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# **SUPPLEMENTAL ICBO SUBMITTAL**

**ICBO ER-4943P**

# **SUPPLEMENTAL PRODUCT TECHNICAL INFORMATION**

## Thickness — Steel Components

Minimum Thickness 1 (mil)	Design Thickness (in)	Inside Corner Radial (in)	Reference Only Gauge No.
118	0.1242	0.1863	10

## Design Stiffening Lip Length

Section	Flange Length	Design Stiffening Lip Length (in)
S300	3"	0.625
S350	3 1/2"	1.000

<sup>1</sup> Minimum Thickness represents 95% of the design thickness and is the minimum acceptable thickness delivered to the job site based on Section A3.4 of the 1996 AISI Specification.

## General Notes for all Tables

1. The strength increase due to cold work of forming was incorporated for flexural strength as applicable per AISI A7.2.
2. The moment of inertia for deflection is calculated at a stress which results in an effective section modulus such that the stress times that section modulus is equal to the allowable moment. This follows procedure 1 of the AISI Specification.
3. The yield stress (33 ksi or 50 ksi) used to calculate the tabulated values are indicated in the tables.
4. When provided, factory punchouts will be located along the centerline of the webs of the members and will have a minimum center-to-center spacing of 24". Punchouts will have a maximum width = half the member depth (d/2) or 2 1/2", whichever is less, and a maximum length 4 1/2". The minimum distance between the end of the member and the near edge of the web punchout = 10".
5. For those steels that have both 33 and 50 ksi listings, if the design is based upon 50 ksi, the 50 ksi steel needs to be specified by the contractor/purchaser. (i.e., 362S137-54 (50 ksi))

## Section Properties Table Notes

1. The centerline bend radius is the greater of 2 times the design thickness or 3/32".
2. Web depth for track sections is equal to the nominal height plus 2 times the design thickness plus the bend radius.
3. Hems on non-structural track sections are ignored.
4. Effective properties incorporate the strength increase from the cold work of forming as applicable per AISI A7.2.
5. Tabulated gross properties are based on the full-unreduced cross section of the studs, away from punchouts.
6. For deflection calculations, use the effective moment of inertia.
7. For those steels that have both 33 and 50 ksi listings, if the design is based upon 50 ksi, the 50 ksi steel needs to be specified. (i.e., 362S137-54 (50 ksi))

## Web Crippling Load Table Notes

1. Only members with stiffened flanges are considered.
2. For multiple members, multiply the listed capacity of a single member by the number of members in the assembly.
3. For back-to-back members, the distance between the web connectors and the flange shall be kept to a minimum.
4. Values are for unpunched members and for punched members where the clear distance between the edge of bearing and the edge of the punchout is at least two times the depth of the web.

