



STRUCTURAL ANGLES

Equal legs and unequal legs
Properties for designing

ASTM-A36

Size and Thickness	k	Weight per Foot	Area	AXIS X-X				AXIS Y-Y				AXIS Z-Z		
				l	S	r	y	l	S	r	x	r	Tan ok	
In.	In.	Lb.	In. ²	In. ⁴	In. ³	In.	In.	In. ⁴	In. ³	In.	In.	In.	In.	Tan ok
L3 x2	x 3/16	1/2	3.12	0.917	0.847	0.414	0.961	0.952	0.305	0.198	0.577	0.462	0.435	0.442
	x 1/4	9/16	4.09	1.20	1.09	0.541	0.953	0.980	0.390	0.258	0.569	0.487	0.431	0.437
	x 5/16	5/8	5.03	1.48	1.32	0.662	0.945	11.010	0.467	0.314	0.562	0.511	0.428	0.432
	x 3/8	11/16	5.95	1.75	1.54	0.779	0.937	1.03	0.539	0.368	0.555	0.535	0.426	0.426
	x 1/2	13/16	7.7	2.26	1.92	1.00	0.922	1.08	0.667	0.470	0.543	0.580	0.425	0.413
L3 x2 1/2	x 3/16	9/16	3.41	1.00	0.899	0.423	0.947	0.874	0.568	0.303	0.753	0.627	0.521	0.687
	x 1/4	5/8	4.49	1.32	1.16	0.555	0.940	0.900	0.734	0.397	0.746	0.653	0.520	0.683
	x 5/16	11/16	5.54	1.63	1.41	0.681	0.932	0.925	0.888	0.487	0.739	0.677	0.518	0.688
	x 3/8	3/4	6.56	1.93	1.65	0.803	0.924	0.949	1.03	0.573	0.731	0.701	0.517	0.675
	x 7/16	13/16	7.56	2.22	1.87	0.921	0.917	0.972	1.17	0.656	0.724	0.724	0.516	0.671
	x 1/2	7/8	8.53	2.51	2.07	1.03	0.910	0.995	1.29	0.736	0.718	0.746	0.516	0.666
L3 X3	x 3/16	9/16	3.70	1.09	0.948	0.433	0.933	0.812	0.948	0.433	0.933	0.812	0.586	1.000
	x 1/4	5/8	4.89	1.44	1.23	0.569	0.926	0.836	1.23	0.569	0.926	0.836	0.585	1.000
	x 5/16	11/16	6.04	1.78	1.50	0.699	0.918	0.860	1.50	0.699	0.918	0.860	0.583	1.000
	x 3/8	3/4	7.17	2.11	1.75	0.825	0.910	0.884	1.75	0.825	0.910	0.884	0.581	1.000
	x 7/16	13/16	8.28	2.43	1.98	0.946	0.903	0.907	1.98	0.946	0.903	0.907	0.580	1.000
	x 1/2	7/8	9.35	2.75	2.20	1.06	0.895	0.929	2.20	1.06	0.895	0.929	0.580	1.000
L3 1/2 x 2 1/2	x 1/4	5/8	4.94	1.45	1.81	0.753	1.12	1.10	0.775	0.410	0.731	0.607	0.541	0.504
	x 5/16	11/16	6.10	1.79	2.20	0.925	1.11	1.13	0.937	0.501	0.723	0.632	0.538	0.500
	x 3/8	3/4	7.23	2.12	2.56	1.09	1.10	1.15	1.09	0.589	0.716	0.655	0.535	0.495
	x 1/2	7/8	9.41	2.76	3.24	1.41	1.08	1.20	1.36	0.756	0.701	0.701	0.532	0.485
L3 1/2 x 3	x 1/4	5/8	5.38	1.58	1.92	0.773	1.10	1.02	1.30	0.585	0.908	0.773	0.628	0.725
