

Table 1-7 (continued)
Angles
Properties

Shape	k	Wt.	Area, A	Axis X-X						Flexural-Torsional Properties		
				I	S	r	\bar{y}	Z	y_p	J	C_w	\bar{r}_o
				in. ⁴	in. ³	in.	in.	in. ³	in.	in. ⁴	in. ⁶	in.
L5×3×1/2	15/16	12.8	3.75	9.43	2.89	1.58	1.74	5.12	1.25	0.322	0.444	2.38
×7/16	7/8	11.3	3.31	8.41	2.56	1.59	1.72	4.53	1.22	0.220	0.304	2.39
×3/8	13/16	9.80	2.86	7.35	2.22	1.60	1.69	3.93	1.19	0.141	0.196	2.41
×5/16	3/4	8.20	2.41	6.24	1.87	1.61	1.67	3.32	1.14	0.0832	0.116	2.42
×1/4	11/16	6.60	1.94	5.09	1.51	1.62	1.64	2.68	1.12	0.0438	0.0606	2.43
L4×4×3/4	1 1/8	18.5	5.44	7.62	2.79	1.18	1.27	5.02	0.680	1.02	1.12	2.10
×5/8	1	15.7	4.61	6.62	2.38	1.20	1.22	4.28	0.576	0.610	0.680	2.13
×1/2	7/8	12.8	3.75	5.52	1.96	1.21	1.18	3.50	0.469	0.322	0.366	2.16
×7/16	13/16	11.3	3.30	4.93	1.73	1.22	1.15	3.10	0.413	0.220	0.252	2.18
×3/8	3/4	9.80	2.86	4.32	1.50	1.23	1.13	2.69	0.358	0.141	0.162	2.19
×5/16	11/16	8.20	2.40	3.67	1.27	1.24	1.11	2.26	0.300	0.0832	0.0963	2.21
×1/4	5/8	6.60	1.93	3.00	1.03	1.25	1.08	1.82	0.241	0.0438	0.0505	2.22
L4×3 1/2×1/2	7/8	11.9	3.50	5.30	1.92	1.23	1.24	3.46	0.500	0.301	0.302	2.03
×3/8	3/4	9.10	2.68	4.15	1.48	1.25	1.20	2.66	0.427	0.132	0.134	2.06
×5/16	11/16	7.70	2.25	3.53	1.25	1.25	1.17	2.24	0.400	0.0782	0.0798	2.08
×1/4	5/8	6.20	1.82	2.89	1.01	1.26	1.14	1.81	0.360	0.0412	0.0419	2.09
L4×3×5/8	1	13.6	3.99	6.01	2.28	1.23	1.37	4.08	0.808	0.529	0.472	1.91
×1/2	7/8	11.1	3.25	5.02	1.87	1.24	1.32	3.36	0.750	0.281	0.255	1.94
×3/8	3/4	8.50	2.49	3.94	1.44	1.26	1.27	2.60	0.680	0.123	0.114	1.97
×5/16	11/16	7.20	2.09	3.36	1.22	1.27	1.25	2.19	0.656	0.0731	0.0676	1.98
×1/4	5/8	5.80	1.69	2.75	0.988	1.27	1.22	1.77	0.620	0.0386	0.0356	1.99
L3 1/2×3 1/2×1/2	7/8	11.1	3.25	3.63	1.48	1.05	1.05	2.66	0.464	0.281	0.238	1.87
×7/16	13/16	9.80	2.89	3.25	1.32	1.06	1.03	2.36	0.413	0.192	0.164	1.89
×3/8	3/4	8.50	2.50	2.86	1.15	1.07	1.00	2.06	0.357	0.123	0.106	1.90
×5/16	11/16	7.20	2.10	2.44	0.969	1.08	0.979	1.74	0.300	0.0731	0.0634	1.92
×1/4	5/8	5.80	1.70	2.00	0.787	1.09	0.954	1.41	0.243	0.0386	0.0334	1.93
L3 1/2×2 3/4×1/2	7/8	10.2	3.02	3.45	1.45	1.07	1.12	2.61	0.480	0.260	0.191	1.75
×7/16	13/16	9.10	2.67	3.10	1.29	1.08	1.09	2.32	0.449	0.178	0.132	1.76
×3/8	3/4	7.90	2.32	2.73	1.12	1.09	1.07	2.03	0.407	0.114	0.0858	1.78
×5/16	11/16	6.60	1.95	2.33	0.951	1.09	1.05	1.72	0.380	0.0680	0.0512	1.79
×1/4	5/8	5.40	1.58	1.92	0.773	1.10	1.02	1.39	0.340	0.0360	0.0270	1.80
L3 1/2×2 1/2×1/2	7/8	9.40	2.77	3.24	1.41	1.08	1.20	2.52	0.730	0.234	0.159	1.66
×3/8	3/4	7.20	2.12	2.56	1.09	1.10	1.15	1.96	0.673	0.103	0.0714	1.69
×5/16	11/16	6.10	1.79	2.20	0.925	1.11	1.13	1.67	0.636	0.0611	0.0426	1.71
×1/4	5/8	4.90	1.45	1.81	0.753	1.12	1.10	1.36	0.600	0.0322	0.0225	1.72