# Supplemental (S) Stud Section Properties

Section	Design Thickness (in)	Gross						33 ksi Effective					50 ksi Effective					Torsional					
		Area (in <sup>2</sup> )	Weight (lb/ft)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	R <sub>x</sub> (in)	I <sub>yy</sub> (in <sup>4</sup> )	R <sub>y</sub> (in)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	Ma (in-k)	V <sub>a</sub> (lb)	Y <sub>cg</sub> (in)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	Ma (in-k)	V <sub>a</sub> (lb)	Y <sub>cg</sub> (in)	J <sub>x</sub> (in <sup>4</sup> )	C <sub>w</sub> (in <sup>6</sup> )	X <sub>o</sub> (in)	R <sub>o</sub> (in)	β
162S125-43	0.0451	0.188	0.64	0.085	0.105	0.675	0.035	0.435	0.085	0.100	1.97	829	0.832					0.127	0.019	-1.029	1.305	0.378	
162S125-54	0.0566	0.231	0.79	0.103	0.127	0.668	0.042	0.427	0.103	0.125	2.85	1003	0.820	0.102	0.116	3.48	1519	0.842	0.247	0.022	-1.021	1.293	0.376
162S125-68	0.0713	0.283	0.96	0.123	0.152	0.660	0.049	0.416	0.123	0.151	3.57	1194	0.814	0.123	0.147	4.41	1809	0.822	0.480	0.026	-1.013	1.278	0.372
250S200-33	0.0346	0.258	0.88	0.279	0.223	1.040	0.154	0.773	0.276	0.196	3.87	1040	1.317					0.103	0.099	-1.960	2.350	0.304	
250S200-43	0.0451	0.334	1.14	0.358	0.287	1.036	0.198	0.769	0.358	0.278	5.49	1350	1.266					0.227	0.379	-1.948	2.336	0.305	
250S200-54	0.0566	0.415	1.41	0.440	0.352	1.030	0.241	0.763	0.440	0.352	7.65	1656	1.250	0.440	0.315	9.43	2510	1.312	0.443	0.459	-1.942	2.326	0.303
250S200-68	0.0713	0.515	1.75	0.537	0.430	1.022	0.293	0.754	0.537	0.430	9.57	2017	1.250	0.537	0.417	13.84	3057	1.271	0.872	0.554	-1.935	2.315	0.301
250S250-43	0.0451	0.379	1.29	0.426	0.341	1.060	0.236	0.941	0.426	0.297	5.87	1350	1.325					0.257	0.634	-2.439	2.821	0.253	
250S250-54	0.0566	0.471	1.60	0.524	0.419	1.055	0.412	0.935	0.524	0.379	7.49	1656	1.309	0.521	0.341	10.22	2510	1.364	0.503	0.771	-2.433	2.812	0.251
250S250-68	0.0713	0.586	1.99	0.643	0.514	1.047	0.503	0.926	0.643	0.500	9.88	2017	1.269	0.643	0.427	12.80	3057	1.353	0.993	0.934	-2.427	2.800	0.249
350S137-33	0.0346	0.232	0.79	0.441	0.252	1.380	0.059	0.503	0.441	0.243	4.79	1046	1.779					0.093	0.150	-1.040	1.800	0.666	
350S137-43	0.0451	0.300	1.02	0.568	0.324	1.375	0.075	0.498	0.568	0.319	7.04	1777	1.763					0.204	0.189	-1.029	1.788	0.669	
350S137-54	0.0566	0.372	1.27	0.696	0.398	1.367	0.090	0.492	0.696	0.398	9.00	2403	1.750	0.696	0.381	12.85	3446	1.781	0.398	0.228	-1.020	1.775	0.670
350S137-68	0.0713	0.461	1.57	0.849	0.485	1.357	0.107	0.482	0.849	0.485	11.31	2959	1.750	0.849	0.484	16.74	4483	1.752	0.782	0.272	-1.010	1.759	0.670
