

Mean CTE over range from RT to actual temperature		K3004 Beam length including connections (in.)	Shortening due to sagging (in.)	Elastic Modulus Steel	AISC Structural Steel	Elastic Modulus Retention	Factor at elevated temperature	Elastic Modulus at temp (psi)	Load (lbs.)	MOI (in.4)	Deflection (in.)
°C	°F										
300	572	50	0.00000719	644.6875	2.326	0.001	2.325	23,780.000	42307	1350	0.426
316	600	50	0.00000724	644.6875	2.474	0.001	2.473	23,844.222	42307	1350	0.468
321	610	50	0.0000073	644.6875	2.527	0.001	2.526	23,874.444	42307	1350	0.510
327	620	50	0.00000738	644.6875	2.581	0.001	2.579	23,938.667	42307	1350	0.553
332	630	50	0.00000740	644.6875	2.634	0.001	2.633	23,972.889	42307	1350	0.596
338	640	50	0.0000074	644.6875	2.688	0.001	2.687	24,037.111	42307	1350	0.639
343	650	50	0.00000734	644.6875	2.743	0.002	2.741	24,101.333	42307	1350	0.679
349	660	50	0.00000735	644.6875	2.797	0.002	2.796	24,165.556	42307	1350	0.726
354	670	50	0.00000737	644.6875	2.852	0.002	2.850	24,229.778	42307	1350	0.767
360	680	50	0.00000739	644.6875	2.907	0.002	2.905	24,294.000	42307	1350	0.804
366	690	60	0.00000741	644.6875	2.962	0.002	2.960	24,358.222	42307	1350	0.842
371	700	60	0.00000743	644.6875	3.018	0.002	3.016	24,422.444	42307	1350	0.879
377	710	60	0.00000745	644.6875	3.073	0.002	3.071	24,486.667	42307	1350	0.918
382	720	65	0.00000747	644.6875	3.129	0.002	3.127	24,550.889	42307	1350	0.953
388	730	66	0.00000749	644.6875	3.186	0.003	3.183	24,615.111	42307	1350	0.988
393	740	67	0.00000751	644.6875	3.242	0.003	3.239	24,679.333	42307	1350	1.024
400	750	68	0.00000753	644.6875	3.300	0.003	3.297	24,743.556	42307	1350	1.059
404	760	69	0.00000754	644.6875	3.356	0.003	3.353	24,807.778	42307	1350	1.095
410	770	70	0.00000756	644.6875	3.413	0.004	3.409	24,872.000	42307	1350	1.131
416	780	71	0.00000758	644.6875	3.470	0.004	3.466	24,936.222	42307	1350	1.167
422	790	72	0.0000076	644.6875	3.528	0.004	3.524	24,999.444	42307	1350	1.201
427	800	73	0.00000762	644.6875	3.586	0.005	3.583	25,062.667	42307	1350	1.235
432	810	74	0.00000764	644.6875	3.644	0.005	3.639	25,125.889	42307	1350	1.269
438	820	75	0.00000766	644.6875	3.703	0.006	3.697	25,189.111	42307	1350	1.303
443	830	76	0.00000768	644.6875	3.761	0.006	3.755	25,252.333	42307	1350	1.337
449	840	77	0.0000077	644.6875	3.820	0.007	3.814	25,315.556	42307	1350	1.371
454	850	78	0.00000772	644.6875	3.880	0.007	3.872	25,378.778	42307	1350	1.405
460	860	79	0.00000774	644.6875	3.939	0.008	3.931	25,442.000	42307	1350	1.439
466	870	80	0.00000775	644.6875	3.999	0.009	3.990	25,505.222	42307	1350	1.473
471	880	81	0.00000777	644.6875	4.059	0.009	4.049	25,568.444	42307	1350	1.507
477	890	82	0.00000779	644.6875	4.119	0.010	4.109	25,631.667	42307	1350	1.541
482	900	83	0.00000781	644.6875	4.179	0.011	4.168	25,694.889	42307	1350	1.575
488	910	84	0.00000783	644.6875	4.240	0.012	4.228	25,758.111	42307	1350	1.609
493	920	85	0.00000785	644.6875	4.301	0.013	4.288	25,821.333	42307	1350	1.643
500	930	86	0.00000787	644.6875	4.362	0.014	4.348	25,884.556	42307	1350	1.677
504	940	87	0.00000789	644.6875	4.423	0.015	4.408	25,947.778	42307	1350	1.711
510	950	88	0.00000791	644.6875	4.485	0.017	4.467	26,011.000	42307	1350	1.745
516	960	89	0.00000792	644.6875	4.547	0.020	4.527	26,074.222	42307	1350	1.779
522	970	90	0.00000794	644.6875	4.609	0.023	4.586	26,137.444	42307	1350	1.813
527	980	91	0.00000796	644.6875	4.671	0.024	4.645	26,200.667	42307	1350	1.847
532	990	92	0.00000798	644.6875	4.734	0.029	4.705	26,263.889	42307	1350	1.881
538	1000	93	0.00000800	644.6875	4.796	0.033	4.764	26,327.111	42307	1350	1.915
543	1010	94	0.00000802	644.6875	4.860	0.037	4.822	26,390.333	42307	1350	1.949
549	1020	95	0.00000804	644.6875	4.923	0.042	4.883	26,453.556	42307	1350	1.983
554	1030	96	0.00000806	644.6875	4.986	0.047	4.939	26,516.778	42307	1350	2.017
