


Table 1-1 (continued)
W-Shapes
Dimensions

Shape	Area, A	Depth, d		Web			Flange				Distance				
				Thickness, t _w		t _w 2	Width, b _f		Thickness, t _f		k		k ₁	T	Work- able Gage
	in. ²	in.	in.	in.	in.	in.	in.	in.	k _{des}	k _{det}	in.	in.			
W24×103 ^[c]	30.3	24.5	24½	0.550	9/16	5/16	9.00	9	0.980	1	1.48	2¼	1½	20	5½
×94 ^[c]	27.7	24.3	24¼	0.515	½	¼	9.07	9½	0.875	7/8	1.38	2½	17/16		
×84 ^[c]	24.7	24.1	24⅞	0.470	½	¼	9.02	9	0.770	¾	1.27	2⅛	17/16		
×76 ^[c]	22.4	23.9	23⅞	0.440	7/16	¼	8.99	9	0.680	11/16	1.18	1⅝	17/16		
×68 ^[c]	20.1	23.7	23¾	0.415	7/16	¼	8.97	9	0.585	9/16	1.09	1⅞	17/16	↓	↓
W24×62 ^[c]	18.2	23.7	23¾	0.430	7/16	¼	7.04	7	0.590	9/16	1.09	1½	11/16	20¾	3½ ^[g]
×55 ^{[c],[v]}	16.2	23.6	23⅝	0.395	¾	3/16	7.01	7	0.505	½	1.01	1⅞	1	20¾	3½ ^[g]
W21×275 ^[h]	81.8	24.1	24⅞	1.22	1¼	5/8	12.9	12⅞	2.19	2⅝	3.37	37/16	1⅝	17¼	5½
×248	73.8	23.7	23¾	1.10	1⅝	9/16	12.8	12¾	1.99	2	3.17	3¼	1¾		
×223	66.5	23.4	23⅝	1.00	1	½	12.7	12⅝	1.79	1⅝	2.97	3⅜	1⅝		
×201	59.3	23.0	23	0.910	15/16	½	12.6	12⅝	1.63	1⅝	2.13	2⅞	1⅝		
×182	53.6	22.7	22¾	0.830	13/16	7/16	12.5	12½	1.48	1½	1.98	2¾	1⅝		
×166	48.8	22.5	22½	0.750	¾	3/8	12.4	12⅝	1.36	1⅝	1.86	2⅝	1⅝		
×147	43.2	22.1	22	0.720	¾	3/8	12.5	12½	1.15	1⅝	1.65	27/16	1⅝		
×132	38.8	21.8	21⅞	0.650	5/8	5/16	12.4	12½	1.04	1⅞	1.54	2¼	1⅝		
×122	35.9	21.7	21⅝	0.600	5/8	5/16	12.4	12⅝	0.960	15/16	1.46	2¼	1½		
×111	32.6	21.5	21½	0.550	9/16	5/16	12.3	12⅝	0.875	7/8	1.38	2⅝	1½		
×101 ^[c]	29.8	21.4	21⅝	0.500	½	¼	12.3	12¼	0.800	13/16	1.30	2⅛	17/16	↓	↓
W21×93	27.3	21.6	21⅝	0.580	9/16	5/16	8.42	8⅝	0.930	15/16	1.43	1⅝	15/16	18⅝	5½
×83 ^[c]	24.4	21.4	21⅝	0.515	½	¼	8.36	8⅝	0.835	13/16	1.34	1½	7/8		
×73 ^[c]	21.5	21.2	21¼	0.455	7/16	¼	8.30	8¼	0.740	¾	1.24	1⅞	7/8		
×68 ^[c]	20.0	21.1	21⅞	0.430	7/16	¼	8.27	8¼	0.685	11/16	1.19	1⅝	7/8		
×62 ^[c]	18.3	21.0	21	0.400	¾	3/16	8.24	8¼	0.615	5/8	1.12	1⅝	13/16		
×55 ^[c]	16.2	20.8	20¾	0.375	¾	3/16	8.22	8¼	0.522	½	1.02	1⅝	13/16		
×48 ^{[c],[f]}	14.1	20.6	20⅝	0.350	¾	3/16	8.14	8⅝	0.430	7/16	0.930	1⅝	13/16	↓	↓
W21×57 ^[c]	16.7	21.1	21	0.405	¾	3/16	6.56	6½	0.650	5/8	1.15	1⅝	13/16	18⅝	3½
×50 ^[c]	14.7	20.8	20⅞	0.380	¾	3/16	6.53	6½	0.535	9/16	1.04	1¼	13/16	↓	↓
×44 ^[c]	13.0	20.7	20⅝	0.350	¾	3/16	6.50	6½	0.450	7/16	0.950	1⅝	13/16	↓	↓

^[c] Shape is slender for compression with $F_y = 50$ ksi.
^[f] Shape exceeds the compact limit for flexure with $F_y = 50$ ksi.
^[g] The actual size, combination, and orientation of fastener components should be compared with the geometry of the cross section to ensure compatibility.
^[v] Shape does not meet the h/t_w limit for shear in AISC Specification Section G2.1(a) with $F_y = 50$ ksi.