350S162-97	0.1017	0.711	2.42	1.320	0.754	1.362	0.238	0.578	1.320	0.754	18.11	4016	1.750	1.320	0.754	26.76	6085	1.750	2.452	0.650	-1.303	1.972	0.664
350S200-33	0.0346	0.292	0.99	0.598	0.342	1.431	0.175	0.773	0.593	0.304	6.00	1046	1.834					0.117	0.535	-1.789	2.418	0.452	
350S200-43	0.0451	0.379	1.29	0.771	0.441	1.426	0.224	0.768	0.771	0.428	8.46	1777	1.771					0.257	0.679	-1.777	2.405	0.454	
350S200-54	0.0566	0.471	1.60	0.950	0.543	1.420	0.274	0.762	0.950	0.543	11.81	2403	1.750	0.950	0.487	14.57	3446	1.833	0.503	0.827	-1.769	2.393	0.453
350S200-68	0.0713	0.586	1.99	1.167	0.667	1.411	0.333	0.754	1.167	0.667	14.84	2959	1.750	1.167	0.643	21.35	4483	1.780	0.993	1.001	-1.761	2.379	0.452
350S200-97	0.1017	0.813	2.77	1.576	0.901	1.393	0.440	0.736	1.576	0.901	20.95	4016	1.750	1.576	0.901	31.08	6085	1.750	2.803	1.313	-1.744	2.350	0.449
350S250-43	0.0451	0.424	1.44	0.906	0.518	1.461	0.380	0.946	0.906	0.454	8.98	1777	1.846					0.288	1.141	-2.251	2.846	0.374	
350S250-54	0.0566	0.528	1.80	1.118	0.639	1.455	0.467	0.940	1.118	0.577	11.40	2403	1.829	1.107	0.524	15.68	3446	1.899	0.564	1.394	-2.243	2.834	0.374
350S250-68	0.0713	0.657	2.24	1.376	0.787	1.447	0.570	0.931	1.376	0.761	15.04	2959	1.778	1.376	0.657	19.67	4483	1.885	1.114	1.695	-2.235	2.820	0.372
350S250-97	0.1017	0.915	3.11	1.870	1.069	1.430	0.762	0.913	1.870	1.066	24.09	4016	1.752	1.870	1.019	34.27	6085	1.790	3.154	2.245	-2.218	2.793	0.369
362S137-97	0.1017	0.648	2.20	1.229	0.678	1.377	0.137	0.460	1.229	0.678	16.75	4184	1.813	1.229	0.678	24.67	6339	1.813	2.233	0.375	-0.975	1.749	0.689
362S162-97	0.1017	0.724	2.46	1.435	0.792	1.408	0.241	0.577	1.435	0.792	19.00	4184	1.813	1.435	0.792	28.08	6339	1.813	2.496	0.699	-1.286	1.992	0.583
362S200-43	0.0451	0.826	2.81	1.711	0.944	1.440	0.446	0.735	1.711	0.944	21.95	4184	1.813	1.711	0.944	32.57	6339	1.813	2.847	1.404	-1.724	2.363	0.468
362S250-97	0.1017	1.017	3.46	2.080	1.151	1.510	0.385	0.946	1.017	0.475	9.39	1777	1.911					0.292	1.219	-2.230	2.854	0.390	
362S250-54	0.0566	1.017	3.46	2.080	1.151	1.510	0.385	0.946	1.017	0.475	9.39	1777	1.911					0.292	1.219	-2.230	2.854	0.390	
362S250-68	0.0713	1.017	3.46	2.080	1.151	1.510	0.385	0.946	1.017	0.475	9.39	1777	1.911					0.292	1.219	-2.230	2.854	0.390	
362S250-97	0.1017	1.017	3.46	2.080	1.151	1.510	0.385	0.946	1.017	0.475	9.39	1777	1.911					0.292	1.219	-2.230	2.854	0.390	
400S137-97	0.1017	0.686	2.33	1.557	0.779	1.507	0.142	0.454	1.557	0.779	19.23	4687	2.000	1.557	0.779	28.33	7102	2.000	2.365	0.467	-0.935	1.831	0.739