560	1040	97	0.00000808	644.6875	5.050	0.053	4.992	26,580.000	42307	1350	2.051
566	1050	98	0.00000810	644.6875	5.114	0.059	5.054	26,643.222	42307	1350	2.085
571	1060	99	0.00000811	644.6875	5.179	0.067	5.119	26,706.444	42307	1350	2.119
577	1070	100	0.00000813	644.6875	5.243	0.076	5.167	26,769.667	42307	1350	2.153
582	1080	101	0.00000815	644.6875	5.308	0.085	5.223	26,832.889	42307	1350	2.187
588	1090	102	0.00000817	644.6875	5.373	0.096	5.277	26,896.111	42307	1350	2.221
593	1100	103	0.00000819	644.6875	5.438	0.108	5.330	26,959.333	42307	1350	2.255
600	1110	104	0.00000821	644.6875	5.503	0.125	5.390	27,022.556	42307	1350	2.289
604	1120	105	0.00000823	644.6875	5.570	0.138	5.432	27,085.778	42307	1350	2.323
610	1130	106	0.00000825	644.6875	5.636	0.155	5.480	27,149.000	42307	1350	2.357
616	1140	107	0.00000827	644.6875	5.702	0.176	5.526	27,212.222	42307	1350	2.391
622	1150	108	0.00000829	644.6875	5.769	0.199	5.569	27,275.444	42307	1350	2.425
627	1160	109	0.00000830	644.6875	5.835	0.226	5.609	27,338.667	42307	1350	2.459
633	1170	110	0.00000832	644.6875	5.902	0.257	5.645	27,401.889	42307	1350	2.493
638	1180	111	0.00000834	644.6875	5.970	0.294	5.676	27,465.111	42307	1350	2.527
643	1190	112	0.00000836	644.6875	6.037	0.336	5.701	27,528.333	42307	1350	2.561
649	1200	113	0.00000838	644.6875	6.105	0.386	5.719	27,591.556	42307	1350	2.595
654	1210	114	0.00000840	644.6875	6.173	0.445	5.728	27,654.778	42307	1350	2.629
660	1220	115	0.00000842	644.6875	6.241	0.515	5.726	27,718.000	42307	1350	2.663
666	1230	116	0.00000844	644.6875	6.310	0.599	5.710	27,781.222	42307	1350	2.697
671	1240	117	0.00000846	644.6875	6.378	0.701	5.677	27,844.444	42307	1350	2.731
677	1250	118	0.00000848	644.6875	6.447	0.827	5.621	27,907.667	42307	1350	2.765
682	1260	119	0.00000849	644.6875	6.516	0.982	5.535	27,970.889	42307	1350	2.799
688	1270	120	0.00000851	644.6875	6.586	1.176	5.410	28,034.111	42307	1350	2.833
693	1280	121	0.00000853	644.6875	6.656	1.424	5.232	28,097.333	42307	1350	2.867
699	1290	122	0.00000855	644.6875	6.726	1.736	5.000	28,160.556	42307	1350	2.901
704	1300	123	0.00000857	644.6875	6.796	1.815	4.980	28,223.778	42307	1350	2.935
710	1310	124	0.00000859	644.6875	6.866	1.921	4.945	28,287.000	42307	1350	2.969
716	1320	125	0.00000861	644.6875	6.937	2.035	4.900	28,350.222	42307	1350	3.003
722	1330	126	0.00000863	644.6875	7.008	2.168	4.849	28,413.444	42307	1350	3.037
727	1340	127	0.00000865	644.6875	7.079	2.292	4.787	28,476.667	42307	1350	3.071
732	1350	128	0.00000867	644.6875	7.150	2.437	4.714	28,539.889	42307	1350	3.105
738	1360	129	0.00000869	644.6875	7.222	2.594	4.628	28,603.111	42307	1350	3.139
743	1370	130	0.00000870	644.6875	7.294	2.766	4.528	28,666.333	42307	1350	3.173
749	1380	131	0.00000872	644.6875	7.366	2.954	4.412	28,729.556	42307	1350	3.207
754	1390	132	0.00000874	644.6875	7.438	3.160	4.279	28,792.778	42307	1350	3.241
760	1400	133	0.00000876	644.6875	7.511	3.385	4.126	28,856.000	42307	1350	3.275
766	1410	134	0.00000878	644.6875	7.584	3.634	3.950	28,919.222	42307	1350	3.309
771	1420	135	0.0000088	644.6875	7.657	3.908	3.757	28,982.444	42307	1350	3.343
777	1430	136	0.00000882	644.6875	7.731	4.212	3.518	29,045.667	42307	1350	3.377
782	1440	137	0.00000884	644.6875	7.804	4.550	3.254	29,108.889	42307	1350	3.411
788	1450	138	0.00000886	644.6875	7.878	4.926	2.953	29,172.111	42307	1350	3.445
793	1460	139	0.00000887	644.6875	7.952	5.348	2.604	29,235.333	42307	1350	3.479
799	1470	140	0.00000889	644.6875	8.026	5.923	2.103	29,298.556	42307	1350	3.513

Ro	Theta	R1	Theta1	R2	Theta2	R3	Theta3	R4	Theta4	R5	Theta5	Q	Shortening
1000	0.00004238	86295.7642	0.00733327	111552.2665	0.00892621	112073.5609	0.00963623	112696.1514	0.01024245	112202.719	0.00942103	6.156793226	0.0007599
11996	0.00004245	100746.425	0.00733327	106476.5034									