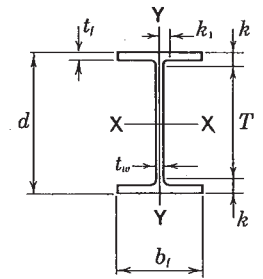


W SHAPES Dimensions

Designation	Area A	Depth d	Web				Flange			Distance			
			Thickness t _w	t _w / 2	Width b _f	Thickness t _f	T	k	k ₁				
										in.	in.	in.	in.
W 27x178	52.3	27.81	27 3/4	0.725	3/4	3/8	14.085	14 1/8	1.190	1 3/16	24	1 7/8	1 1/4
x161	47.4	27.59	27 5/8	0.660	11/16	3/8	14.020	14	1.080	1 1/16	24	1 13/16	1
x146	42.9	27.38	27 3/8	0.605	5/8	5/16	13.965	14	0.975	1	24	1 11/16	1
W 27x114	33.5	27.29	27 1/4	0.570	9/16	5/16	10.070	10 1/8	0.930	1 5/16	24	1 5/8	1 5/16
x102	30.0	27.09	27 1/8	0.515	1/2	1/4	10.015	10	0.830	1 3/16	24	1 9/16	1 5/16
x 94	27.7	26.92	26 7/8	0.490	1/2	1/4	9.990	10	0.745	3/4	24	1 7/16	1 5/16
x 84	24.8	26.71	26 3/4	0.460	7/16	1/4	9.960	10	0.640	5/8	24	1 3/8	1 5/16
W 24x162	47.7	25.00	25	0.705	11/16	3/8	12.955	13	1.220	1 1/4	21	2	1 1/16
x146	43.0	24.74	24 3/4	0.650	5/8	5/16	12.900	12 7/8	1.090	1 1/16	21	1 7/8	1 1/16
x131	38.5	24.48	24 1/2	0.605	5/8	5/16	12.855	12 7/8	0.960	1 5/16	21	1 3/4	1 1/16
x117	34.4	24.26	24 1/4	0.550	9/16	5/16	12.800	12 3/4	0.850	7/8	21	1 5/8	1
x104	30.6	24.06	24	0.500	1/2	1/4	12.750	12 3/4	0.750	3/4	21	1 1/2	1
W 24x 94	27.7	24.31	24 1/4	0.515	1/2	1/4	9.065	9 1/8	0.875	7/8	21	1 5/8	1
x 84	24.7	24.10	24 1/8	0.470	1/2	1/4	9.020	9	0.770	3/4	21	1 9/16	1 5/16
x 76	22.4	23.92	23 7/8	0.440	7/16	1/4	8.990	9	0.680	11/16	21	1 7/16	1 5/16
x 68	20.1	23.73	23 3/4	0.415	7/16	1/4	8.965	9	0.585	9/16	21	1 3/8	1 5/16
W 24x 62	18.2	23.74	23 3/4	0.430	7/16	1/4	7.040	7	0.590	9/16	21	1 3/8	1 5/16
x 55	16.2	23.57	23 5/8	0.395	3/8	3/16	7.005	7	0.505	1/2	21	1 5/16	1 5/16
W 21x147	43.2	22.06	22	0.720	3/4	3/8	12.510	12 1/2	1.150	1 1/8	18 1/4	1 7/8	1 1/16
x132	38.8	21.83	21 7/8	0.650	5/8	5/16	12.440	12 1/2	1.035	1 1/16	18 1/4	1 13/16	1
x122	35.9	21.68	21 5/8	0.600	5/8	5/16	12.390	12 3/8	0.960	1 5/16	18 1/4	1 11/16	1
x111	32.7	21.51	21 1/2	0.550	9/16	5/16	12.340	12 3/8	0.875	7/8	18 1/4	1 5/8	1 5/16
x101	29.8	21.36	21 3/8	0.500	1/2	1/4	12.290	12 1/4	0.800	1 3/16	18 1/4	1 9/16	1 5/16
W 21x 93	27.3	21.62	21 5/8	0.580	9/16	5/16	8.420	8 3/8	0.930	1 5/16	18 1/4	1 11/16	1
x 83	24.3	21.43	21 3/8	0.515	1/2	1/4	8.355	8 3/8	0.835	1 3/16	18 1/4	1 9/16	1 5/16
x 73	21.5	21.24	21 1/4	0.455	7/16	1/4	8.295	8 1/4	0.740	3/4	18 1/4	1 1/2	1 5/16
x 68	20.0	21.13	21 1/8	0.430	7/16	1/4	8.270	8 1/4	0.685	1 1/16	18 1/4	1 7/16	7/8
x 62	18.3	20.99	21	0.400	3/8	3/16	8.240	8 1/4	0.615	5/8	18 1/4	1 3/8	7/8
W 21x 57	16.7	21.06	21	0.405	3/8	3/16	6.555	6 1/2	0.650	5/8	18 1/4	1 3/8	7/8
x 50	14.7	20.83	20 7/8	0.380	3/8	3/16	6.530	6 1/2	0.535	9/16	18 1/4	1 5/16	7/8
x 44	13.0	20.66	20 5/8	0.350	3/8	3/16	6.500	6 1/2	0.450	7/16	18 1/4	1 3/16	7/8