400S162-97	0.1017	0.762	2.59	1.812	0.906	1.542	0.249	0.572	1.812	0.906	21.75	4687	2.000	1.812	0.906	32.15	7102	2.000	2.628	0.860	-1.238	2.059	0.638
400S200-97	0.1017	0.864	2.94	2.155	1.077	1.579	0.462	0.731	2.155	1.077	25.05	4687	2.000	2.155	1.077	37.17	7102	2.000	2.978	1.704	-1.668	2.410	0.521
400S250-43	0.0451	0.447	1.52	1.224	0.612	1.655	0.399	0.945	1.224	0.612	10.66	1777	2.105					0.303	1.473	-2.168	2.887	0.436	
400S250-54	0.0566	0.556	1.89	1.512	0.756	1.649	0.490	0.938	1.512	0.756	13.50	2177	2.088					0.594	1.901	-2.160	2.875	0.435	
400S250-68	0.0713	0.693	2.36	1.864	0.932	1.640	0.599	0.929	1.864	0.901	17.81	2429	2.032	1.864	0.781	23.39	5196	2.149	1.174	2.193	-2.151	2.860	0.434
400S250-97	0.1017	0.966	3.29	2.541	1.271	1.622	0.801	0.911	2.541	1.268	28.64	4687	2.002	2.541	1.210	40.70	7102	2.045	3.329	2.915	-2.133	2.830	0.432
550S137-33	0.0346	0.301	1.02	1.283	0.467	2.064	0.067	0.472	1.283	0.508	8.90	670	2.787					0.120	0.406	-0.858	2.285	0.859	
550S137-43	0.0451	0.391	1.33	1.655	0.602	2.059	0.085	0.467	1.655	0.592	13.08	1487	2.767					0.265	0.513	-0.848	2.275	0.861	
550S137-54	0.0566	0.486	1.65	2.039	0.741	2.049	0.103	0.460	2.039	0.741	16.77	2799	2.750	2.039	0.714	24.03	2967	2.790	0.519	0.622	-0.839	2.261	0.862
550S137-68	0.0713	0.604	2.05	2.503	0.910	2.036	0.123	0.451	2.503	0.910	21.22	4442	2.750	2.503	0.908	31.42	5468	2.752	1.023	0.747	-0.828	2.243	0.864
550S137-97	0.1017	0.838	2.85	3.380	1.229	2.008	0.155	0.430	3.380	1.229	30.35	6701	2.750	3.380	1.229	44.72	10153	2.750	2.891	0.965	-0.805	2.206	0.867
550S162-97	0.1017	0.915	3.11	3.886	1.413	2.061	0.276	0.549	3.886	1.413	33.91	6701	2.750	3.886	1.413	50.13	10153	2.750	3.154	1.723	-1.081	2.392	0.795
550S200-33	0.0346	0.362	1.23	1.694	0.616	2.164	0.204	0.751	1.678	0.556	10.99	670	2.857					0.144	0.412	-1.531	2.755	0.691	
550S200-43	0.0451	0.469	1.60	2.189	0.796	2.159	0.261	0.746	2.189	0.776	15.33	1487	2.777					0.318	1.673	-1.519	2.744	0.693	
550S200-54	0.0566	0.585	1.99	2.706	0.984	2.152	0.320	0.739	2.706	0.984	21.41	2799	2.750	2.706	0.889	26.62	2967	2.862	0.624	2.045	-1.511	2.731	0.694
550S200-68	0.0713	0.729	2.48	3.341	1.215	2.141	0.389	0.731	3.341	1.215	27.03	4442	2.750	3.341	1.170	38.83	5468	2.794	1.235	2.488	-1.500	2.715	0.695
550S200-97	0.1017	1.016	3.46	4.563	1.659	2.119	0.515	0.712	4.563	1.659	38.58	6701	2.750	4.563	1.659	57.25	10153	2.750	3.504	3.299	-1.479	2.680	0.695
550S250-43	0.0451	0.515	1.75	2.524	0.918	2.215	0.445	0.930	2.524	0.817	16.15	1487	2.877					0.349	2.811	-1.958	3.099	0.601	
550S250-54	0.0566	0.641	2.18	3.126	1.137	2.208	0.547	0.923	3.126	1.033	20												

