	7.688	1.344
H10	5 6	77.5	22.80	10.50	0.550	10.160	0.875	7.693	1.404
H10	4	77.5	22.59	10.50	0.550	10.160	0.875	7.693	1.404
10WF	7 8 9 13 14	77.0	22.67	10.62	0.535	10.195	0.868	7.759	1.431
CB103N	12	77.0	22.65	10.62	0.535	10.195	0.868	7.659	1.481
CB104	10	77.0	22.65	10.00	0.721	10.206	0.805	7.265	1.368
H10	2	77.0	22.59	10.50	0.550	10.160	0.875	7.693	1.404
H10	1	76.8	22.59	10.50	0.550	10.160	0.875	7.693	1.404
H10/12	6	75.0	22.00	10.25	0.450	12.060	0.740	7.693	1.279
10WF	7 8 9 13 14	72.0	21.18	10.50	0.510	10.170	0.808	7.759	1.371
CB103N	12	72.0	21.17	10.50	0.510	10.170	0.808	7.659	1.421
H10	5 6	72.0	21.11	10.38	0.510	10.120	0.813	7.692	1.342
H10	4	72.0	20.91	10.38	0.510	10.120	0.813	7.692	1.342
H10	1	71.1	20.91	10.38	0.510	10.120	0.813	7.692	1.342
H10	2	71.0	20.91	10.38	0.510	10.120	0.813	7.692	1.342
CB104	10	70.0	20.59	10.00	0.515	10.000	0.805	7.265	1.368
H10/12	6	68.0	20.13	10.13	0.420	12.030	0.675	7.698	1.214
H10	7	66.0	19.44	10.38	0.460	10.120	0.748	7.759	1.311
H10	5 6	66.0	19.44	10.25	0.470	10.080	0.750	7.693	1.279
CB103N	12	66.0	19.43	10.38	0.460	10.120	0.748	7.659	1.361
10WF	8 9 13 14	66.0	19.41	10.38	0.457	10.117	0.748	7.759	1.311
H10	4	66.0	19.23	10.25	0.470	10.080	0.750	7.693	1.279
H10	2	65.5	19.23	10.25	0.470	10.080	0.750	7.693	1.279

* Source Reference Number is found in the following tables: Table 5-3.3a, Table 5-3.3b, Table 5-3.3c, Table 5-3.3d and Table 5-3.3e.

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Compact Section Criteria			X_1	$X_2 \times 10^6$	Elastic Properties						Plastic Modulus	
						Axis x-x			Axis y-y				
	$b_f/2t_f$	h/t_w	F_y'''			I_x	S_x	r_x	I_y	S_y	r_y	Z_x	Z_y
			ksi										
H10/12	6.58	13.7	–	5353	158	565.7	106.5	4.52	269.7	44.3	3.12	120.0	67.9
CB104	6.61	6.3	–	7419	58	423.2	84.6	3.96	163.1	30.6	2.46	99.3	48.5
H10	5.12	12.2	–	5908	114	527.2	98.1	4.49	175.2	34.2	2.59	111.9	52.6
10WF	5.15	12.6	–	5718	129	542.4	99.7	4.55	180.6	35.2	2.63	113.5	53.5
CB103N	5.15	12.5	–	5744	127	542.1	99.7	4.55	180.6	35.2	2.63	113.5	53.5
H10	5.12	12.2	–	5927	112	523.5	97.4	4.49	175.1	34.2	2.60	111.9	52.6
H10	5.12	12.2	–	5927	112	523.5	97.4	4.49	175.1	34.2	2.60	111.9	52.6
H10	5.12	12.2	–	5927	112	523.5	97.4	4.49	175.1	34.2	2.60	111.9	52.6
H10/12	7.02	14.5	–	5034	200	522.1	99.4	4.49	249.8	41.2	3.11	111.4	63.1