W SHAPES Properties

Nominal Wt. per Ft.	Compact Section Criteria					r _T	d A _f	Elastic Properties						Torsional constant J	Plastic Modulus	
	b _f / 2t _f	F _y '	d/ t _w	F _y '''	r _T			Axis X-X			Axis Y-Y				Z _x	Z _y
								I	S	r	I	S	r			
								in. ⁴	in. ³	in.	in. ⁴	in. ³	in.			
178	5.9	—	38.4	44.9	3.72	1.66	6990	502	11.6	555	78.8	3.26	19.5	567	122	
161	6.5	—	41.8	37.8	3.70	1.82	6280	455	11.5	497	70.9	3.24	14.7	512	109	
146	7.2	—	45.3	32.2	3.68	2.01	5630	411	11.4	443	63.5	3.21	10.9	461	97.5	
114	5.4	—	47.9	28.8	2.58	2.91	4090	299	11.0	159	31.5	2.18	7.33	343	49.3	
102	6.0	—	52.6	23.9	2.56	3.26	3620	267	11.0	139	27.8	2.15	5.29	305	43.4	
94	6.7	—	54.9	21.9	2.53	3.62	3270	243	10.9	124	24.8	2.12	4.03	278	38.8	
84	7.8	—	58.1	19.6	2.49	4.19	2850	213	10.7	106	21.2	2.07	2.81	244	33.2	
162	5.3	—	35.5	52.5	3.45	1.58	5170	414	10.4	443	68.4	3.05	18.5	468	105.	
146	5.9	—	38.1	45.6	3.43	1.76	4580	371	10.3	391	60.5	3.01	13.4	418	93.2	
131	6.7	—	40.5	40.3	3.40	1.98	4020	329	10.2	340	53.0	2.97	9.50	370	81.5	
117	7.5	—	44.1	33.9	3.37	2.23	3540	291	10.1	297	46.5	2.94	6.72	327	71.4	
104	8.5	58.5	48.1	28.5	3.35	2.52	3100	258	10.1	259	40.7	2.91	4.72	289	62.4	
94	5.2	—	47.2	29.6	2.33	3.06	2700	222	9.87	109	24.0	1.98	5.26	254	37.5	
84	5.9	—	51.3	25.1	2.31	3.47	2370	196	9.79	94.4	20.9	1.95	3.70	224	32.6	
76	6.6	—	54.4	22.3	2.29	3.91	2100	176	9.69	82.5	18.4	1.92	2.68	200	28.6	
68	7.7	—	57.2	20.2	2.26	4.52	1830	154	9.55	70.4	15.7	1.87	1.87	177	24.5	
62	6.0	—	55.2	21.7	1.71	5.72	1550	131	9.23	34.5	9.80	1.38	1.71	153	15.7	
55	6.9	—	59.7	18.5	1.68	6.66	1350	114	9.11	29.1	8.30	1.34	1.18	134	13.3	
147	5.4	—	30.6	—	3.34	1.53	3630	329	9.17	376	60.1	2.95	15.4	373	92.6	
132	6.0	—	33.6	58.6	3.31	1.70	3220	295	9.12	333	53.5	2.93	11.3	333	82.3	
122	6.5	—	36.1	50.6	3.30	1.82	2960	273	9.09	305	49.2	2.92	8.98	307	75.6	
111	7.1	—	39.1	43.2	3.28	1.99	2670	249	9.05	274	44.5	2.90	6.83	279	68.2	
101	7.7	—	42.7	36.2	3.27	2.17	2420	227	9.02	248	40.3	2.89	5.21	253	61.7	
93	4.5	—	37.3	47.5	2.17	2.76	2070	192	8.70	92.9	22.1	1.84	6.03	221	34.7	
83	5.0	—	41.6	38.1	2.15	3.07	1830	171	8.67	81.4	19.5	1.83	4.34	196	30.5	
73	5.6	—	46.7	30.3	2.13	3.46	1600	151	8.64	70.6	17.0	1.81	3.02	172	26.6	
68	6.0	—	49.1	27.4	2.12	3.73	1480	140	8.60	64.7	15.7	1.80	2.45	160	24.4	
62	6.7	—	52.5	24.0	2.10	4.14	1330	127	8.54	57.5	13.9	1.77	1.83	144	21.7	
57	5.0	—	52.0	24.4	1.64	4.94	1170	111	8.36	30.6	9.35	1.35	1.77	129	14.8	
50	6.1	—	54.8	22.0	1.60	5.96	984	94.5	8.18	24.9	7.64	1.30	1.14	110	12.2	
44	7.2	—	59.0	19.0	1.57	7.06	843	81.6	8.06	20.7	6.36	1.26	0.77	95.4	10.2	