Note: For workable gages, refer to Table 1-7A. For width-to-thickness criteria, refer to Table 1-7B.

Table 1-7 (continued)
Angles
Properties



Shape	Axis Y-Y						Axis Z-Z			
	<i>I</i>	<i>S</i>	<i>r</i>	\bar{x}	<i>Z</i>	<i>x_p</i>	<i>I</i>	<i>S</i>	<i>r</i>	Tan α
	in. ⁴	in. ³	in.	in.	in. ³	in.	in. ⁴	in. ³	in.	
L5×3×½	2.55	1.13	0.824	0.746	2.08	0.375	1.55	0.957	0.642	0.357
×7/16	2.29	1.00	0.831	0.722	1.82	0.331	1.37	0.840	0.644	0.361
×¾	2.01	0.874	0.838	0.698	1.57	0.286	1.20	0.727	0.646	0.364
×5/16	1.72	0.739	0.846	0.673	1.31	0.241	1.01	0.608	0.649	0.368
×¼	1.41	0.600	0.853	0.648	1.05	0.194	0.825	0.491	0.652	0.371
L4×4×¾	7.62	2.79	1.18	1.27	5.02	0.680	3.25	1.81	0.774	1.00
×5/8	6.62	2.38	1.20	1.22	4.28	0.576	2.76	1.60	0.774	1.00
×½	5.52	1.96	1.21	1.18	3.50	0.469	2.25	1.35	0.776	1.00
×7/16	4.93	1.73	1.22	1.15	3.10	0.413	1.99	1.22	0.777	1.00
×¾	4.32	1.50	1.23	1.13	2.69	0.358	1.73	1.08	0.779	1.00
×5/16	3.67	1.27	1.24	1.11	2.26	0.300	1.46	0.930	0.781	1.00
×¼	3.00	1.03	1.25	1.08	1.82	0.241	1.19	0.778	0.783	1.00
L4×3½×½	3.76	1.50	1.04	0.994	2.69	0.438	1.79	1.16	0.716	0.750
×5/8	2.96	1.16	1.05	0.947	2.06	0.335	1.39	0.939	0.719	0.755
×5/16	2.52	0.980	1.06	0.923	1.74	0.281	1.16	0.806	0.721	0.757
×¼	2.07	0.794	1.07	0.897	1.40	0.228	0.953	0.653	0.723	0.759
L4×3×5/8	2.85	1.34	0.845	0.867	2.45	0.499	1.59	1.13	0.631	0.534
×½	2.40	1.10	0.858	0.822	1.99	0.406	1.30	0.929	0.633	0.542
×¾	1.89	0.851	0.873	0.775	1.52	0.311	1.00	0.699	0.636	0.551
×5/16	1.62	0.721	0.880	0.750	1.28	0.261	0.849	0.590	0.638	0.554
×¼	1.33	0.585	0.887	0.725	1.03	0.211	0.692	0.474	0.639	0.558
L3½×3½×½	3.63	1.48	1.05	1.05	2.66	0.464	1.51	1.02	0.679	1.00
×7/16	3.25	1.32	1.06	1.03	2.36	0.413	1.33	0.911	0.681	1.00
×5/8	2.86	1.15	1.07	1.00	2.06	0.357	1.17	0.830	0.683	1.00
×5/16	2.44	0.969	1.08	0.979	1.74	0.300	0.984	0.713	0.685	1.00
×¼	2.00	0.787	1.09	0.954	1.41	0.243	0.802	0.594	0.688	1.00
L3½×3×½	2.32	1.09	0.877	0.869	1.97	0.431	1.15	0.846	0.618	0.713
×7/16	2.09	0.971	0.885	0.846	1.75	0.381	1.02	0.773	0.620	0.717
×5/8	1.84	0.847	0.892	0.823	1.52	0.331	0.894	0.693	0.622	0.720
×5/16	1.58	0.718	0.900	0.798	1.28	0.279	0.758	0.602	0.624	0.722
×¼	1.30	0.585	0.908	0.773	1.04	0.226	0.622	0.486	0.628	0.725
L3½×2½×½	1.36	0.756	0.701	0.701	1.39	0.396	0.781	0.651	0.532	0.485
×5/8	1.09	0.589	0.716	0.655	1.07	0.303	0.609	0.499	0.535	0.495
×5/16	0.937	0.501	0.723	0.632	0.900	0.256	0.518	0.418	0.538	0.500
×¼	0.775	0.410	0.731	0.607	0.728	0.207	0.426	0.341	0.541	0.504