CB104	6.47	7.8	–	6285	104	403.6	80.7	4.04	152.0	29.2	2.48	93.4	45.4
H10	5.44	13.0	–	5556	144	486.6	91.6	4.46	162.0	31.8	2.57	103.9	48.8
H10	5.44	13.0	–	5576	142	483.0	90.9	4.46	162.0	31.8	2.58	103.9	48.8
H10	5.48	13.5	–	5359	165	499.2	92.9	4.52	166.9	32.6	2.61	105.1	49.6
CB103N	5.48	13.3	–	5392	162	498.9	92.8	4.52	166.9	32.6	2.61	105.1	49.6
H10	5.44	13.0	–	5576	142	483.0	90.9	4.46	162.0	31.8	2.58	103.9	48.8
H10	5.44	13.0	–	5576	142	483.0	90.9	4.46	162.0	31.8	2.58	103.9	48.8
H10/12	7.52	15.7	–	4693	262	478.6	92.2	4.47	229.6	37.9	3.09	102.6	58.2
H10	5.81	14.0	–	5201	186	447.2	85.2	4.43	149.1	29.4	2.56	96.1	45.1
H10	5.81	14.0	–	5220	183	443.6	84.5	4.43	149.1	29.4	2.57	96.1	45.1
10WF	5.87	14.5	–	5003	216	457.2	86.1	4.49	153.4	30.1	2.60	96.9	45.7
CB103N	5.87	14.3	–	5029	211	456.9	86.1	4.49	153.4	30.1	2.60	96.9	45.7
CB104	6.34	10.1	–	5513	161	386.5	77.3	4.13	142.9	28.0	2.51	88.2	43.0
H10	5.81	14.0	–	5220	183	443.6	84.5	4.43	149.1	29.4	2.57	96.1	45.1
H10	5.81	14.0	–	5220	183	443.6	84.5	4.43	149.1	29.4	2.57	96.1	45.1
H10/12	8.15	17.1	–	4331	357	433.2	84.5	4.44	208.3	34.5	3.08	93.5	53.0
10WF	6.29	15.2	–	4696	277	420.7	80.1	4.46	141.8	27.9	2.59	89.7	42.4
CB103N	6.29	15.0	–	4723	270	420.4	80.1	4.46	141.8	27.9	2.59	89.7	42.4
H10	6.23	15.1	–	4847	244	408.9	78.8	4.40	136.5	27.0	2.54	88.4	41.4
H10	6.23	15.1	–	4867	239	405.2	78.1	4.40	136.5	27.0	2.56	88.4	41.4
H10	6.23	15.1	–	4867	239	405.2	78.1	4.40	136.5	27.0	2.56	88.4	41.4
H10	6.23	15.1	–	4867	239	405.2	78.1	4.40	136.5	27.0	2.56	88.4	41.4
CB104	6.21	14.1	–	4955	223	369.3	73.9	4.24	134.3	26.9	2.55	83.1	40.8
H10/12	8.91	18.3	–	3982	496	390.0	77.1	4.40	187.8	31.2	3.05	84.8	47.9
H10	6.76	16.9	–	4337	374	382.8	73.7	4.44	129.3	25.6	2.58	82.0	38.8
H10	6.72	16.4	–	4490	327	371.7	72.5	4.37	124.2	24.6	2.53	80.8	37.8
CB103N	6.76	16.7	–	4364	364	382.5	73.7	4.44	129.3	25.6	2.58	82.0	38.8
10WF	6.76	17.0	–	4328	376	382.5	73.7	4.44	129.2	25.5	2.58	81.9	38.7
H10	6.72	16.4	–	4509	321	368.0	71.8	4.37	124.2	24.6	2.54	80.8	37.8
H10	6.72	16.4	–	4509	321	368.0	71.8	4.37	124.2	24.6	2.54	80.8	37.8

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Source Reference Number*	Wt. per ft lb	Area	Depth	Web Thickness	Flange Width	Average Flange Thickness	Distance	Distance
			A	d	t _w	b _f	t _f	T	k
			in. ²	in.	in.	in.	in.	in.	in.