# Supplemental (S) Stud Section Properties

Section	Design Thickness (in)	Gross							33 ksi Effective					50 ksi Effective					Torsional				
		Area (in <sup>2</sup> )	Weight (lb/ft)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	R <sub>x</sub> (in)	I <sub>yy</sub> (in <sup>4</sup> )	R <sub>y</sub> (in)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	M <sub>a</sub> (in-k)	V <sub>a</sub> (lb)	Y <sub>cg</sub> (in)	I <sub>xx</sub> (in <sup>4</sup> )	S <sub>xx</sub> (in <sup>3</sup> )	M <sub>a</sub> (in-k)	V <sub>a</sub> (lb)	Y <sub>cg</sub> (in)	J <sub>v</sub> (in <sup>4</sup> )	C <sub>w</sub> (in <sup>6</sup> )	X <sub>o</sub> (in)	R <sub>o</sub> (in)	β
925S162-43	0.0451	0.593	2.02	6.616	1.430	3.339	0.165	0.528	6.616	1.320	26.07	868	4.796						0.402	2.853	-0.872	3.491	0.938
925S162-54	0.0566	0.740	2.52	8.198	1.773	3.328	0.201	0.521	8.198	1.773	39.35	1726	4.625						0.791	3.485	-0.863	3.477	0.938
925S162-68	0.0713	0.925	3.15	10.148	2.194	3.313	0.242	0.512	10.148	2.194	50.02	3479	4.625						1.567	4.237	-0.853	3.459	0.939
925S162-97	0.1017	1.296	4.41	13.947	3.016	3.280	0.315	0.493	13.947	3.016	72.36	9037	4.625						4.468	5.609	-0.831	3.420	0.941
925S200-43	0.0451	0.639	2.17	7.519	1.626	3.431	0.303	0.689	7.519	1.472	29.08	868	4.825						0.433	5.197	-1.208	3.703	0.893
925S200-54	0.0566	0.797	2.71	9.329	2.017	3.422	0.371	0.682	9.329	2.017	43.89	1726	4.625						0.851	6.375	-1.199	3.689	0.894
925S200-68	0.0713	0.996	3.39	11.568	2.501	3.408	0.451	0.673	11.568	2.501	55.66	3479	4.625						1.688	7.794	-1.188	3.671	0.895
925S200-97	0.1017	1.398	4.76	15.963	3.451	3.379	0.598	0.654	15.963	3.451	80.25	9037	4.625						4.819	10.440	-1.166	3.634	0.897
925S250-43	0.0451	0.684	2.33	8.474	1.832	3.521	0.520	0.872	8.474	1.502	29.09	868	5.018						0.464	8.733	-1.591	3.961	0.839
925S250-54	0.0566	0.853	2.90	10.525	2.276	3.512	0.640	0.866	10.525	2.096	41.42	1726	4.768						0.911	10.744	-1.581	3.947	0.839
925S250-68	0.0713	1.067	3.63	13.070	2.826	3.499	0.783	0.856	13.070	2.737	54.09	3479	4.683						1.809	13.188	-1.570	3.930	0.840
925S250-97	0.1017	1.499	5.10	18.090	3.911	3.473	1.050	0.837	18.090	3.903	88.16	9037	4.629						5.170	17.815	-1.547	3.893	0.842
1000S137-43 <sup>1</sup>	0.0451	0.593	2.02	7.232	1.446	3.491	0.097	0.405	7.232	1.254	24.78	802	5.320						0.402	1.999	-0.615	3.568	0.970
1000S137-54	0.0566	0.740	2.52	8.956	1.791	3.478	0.117	0.398	8.956	1.791	35.40	1593	5.000						0.791	2.431	-0.607	3.553	0.971
1000S137-68	0.0713	0.925	3.15	11.076	2.215	3.461	0.140	0.389	11.076	2.215	51.65	3209	5.000						1.567	2.940	-0.587	3.533	0.971
1000S162-118	0.1242	1.655	5.63	20.169	4.034	3.491	0.363	0.468	20.169	4.034	100.24	13479	5.000						5.671	7.750	-0.779	3.607	0.953
1000S200-118	0.1242	1.779	6.05	23.052	4.610	3.599	0.703	0.629	23.052	4.610	110.50	13479	5.000						9.149	14.527	-1.104	3.817	0.916
1000S250-118	0.1242	1.904	6.48	26.080	5.216	3.701	1.249	0.810	26.080	5.216	120.89	13479	5.000						10.788	24.955	-1.474	4.066	0.869
1000S300-54	0.0566	0.953	3.24	14.076	2.815	3.844	1.024	1.037	13.937	2.312	45.69	1593	5.394						1.917	19.716	-1.915	4.418	0.812