Note: For workable gages, refer to Table 1-7A. For width-to-thickness criteria, refer to Table 1-7B.

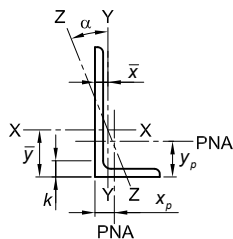


Table 1-7 (continued)
Angles
Properties

Shape	k	Wt.	Area, A	Axis X-X						Flexural-Torsional Properties		
				I	S	r	\bar{y}	Z	y_p	J	C_w	\bar{r}_o
				in. ⁴	in. ³	in.	in.	in. ³	in.	in. ⁴	in. ⁶	in.
L3×3×1/2	7/8	9.40	2.76	2.20	1.06	0.895	0.929	1.91	0.460	0.230	0.144	1.59
×7/16	13/16	8.30	2.43	1.98	0.946	0.903	0.907	1.70	0.405	0.157	0.100	1.60
×3/8	3/4	7.20	2.11	1.75	0.825	0.910	0.884	1.48	0.352	0.101	0.0652	1.62
×5/16	11/16	6.10	1.78	1.50	0.699	0.918	0.860	1.26	0.297	0.0597	0.0390	1.64
×1/4	5/8	4.90	1.44	1.23	0.569	0.926	0.836	1.02	0.240	0.0313	0.0206	1.65
×3/16	9/16	3.71	1.09	0.948	0.433	0.933	0.812	0.774	0.182	0.0136	0.00899	1.67
L3×2 1/2×1/2	7/8	8.50	2.50	2.07	1.03	0.910	0.995	1.86	0.500	0.213	0.112	1.46
×7/16	13/16	7.60	2.22	1.87	0.921	0.917	0.972	1.66	0.463	0.146	0.0777	1.48
×3/8	3/4	6.60	1.93	1.65	0.803	0.924	0.949	1.45	0.427	0.0943	0.0507	1.49
×5/16	11/16	5.60	1.63	1.41	0.681	0.932	0.925	1.23	0.392	0.0560	0.0304	1.51
×1/4	5/8	4.50	1.32	1.16	0.555	0.940	0.900	1.00	0.360	0.0296	0.0161	1.52
×3/16	9/16	3.39	1.00	0.899	0.423	0.947	0.874	0.761	0.333	0.0130	0.00705	1.54
L3×2×1/2	13/16	7.70	2.26	1.92	1.00	0.922	1.08	1.78	0.740	0.192	0.0908	1.39
×3/8	11/16	5.90	1.75	1.54	0.779	0.937	1.03	1.39	0.667	0.0855	0.0413	1.42
×5/16	5/8	5.00	1.48	1.32	0.662	0.945	1.01	1.19	0.632	0.0510	0.0248	1.43