H10	1	65.4	19.23	10.25	0.470	10.080	0.750	7.693	1.279
CB103A	11	64.0	18.81	10.00	0.791	10.441	0.558	7.859	1.071
CB103	10	63.0	18.53	10.00	0.787	9.412	0.610	7.755	1.123
H10/12	6	62.0	18.29	10.00	0.380	11.990	0.615	7.693	1.154
H10	5 6	60.5	17.77	10.13	0.430	10.040	0.688	7.692	1.217
H10	4	60.5	17.57	10.13	0.430	10.040	0.688	7.692	1.217
10WF	7 8 9 13 14	60.0	17.66	10.25	0.415	10.075	0.683	7.759	1.246
CB103N	12	60.0	17.65	10.25	0.415	10.075	0.683	7.659	1.296
H10	1	59.7	17.57	10.13	0.430	10.040	0.688	7.692	1.217
H10	2	59.5	17.57	10.13	0.430	10.040	0.688	7.692	1.217
CB103A	11	59.0	17.34	10.00	0.644	10.294	0.558	7.859	1.071
CB103	10	56.0	16.47	10.00	0.581	9.206	0.610	7.755	1.123
H10	5 6	55.0	16.12	10.00	0.390	10.000	0.625	7.693	1.154
H10	4	55.0	15.91	10.00	0.390	10.000	0.625	7.693	1.154
H10	1	54.1	15.91	10.00	0.390	10.000	0.625	7.693	1.154
H10	2	54.0	15.91	10.00	0.390	10.000	0.625	7.693	1.154
H10	–	54.0	15.90	10.12	0.370	10.030	0.618	7.759	1.181
CB103N	12	54.0	15.89	10.12	0.370	10.030	0.618	7.659	1.231
10WF	8 9 13 14	54.0	15.88	10.12	0.368	10.028	0.618	7.759	1.181
CB103A	11	54.0	15.87	10.00	0.497	10.147	0.558	7.859	1.071
H10s	1	50.6	14.88	10.00	0.400	9.040	0.630	7.693	1.154
H10	5 6	49.5	14.57	9.88	0.360	9.970	0.563	7.692	1.092
H10	4	49.5	14.37	9.88	0.360	9.970	0.563	7.692	1.092
CB103	10	49.0	14.41	10.00	0.375	9.000	0.610	7.755	1.123
CB103A	11	49.0	14.40	10.00	0.350	10.000	0.558	7.859	1.071
10WF	7 8 9 13 14	49.0	14.40	10.00	0.340	10.000	0.558	7.759	1.121
CB103N	12	49.0	14.38	10.00	0.340	10.000	0.558	7.659	1.171
H10	2	49.0	14.37	9.88	0.360	9.970	0.563	7.692	1.092
H10/8	5 6	47.5	13.90	10.00	0.390	8.110	0.635	7.693	1.154
H10/8	3	47.5	13.70	10.00	0.390	8.110	0.635	7.693	1.154
H10s	1	45.4	13.36	9.88	0.360	9.000	0.568	7.692	1.092
10WF	8 9 13 14	45.0	13.24	10.12	0.350	8.022	0.618	7.759	1.181
H10a	7	45.0	13.24	10.12	0.350	8.020	0.618	7.759	1.181
CB102N	12	45.0	13.22	10.12	0.350	8.020	0.618	7.659	1.231
H10/8	5 6	42.5	12.49	9.88	0.350	8.070	0.572	7.692	1.092
H10/8	3	42.5	12.29	9.88	0.350	8.070	0.572	7.692	1.092
CB102	10	42.0	12.35	10.00	0.644	8.324	0.381	8.513	0.744
H10s	2	42.0	12.34	9.88	0.360	8.040	0.573	7.692	1.092
H10a	7	41.0	12.07	10.00	0.330	8.000	0.558	7.759	1.121

* Source Reference Number is found in the following tables: Table 5-3.3a, Table 5-3.3b, Table 5-3.3c, Table 5-3.3d and Table 5-3.3e.

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Compact Section Criteria			X_1	$X_2 \times 10^6$	Elastic Properties						Plastic Modulus	
						Axis x-x			Axis y-y				
	$b_f/2t_f$	h/t_w	F_y'''			I_x	S_x	r_x	I_y	S_y	r_y	Z_x	Z_y
			ksi			ksi	(1/ksi) ²	in. ⁴	in. ³	in.	in. ⁴	in. ³	in.