<div>Table 1-1 (continued)</div> <div>W-Shapes</div> <div>Properties</div> <div><div>W24-W21</div></div>														
Nominal Wt.	Compact Section Criteria		Axis X-X				Axis Y-Y				r_{ts}	h_o	Torsional Properties	
	b_f	h	I	S	r	Z	I	S	r	Z			J	C_w
	lb/ft	$2t_f$	t_w	in. ⁴	in. ³	in.	in. ³	in. ⁴	in. ³	in.	in. ³		in. ⁴	in. ⁶
103	4.59	39.2	3000	245	10.0	280	119	26.5	1.99	41.5	2.40	23.5	7.07	16600
94	5.18	41.9	2700	222	9.87	254	109	24.0	1.98	37.5	2.40	23.4	5.26	15000
84	5.86	45.9	2370	196	9.79	224	94.4	20.9	1.95	32.6	2.37	23.3	3.70	12800
76	6.61	49.0	2100	176	9.69	200	82.5	18.4	1.92	28.6	2.33	23.2	2.68	11100
68	7.66	52.0	1830	154	9.55	177	70.4	15.7	1.87	24.5	2.30	23.1	1.87	9430
62	5.97	50.1	1550	131	9.23	153	34.5	9.80	1.38	15.7	1.75	23.1	1.71	4620
55	6.94	54.6	1350	114	9.11	134	29.1	8.30	1.34	13.3	1.72	23.1	1.18	3870
275	2.95	14.2	7690	638	9.70	749	787	122	3.10	191	3.68	21.9	107	94400
248	3.22	15.8	6830	576	9.62	671	699	109	3.08	170	3.63	21.7	80.7	82400
223	3.55	17.5	6080	520	9.56	601	614	96.7	3.04	150	3.57	21.6	59.5	71700
201	3.86	20.6	5310	461	9.47	530	542	86.1	3.02	133	3.55	21.4	40.9	62000
182	4.22	22.6	4730	417	9.40	476	483	77.2	3.00	119	3.51	21.2	30.7	54400
166	4.57	25.0	4280	380	9.36	432	435	70.0	2.99	108	3.48	21.1	23.6	48500
147	5.44	26.1	3630	329	9.17	373	376	60.1	2.95	92.6	3.46	21.0	15.4	41100
132	6.01	28.9	3220	295	9.12	333	333	53.5	2.93	82.3	3.43	20.8	11.3	36000
122	6.45	31.3	2960	273	9.09	307	305	49.2	2.92	75.6	3.40	20.7	8.98	32700
111	7.05	34.1	2670	249	9.05	279	274	44.5	2.90	68.2	3.37	20.6	6.83	29200
101	7.68	37.5	2420	227	9.02	253	248	40.3	2.89	61.7	3.35	20.6	5.21	26200
93	4.53	32.3	2070	192	8.70	221	92.9	22.1	1.84	34.7	2.24	20.7	6.03	9940
83	5.00	36.4	1830	171	8.67	196	81.4	19.5	1.83	30.5	2.21	20.6	4.34	8630
73	5.60	41.2	1600	151	8.64	172	70.6	17.0	1.81	26.6	2.19	20.5	3.02	7410
68	6.04	43.6	1480	140	8.60	160	64.7	15.7	1.80	24.4	2.17	20.4	2.45	6760
62	6.70	46.9	1330	127	8.54	144	57.5	14.0	1.77	21.7	2.15	20.4	1.83	5960
55	7.87	50.0	1140	110	8.40	126	48.4	11.8	1.73	18.4	2.11	20.3	1.24	4980
48	9.47	53.6	959	93.0	8.24	107	38.7	9.52	1.66	14.9	2.05	20.2	0.803	3950
57	5.04	46.3	1170	111	8.36	129	30.6	9.35	1.35	14.8	1.68	20.5	1.77	3190
50	6.10	49.4	984	94.5	8.18	110	24.9	7.64	1.30	12.2	1.64	20.3	1.14	2570
44	7.22	53.6	843	81.6	8.06	95.4	20.7	6.37	1.26	10.2	1.60	20.3	0.770	2110