×1/4	9/16	4.10	1.20	1.09	0.541	0.953	0.980	0.969	0.600	0.0270	0.0132	1.45
×3/16	1/2	3.07	0.917	0.847	0.414	0.961	0.952	0.743	0.555	0.0119	0.00576	1.46
L2 1/2×2 1/2×1/2	3/4	7.70	2.26	1.22	0.716	0.735	0.803	1.29	0.452	0.188	0.0791	1.30
×3/8	5/8	5.90	1.73	0.972	0.558	0.749	0.758	1.01	0.346	0.0833	0.0362	1.33
×5/16	9/16	5.00	1.46	0.837	0.474	0.756	0.735	0.853	0.292	0.0495	0.0218	1.35
×1/4	1/2	4.10	1.19	0.692	0.387	0.764	0.711	0.695	0.238	0.0261	0.0116	1.36
×3/16	7/16	3.07	0.901	0.535	0.295	0.771	0.687	0.529	0.180	0.0114	0.00510	1.38
L2 1/2×2×3/8	5/8	5.30	1.55	0.914	0.546	0.766	0.826	0.982	0.433	0.0746	0.0268	1.22
×5/16	9/16	4.50	1.32	0.790	0.465	0.774	0.803	0.839	0.388	0.0444	0.0162	1.23
×1/4	1/2	3.62	1.07	0.656	0.381	0.782	0.779	0.688	0.360	0.0235	0.00868	1.25
×3/16	7/16	2.75	0.818	0.511	0.293	0.790	0.754	0.529	0.319	0.0103	0.00382	1.26
L2 1/2×1 1/2×1/4	1/2	3.19	0.947	0.594	0.364	0.792	0.866	0.644	0.606	0.0209	0.00694	1.19
×3/16	7/16	2.44	0.724	0.464	0.280	0.801	0.839	0.497	0.569	0.00921	0.00306	1.20
L2×2×3/8	5/8	4.70	1.37	0.476	0.348	0.591	0.632	0.629	0.340	0.0658	0.0174	1.05
×5/16	9/16	3.92	1.16	0.414	0.298	0.598	0.609	0.537	0.293	0.0393	0.0106	1.06
×1/4	1/2	3.19	0.944	0.346	0.244	0.605	0.586	0.440	0.236	0.0209	0.00572	1.08
×3/16	7/16	2.44	0.722	0.271	0.188	0.612	0.561	0.338	0.181	0.00921	0.00254	1.09
×1/8	3/8	1.65	0.491	0.189	0.129	0.620	0.534	0.230	0.123	0.00293	0.000789	1.10

Note: For workable gages, refer to Table 1-7A. For width-to-thickness criteria, refer to Table 1-7B.