H10	6.72	16.4	–	4509	321	368.0	71.8	4.37	124.2	24.6	2.54	80.8	37.8
CB103A	9.36	9.9	–	4834	310	308.8	61.8	4.05	106.3	20.4	2.38	70.6	31.8
CB103	7.71	9.9	–	5108	252	300.4	60.1	4.03	85.2	18.1	2.14	69.1	28.4
H10/12	9.75	20.2	–	3644	698	350.1	70.0	4.38	168.7	28.1	3.04	76.5	43.2
H10	7.30	17.9	–	4129	451	335.5	66.3	4.34	112.2	22.3	2.51	73.4	34.3
H10	7.30	17.9	–	4149	441	331.9	65.6	4.35	112.2	22.3	2.53	73.4	34.3
10WF	7.38	18.7	–	3959	529	343.7	67.1	4.41	116.5	23.1	2.57	74.0	35.0
CB103N	7.38	18.5	–	3993	512	343.5	67.0	4.41	116.5	23.1	2.57	74.0	35.0
H10	7.30	17.9	–	4149	441	331.9	65.6	4.35	112.2	22.3	2.53	73.4	34.3
H10	7.30	17.9	–	4149	441	331.9	65.6	4.35	112.2	22.3	2.53	73.4	34.3
CB103A	9.22	12.2	–	4165	519	296.5	59.3	4.13	101.7	19.8	2.42	66.9	30.5
CB103	7.55	13.3	–	4221	482	283.2	56.6	4.15	79.5	17.3	2.20	63.9	26.6
H10	8.00	19.7	–	3771	640	300.4	60.1	4.32	100.4	20.1	2.50	66.1	30.8
H10	8.00	19.7	–	3791	625	296.8	59.4	4.32	100.4	20.1	2.51	66.1	30.8
H10	8.00	19.7	–	3791	625	296.8	59.4	4.32	100.4	20.1	2.51	66.1	30.8
H10	8.00	19.7	–	3791	625	296.8	59.4	4.32	100.4	20.1	2.51	66.1	30.8
H10	8.11	21.0	–	3591	770	305.9	60.4	4.39	104.0	20.7	2.56	66.2	31.4
CB103N	8.11	20.7	–	3620	746	305.6	60.4	4.39	104.0	20.7	2.56	66.2	31.4
10WF	8.11	21.1	–	3585	773	305.7	60.4	4.39	103.9	20.7	2.56	66.1	31.4
CB103A	9.09	15.8	–	3634	814	284.3	56.9	4.23	97.3	19.2	2.48	63.3	29.3
H10s	7.17	19.2	–	3884	589	272.5	54.5	4.28	75.1	16.6	2.25	61.0	25.6
H10	8.86	21.4	–	3434	926	267.2	54.1	4.28	89.1	17.9	2.47	59.1	27.5
H10	8.86	21.4	–	3455	902	263.5	53.4	4.28	89.1	17.9	2.49	59.1	27.5
CB103	7.38	20.7	–	3624	768	266.0	53.2	4.30	74.2	16.5	2.27	58.8	25.0
CB103A	8.96	22.5	–	3267	1123	272.0	54.4	4.35	93.0	18.6	2.54	59.6	28.2
10WF	8.96	22.8	–	3265	1117	272.9	54.6	4.35	93.0	18.6	2.54	59.4	28.2
CB103N	8.96	22.5	–	3300	1072	272.7	54.5	4.35	93.0	18.6	2.54	59.4	28.2
H10	8.86	21.4	–	3455	902	263.5	53.4	4.28	89.1	17.9	2.49	59.1	27.5
H10/8	6.39	19.7	–	3898	594	251.3	50.3	4.25	54.8	13.5	1.99	55.6	20.8
H10/8	6.39	19.7	–	3932	575	247.6	49.5	4.25	54.8	13.5	2.00	55.6	20.8
H10s	7.93	21.4	–	3522	861	241.4	48.9	4.25	66.4	14.8	2.23	54.4	22.7
10WF	6.49	22.2	–	3631	773	248.6	49.1	4.33	53.2	13.3	2.00	54.0	20.2
H10a	6.49	22.2	–	3631	774	248.5	49.1	4.33	53.2	13.3	2.00	54.0	20.1
CB102N	6.49	21.9	–	3664	744	248.3	49.1	4.33	53.2	13.3	2.01	54.0	20.1
H10/8	7.05	22.0	–	3533	869	223.0	45.2	4.23	48.5	12.0	1.97	49.6	18.5
H10/8	7.05	22.0	–	3568	838	219.4	44.4	4.23	48.5	12.0	1.99	49.6	18.5
CB102	10.92	13.2	–	4051	739	190.4	38.1	3.93	36.8	8.9	1.73	44.2	14.2
H10s	7.02	21.4	–	3595	820	219.2	44.4	4.22	48.0	11.9	1.97	49.7	18.4
H10a	7.17	23.5	–	3325	1099	222.5	44.5	4.29	47.7	11.9	1.99	48.7	18.1

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Source Reference Number*	Wt. per ft lb	Area	Depth	Web Thickness	Flange Width	Average Flange Thickness	Distance	Distance
			A	d	t _w	b _f	t _f	T	k
			in. ²	in.	in.	in.	in.	in.	in.