	x 5/16	11/16	6.65	1.95	2.33	0.95	1.09	1.05	1.58	0.718	0.900	0.798	0.624	0.722
	x 3/8	3/4	7.88	2.32	2.73	1.12	1.09	1.07	1.84	0.847	0.892	0.823	0.622	0.720
	x 7/16	13/16	9.09	2.67	3.10	1.29	1.08	1.09	2.09	0.971	0.885	0.846	0.620	0.717
	x 1/2	7/8	10.3	3.02	3.45	1.45	1.07	1.12	2.32	1.09	0.877	0.869	0.618	0.713
L3 1/2 x 3 1/2	x 1/4	5/8	5.79	1.70	2.00	0.787	1.09	0.954	2.00	0.787	1.09	0.954	0.688	1.000
	x 5/16	11/16	7.16	2.10	2.44	0.969	1.08	0.979	2.44	0.969	1.08	0.979	0.685	1.000
	x 3/8	3/4	8.51	2.50	2.86	1.15	1.07	1.00	2.86	1.15	1.07	1.00	0.683	1.000
	x 7/16	13/16	9.82	2.89	3.25	1.32	1.06	1.03	3.25	1.32	1.06	1.03	0.681	1.000
	x 1/2	7/8	11.1	3.27	3.63	1.48	1.05	1.05	3.63	1.48	1.05	1.05	0.679	1.000
L4 x3	x 1/4	11/16	5.75	1.69	2.75	0.988	1.27	1.22	1.33	0.585	0.887	0.725	0.631	0.558
	x 5/16	3/4	7.12	2.09	3.36	1.22	1.27	1.25	1.62	0.721	0.880	0.750	0.633	0.554
	x 3/8	13/16	8.47	2.49	3.94	1.44	1.26	1.27	1.89	0.851	0.873	0.775	0.636	0.551
	x 1/2	15/16	11.1	3.25	5.02	1.87	1.24	1.32	2.40	1.10	0.858	0.822	0.638	0.543
	x 5/8	1 1/16	13.6	3.99	6.01	2.28	1.23	1.37	2.85	1.34	0.845	0.867	0.639	0.534
L4 x3 1/2	x 1/4	11/16	6.2	1.82	2.89	1.01	1.26	1.14	2.07	0.794	1.07	0.897	0.723	0.759
	x 5/16	3/4	7.7	2.25	3.53	1.25	1.25	1.17	2.52	0.980	1.06	0.923	0.721	0.757
	x 3/8	13/16	9.1	2.68	4.15	1.48	1.25	1.20	2.96	1.16	1.05	0.947	0.719	0.755
	x 1/2	15/16	11.9	3.50	5.30	1.92	1.23	1.24	3.76	1.50	1.04	0.994	0.716	0.750
L4 x4	x 1/4	5/8	6.6	1.93	3.00	1.03	1.25	1.08	3.00	1.03	1.25	1.08	0.783	1.000
	x 5/16	11/16	8.2	2.40	3.67	1.27	1.24	1.11	3.67	1.27	1.24	1.11	0.781	1.000
	x 3/8	3/4	9.72	2.86	4.32	1.5	1.23	1.13	4.32	1.50	1.23	1.13	0.779	1.000
	x 7/16	13/16	11.2	3.30	4.93	1.73	1.22	1.15	4.93	1.73	1.22	1.15	0.777	1.000
	x 1/2	7/8	12.7	3.75	5.52	1.96	1.21	1.18	5.52	1.96	1.21	1.18	0.776	1.000
	x 5/8	1	15.7	4.61	6.62	2.38	1.20	1.22	6.62	2.38	1.20	1.22	0.774	1.000
	x 3/4	1 1/8	18.5	5.43	7.62	2.79	1.18	1.27	7.62	2.79	1.18	1.27	0.774	1.000
L5 x3	x 1/4	11/16	6.6	1.94	5.09	1.51	1.62	1.64	1.41	0.600	0.853	0.648	0.652	0.371
	x 5/16	3/4	8.2	2.41	6.24	1.87	1.61	1.67	1.72	0.739	0.846	0.673	0.649	0.368