Table 1-7 (continued)
Angles
Properties



Shape	Axis Y-Y						Axis Z-Z			
	<i>I</i>	<i>S</i>	<i>r</i>	\bar{x}	<i>Z</i>	<i>x_p</i>	<i>I</i>	<i>S</i>	<i>r</i>	Tan α
	in. ⁴	in. ³	in.	in.	in. ³	in.	in. ⁴	in. ³	in.	
L3×3×1/2	2.20	1.06	0.895	0.929	1.91	0.460	0.922	0.704	0.580	1.00
×7/16	1.98	0.946	0.903	0.907	1.70	0.405	0.817	0.638	0.580	1.00
×3/8	1.75	0.825	0.910	0.884	1.48	0.352	0.716	0.573	0.581	1.00
×5/16	1.50	0.699	0.918	0.860	1.26	0.297	0.606	0.497	0.583	1.00
×1/4	1.23	0.569	0.926	0.836	1.02	0.240	0.490	0.415	0.585	1.00
×3/16	0.948	0.433	0.933	0.812	0.774	0.182	0.373	0.324	0.586	1.00
L3×2½×1/2	1.29	0.736	0.718	0.746	1.34	0.417	0.665	0.568	0.516	0.666
×7/16	1.17	0.656	0.724	0.724	1.19	0.370	0.594	0.521	0.516	0.671
×3/8	1.03	0.573	0.731	0.701	1.03	0.322	0.514	0.463	0.517	0.675
×5/16	0.888	0.487	0.739	0.677	0.873	0.272	0.435	0.403	0.518	0.679
×1/4	0.734	0.397	0.746	0.653	0.707	0.220	0.355	0.329	0.520	0.683
×3/16	0.568	0.303	0.753	0.627	0.536	0.167	0.271	0.246	0.521	0.687
L3×2×1/2	0.667	0.470	0.543	0.580	0.887	0.377	0.409	0.411	0.425	0.413
×3/8	0.539	0.368	0.555	0.535	0.679	0.292	0.319	0.313	0.426	0.426
×5/16	0.467	0.314	0.562	0.511	0.572	0.247	0.271	0.263	0.428	0.432
×1/4	0.390	0.258	0.569	0.487	0.463	0.200	0.223	0.214	0.431	0.437
×3/16	0.305	0.198	0.577	0.462	0.351	0.153	0.173	0.163	0.435	0.442
L2½×2½×1/2	1.22	0.716	0.735	0.803	1.29	0.452	0.526	0.461	0.481	1.00
×3/8	0.972	0.558	0.749	0.758	1.01	0.346	0.400	0.374	0.481	1.00
×5/16	0.837	0.474	0.756	0.735	0.853	0.292	0.338	0.325	0.481	1.00
×1/4	0.692	0.387	0.764	0.711	0.695	0.238	0.276	0.273	0.482	1.00
×3/16	0.535	0.295	0.771	0.687	0.529	0.180	0.209	0.215	0.482	1.00
L2½×2×3/8	0.513	0.361	0.574	0.578	0.657	0.310	0.273	0.295	0.419	0.612
×5/16	0.446	0.309	0.581	0.555	0.557	0.264	0.233	0.261	0.420	0.618
×1/4	0.372	0.253	0.589	0.532	0.454	0.214	0.192	0.213	0.423	0.624
×3/16	0.292	0.195	0.597	0.508	0.347	0.164	0.148	0.162	0.426	0.628
L2½×1½×1/4	0.160	0.142	0.411	0.372	0.261	0.189	0.0977	0.120	0.321	0.354
×3/16	0.126	0.110	0.418	0.347	0.198	0.145	0.0754	0.0906	0.324	0.360
L2×2×3/8	0.476	0.348	0.591	0.632	0.629	0.343	0.203	0.227	0.386	1.00
×5/16	0.414	0.298	0.598	0.609	0.537	0.290	0.172	0.200	0.386	1.00
×1/4	0.346	0.244	0.605	0.586	0.440	0.236	0.142	0.171	0.387	1.00
×3/16	0.271	0.188	0.612	0.561	0.338	0.181	0.109	0.137	0.389	1.00
×1/8	0.189	0.129	0.620	0.534	0.230	0.123	0.0756	0.100	0.391	1.00

Note: For workable gages, refer to Table 1-7A. For width-to-thickness criteria, refer to Table 1-7B.