10WF	8 13	41.0	12.06	10.00	0.328	8.000	0.558	7.759	1.121
CB102N	12	41.0	12.06	10.00	0.330	8.000	0.558	7.659	1.171
10WF	9 14	39.0	11.48	9.94	0.318	7.990	0.528	7.759	1.091
H10/8	5 6	38.0	11.09	9.75	0.310	8.030	0.510	7.693	1.029
H10/8	3	38.0	10.89	9.75	0.310	8.030	0.510	7.693	1.029
H10s	1	37.2	10.95	9.75	0.320	8.000	0.510	7.693	1.029
10WF	8 13	37.0	10.88	9.88	0.306	7.978	0.498	7.759	1.061
H10a	7	37.0	10.87	9.88	0.305	7.975	0.498	7.759	1.061
CB102N	12	37.0	10.85	9.88	0.305	7.975	0.498	7.659	1.111
CB102	10	36.0	10.58	10.00	0.467	8.147	0.381	8.513	0.744
H10/8	5 6	33.5	9.80	9.63	0.280	8.000	0.447	7.692	0.967
H10/8	3	33.5	9.60	9.63	0.280	8.000	0.447	7.692	0.967
H10a	7	33.0	9.73	9.75	0.295	7.965	0.433	7.759	0.996
CB102N	12	33.0	9.72	9.75	0.295	7.965	0.433	7.659	1.046
10WF	8 9 13 14	33.0	9.71	9.75	0.292	7.964	0.433	7.759	0.996
CB102	10	31.0	9.11	10.00	0.320	8.000	0.381	8.513	0.744
H9a	1	135.6	39.87	11.00	0.980	10.310	1.559	6.911	2.045
H9a	1	129.7	38.15	10.88	0.940	10.270	1.497	6.912	1.982
H9a	1	123.9	36.44	10.75	0.900	10.230	1.434	6.911	1.920
H9a	1	118.1	34.73	10.63	0.860	10.190	1.372	6.912	1.857
H9a	1	112.3	33.04	10.50	0.820	10.150	1.309	6.911	1.795
H9a	1	106.6	31.35	10.38	0.780	10.110	1.247	6.912	1.732
H9a	1	100.9	29.68	10.25	0.740	10.070	1.184	6.911	1.670
H9a	1	95.3	28.02	10.13	0.700	10.030	1.122	6.912	1.607
H9a	1	90.0	26.46	10.00	0.670	10.000	1.059	6.911	1.545
H9	1	85.3	25.08	10.00	0.670	9.320	1.063	6.911	1.545
H9	1	80.0	23.52	9.88	0.630	9.280	1.000	6.912	1.482
H9	1	74.7	21.97	9.75	0.590	9.240	0.938	6.911	1.420
H9	1	69.5	20.43	9.63	0.550	9.200	0.875	6.912	1.357
H9	1	64.3	18.90	9.50	0.510	9.160	0.813	6.911	1.295
H9	1	59.1	17.38	9.38	0.470	9.120	0.750	6.912	1.232
H9	1	54.0	15.87	9.25	0.430	9.080	0.688	6.911	1.170
H9	1	48.9	14.37	9.13	0.390	9.040	0.625	6.912	1.107
CB93	2	48.0	14.11	9.24	0.398	9.082	0.591	6.935	1.154
H9	1	43.8	12.88	9.00	0.350	9.000	0.563	6.911	1.045
CB93	2	43.0	12.65	9.12	0.357	9.041	0.531	6.935	1.094
H9s	1	40.6	11.95	9.00	0.360	8.040	0.568	6.911	1.045
CB93	2	38.0	11.17	9.00	0.316	9.000	0.470	6.935	1.033

* Source Reference Number is found in the following tables: Table 5-3.3a, Table 5-3.3b, Table 5-3.3c, Table 5-3.3d and Table 5-3.3e.