	x 3/8	13/16	9.8	2.86	7.35	2.22	1.60	1.69	2.01	0.874	0.838	0.698	0.646	0.364
	x 7/16	7/8	11.3	3.31	8.41	2.56	1.59	1.72	2.29	1.00	0.831	0.722	0.644	0.361
	x 1/2	15/16	12.8	3.75	9.43	2.89	1.58	1.74	2.55	1.13	0.824	0.746	0.642	0.357
L5 x3 1/2	x 1/4	11/16	7.03	2.07	5.36	1.55	1.61	1.55	2.20	0.816	1.03	0.804	0.761	0.491
	x 5/16	3/4	8.72	2.56	6.58	1.92	1.60	1.57	2.69	1.01	1.02	0.829	0.758	0.489
	x 3/8	3/4	10.4	3.05	7.75	2.28	1.59	1.60	3.15	1.19	1.02	0.854	0.755	0.486
	x 1/2	15/16	13.6	4.00	9.96	2.97	1.58	1.65	4.02	1.55	1.00	0.901	0.750	0.479
	x 5/8	1 1/8	16.8	4.93	12.0	3.63	1.56	1.69	4.80	1.88	0.987	0.947	0.746	0.472
	x 3/4	1 3/16	19.8	5.82	13.9	4.26	1.55	1.74	5.52	2.20	0.974	0.993	0.744	0.464
L5 x5	x 5/16	13/16	10.4	3.07	7.44	2.04	1.56	1.35	7.44	2.04	1.56	1.35	0.990	1.000
	x 3/8	7/8	12.4	3.65	8.76	2.41	1.55	1.37	8.76	2.41	1.55	1.37	0.986	1.000
	x 7/16	15/16	14.4	4.22	10.0	2.78	1.54	1.40	10.0	2.78	1.54	1.40	0.983	1.000
	x 1/2	1	16.3	4.79	11.3	3.15	1.53	1.42	11.3	3.15	1.53	1.42	0.980	1.000
	x 5/8	1 1/8	20.1	5.90	13.6	3.85	1.52	1.47	13.6	3.85	1.52	1.47	0.975	1.000
	x 3/4	1 1/4	23.7	6.98	15.7	4.52	1.50	1.52	15.7	4.52	1.50	1.52	0.972	1.000
	x 7/8	1 3/8	27.3	8.02	17.8	5.16	1.49	1.56	17.8	5.16	1.49	1.56	0.971	1.000
L6 x3 1/2	x 5/16	13/16	9.72	2.86	10.9	2.72	1.95	2.02	2.83	1.03	0.995	0.763	0.768	0.353
	x 3/8	7/8	11.6	3.41	12.8	3.24	1.94	2.04	3.32	1.22	0.987	0.786	0.764	0.350
	x 1/2	1	15.3	4.48	16.6	4.23	1.92	2.08	4.23	1.58	0.971	0.833	0.757	0.344
L6 x4	x 5/16	13/16	10.2	2.99	11.3	2.77	1.94	1.92	4.11	1.33	1.17	0.916	0.874	0.450
	x 3/8	7/8	12.2	3.58	13.4	3.3	1.93	1.94	4.84	1.58	1.16	0.94	0.871	0.447
	x 7/16	15/16	14.1	4.15	15.4	3.81	1.92	1.97	5.54	1.82	1.16	0.963	0.868	0.444
	x 1/2	1	16.0	4.72	17.3	4.31	1.92	1.99	6.21	2.06	1.15	0.986	0.865	0.441
	x 9/16	1 1/16	17.9	5.27	19.2	4.81	1.91	2.01	6.85	2.29	1.14	1.01	0.862	0.438
	x 5/8	1 1/8	19.8	5.83	21.0	5.29	1.90	2.03	7.47	2.52	1.13	1.03	0.860	0.435
	x 3/4	1 1/4	23.5	6.90	24.4	6.23	1.88	2.08	8.63	2.95	1.12	1.08	0.857	0.429
	x 7/8	1 3/8	27.1	7.95	27.6	7.13	1.86	2.12	9.70	3.37	1.10	1.12	0.855	0.422
L6 x6	x 5/16	13/16	12.5	3.67	13.0	2.95	1.88							