Table 5-3.1 (continued). Dimensions and Properties—Steel Sections 1887–1952

Designation	Compact Section Criteria			X ₁	X ₂ × 10 ⁶	Elastic Properties						Plastic Modulus	
	b _f /2t _f	h/t _w	F _y ^{'''} ksi			Axis x-x			Axis y-y				
						I _x in. ⁴	S _x in. ³	r _x in.	I _y in. ⁴	S _y in. ³	r _y in.	Z _x in. ³	Z _y in. ³
10WF	7.17	23.7	–	3320	1104	222.4	44.5	4.29	47.7	11.9	1.99	48.6	18.1
CB102N	7.17	23.2	–	3361	1051	222.3	44.5	4.29	47.7	11.9	1.99	48.7	18.1
10WF	7.57	24.4	–	3169	1332	209.7	42.2	4.27	44.9	11.2	1.98	46.0	17.1
H10/8	7.88	24.8	–	3172	1321	195.6	40.1	4.20	42.4	10.6	1.96	43.7	16.3
H10/8	7.88	24.8	–	3199	1276	192.0	39.4	4.20	42.4	10.6	1.97	43.7	16.3
H10s	7.85	24.0	–	3225	1249	192.0	39.4	4.19	41.9	10.5	1.96	43.8	16.1
10WF	8.01	25.4	–	3011	1631	196.9	39.9	4.25	42.2	10.6	1.97	43.3	16.1
H10a	8.01	25.4	–	3015	1628	196.8	39.8	4.26	42.1	10.6	1.97	43.3	16.0
CB102N	8.01	25.1	–	3051	1545	196.6	39.8	4.26	42.1	10.6	1.97	43.3	16.0
CB102	10.69	18.2	–	3021	2068	175.6	35.1	4.07	34.4	8.5	1.80	39.8	13.1
H10/8	8.95	27.5	–	2829	2075	169.9	35.3	4.16	36.6	9.1	1.93	38.2	14.1
H10/8	8.95	27.5	–	2865	1982	166.2	34.5	4.16	36.6	9.1	1.95	38.2	14.1
H10a	9.20	26.3	–	2716	2510	171.1	35.1	4.19	36.5	9.2	1.94	38.0	13.9
CB102N	9.20	26.0	–	2766	2343	170.8	35.0	4.19	36.5	9.2	1.94	38.0	13.9
10WF	9.20	26.6	–	2714	2522	170.9	35.0	4.20	36.5	9.2	1.94	37.9	13.9
CB102	10.50	26.6	–	2403	4410	163.4	32.7	4.23	32.5	8.1	1.89	36.1	12.4
H9a	3.31	7.1	–	9821	16	762.8	138.7	4.38	281.6	54.6	2.66	167.0	84.1
H9a	3.43	7.4	–	9460	19	720.0	132.4	4.34	266.9	52.0	2.65	158.7	80.0
H9a	3.57	7.7	–	9109	22	678.3	126.0	4.32	252.6	49.4	2.63	150.6	76.0
H9a	3.71	8.0	–	8722	25	637.8	120.1	4.29	238.6	46.8	2.62	142.7	72.0
H9a	3.88	8.4	–	8354	30	598.4	114.0	4.26	224.8	44.3	2.61	134.8	68.1
H9a	4.06	8.9	–	7978	35	560.1	108.0	4.23	211.3	41.8	2.60	127.1	64.2
H9a	4.25	9.3	–	7607	43	522.9	102.0	4.20	198.1	39.4	2.58	119.6	60.4
H9a	4.47	9.9	–	7223	52	486.8	96.2	4.17	185.2	36.9	2.57	112.1	56.7
H9a	4.72	10.3	–	6868	63	452.6	90.5	4.14	173.1	34.6	2.56	105.1	53.2
H9	4.39	10.3	–	6934	62	424.6	84.9	4.11	140.9	30.2	2.37	98.9	46.5
H9	4.64	11.0	–	6548	77	392.6	79.5	4.09	130.7	28.2	2.36	92.1	43.3
H9	4.93	11.7	–	6156	97	361.6	74.2	4.06	120.8	26.1	2.34	85.5	40.2
H9	5.26	12.6	–	5767	125	331.6	68.9	4.03	111.0	24.1	2.33	79.0	37.1
H9	5.64	13.6	–	5372	163	302.4	63.7	4.00	101.6	22.2	2.32	72.6	34.1
H9	6.08	14.7	–	4980	219	274.2	58.5	3.97	92.3	20.2	2.31	66.3	31.1
H9	6.60	16.1	–	4582	301	246.8	53.4	3.94	83.3	18.3	2.29	60.1	28.2
H9	7.23	17.7	–	4188	426	220.3	48.3	3.91	74.5	16.5	2.28	54.1	25.3
CB93	7.68	17.4	–	3916	568	221.1	47.8	3.96	73.8	16.3	2.29	52.9	24.7
H9	8.00	19.7	–	3788	627	194.7	43.3	3.89	65.9	14.6	2.26	48.1	22.5
CB93	8.51	19.4	–	3531	846	195.5	42.9	3.93	65.4	14.5	2.28	47.0	22.0
H9s	7.08	19.2	–	3894	586	177.0	39.3	3.85	47.6	11.8	2.00	44.0	18.2
CB93	9.57	21.9	–	3145	1322	170.4	37.9	3.91	57.1	12.7	2.26	41.2	19.2