1000S300-68	0.0713	1.192	4.06	17.509	3.502	3.832	1.258	1.027	17.495	3.069	60.65	3209	5.246						3.202	24.281	-1.904	4.401	0.813
1000S300-97	0.1017	1.677	5.71	24.318	4.864	3.808	1.702	1.007	24.318	4.070	103.39	9037	5.079						5.783	33.030	-1.880	3.464	0.814
1000S300-118	0.1242	2.028	6.90	29.109	5.822	3.789	1.997	0.992	29.109	5.662	128.16	13479	5.054						10.127	38.929	-1.863	3.377	0.815
1000S350-54	0.0566	1.052	3.58	16.220	3.244	3.927	1.768	1.297	15.951	2.754	54.42	1593	5.322						1.423	36.305	-2.573	4.431	0.721
1000S350-68	0.0713	1.317	4.48	20.204	4.041	3.917	1.185	1.288	20.204	3.824	75.57	3209	5.106						2.392	44.853	-2.562	4.854	0.721
1000S350-97	0.1017	1.855	6.31	28.148	5.630	3.895	2.992	1.270	28.148	5.517	120.32	9037	5.043						6.237	61.429	-2.540	4.820	0.722
1000S350-118	0.1242	2.245	7.64	33.772	6.754	3.878	3.543	1.256	33.772	6.754	150.23	13479	5.000						11.544	72.774	-2.524	4.795	0.723
1150S162-54	0.0566	0.868	2.95	11.126	2.457	4.035	0.210	0.492	14.126	2.250	44.47	1380	5.974						0.927	5.713	-0.763	4.136	0.966
1150S162-68	0.0713	1.085	3.69	17.521	3.047	4.018	0.253	0.483	17.521	3.047	69.47	2777	5.750						1.829	6.958	-0.753	4.117	0.967
1150S162-97	0.1017	1.525	5.19	24.186	4.206	3.983	0.329	0.464	24.186	4.206	100.94	8170	5.750						5.257	9.241	-0.732	4.072	0.968
1150S200-54	0.0566	0.924	3.14	15.896	2.765	4.147	0.390	0.650	15.896	2.560	50.60	1380	5.952						0.987	10.410	-1.071	4.332	0.939
1150S200-68	0.0713	1.156	3.94	19.747	3.434	4.132	0.475	0.641	19.747	3.434	76.42	2777	5.750						1.960	12.746	-1.061	4.314	0.940
1150S200-97	0.1017	1.627	5.53	27.348	4.756	4.100	0.629	0.622	27.348	4.756	110.59	8170	5.750						5.608	17.129	-1.039	4.275	0.941
1150S250-54	0.0566	0.981	3.34	17.749	3.087	4.254	0.676	0.830	17.749	2.578	50.94	1380	6.190						1.047	17.571	-1.426	4.563	0.902
1150S250-68	0.0713	1.228	4.18	22.075	3.839	4.240	0.827	0.821	22.075	3.727	73.64	2777	5.814						2.081	21.598	-1.414	4.545	0.903
1150S250-97	0.1017	1.728	5.88	30.651	5.331	4.211	1.110	0.801	30.651	5.320	120.16	8170	5.754						5.959	29.265	-1.392	4.507	0.905
1200S137-54 <sup>1</sup>	0.0566	0.853	2.90	14.283	2.380	4.091	0.121	0.376	14.283	2.090	41.31	1321	6.338						1.911	3.683	-0.542	4.144	0.983
1200S137-68	0.0713	1.067	3.63	17.698	2.950	4.072	0.144	0.367	17.698	2.950	58.29	2658	6.000						0.809	4.458	-0.532	4.123	0.983
1200S137-97	0.1017	1.499	5.10	24.379	4.063	4.032	0.182	0.348	24.379	4.063	100.36	7814	6.000						5.170	5.847	-0.512	4.079	0.984
1200S162-118	0.1242	1.904	6.48	32.145	5.357	4.109	0.376	0.444	32.145	5.357	133.14	13479	6.000						9.788	11.794	-0.697	4.192	0.972
1200S200-118	0.1242	2.028	6.90	36.347	6.058	4.234	0.732	0.601	36.347	6.058	145.19	13479	6.000						10.427	22.050	-0.998	4.391	0.948
1200S250-118	0.1242	2.152	7.32	40.726	6.788	4.350	1.307	0.779	40.726	6.788	157.31	13479	6.000						11.065	37.923	-1.345	4.620	0.915
1200S300-54 <sup>1</sup>	0.0566	1.066	3.63	21.699	3.617	4.512	1.074	1.004	21.647	2.736	54.06	1321	6.708						1.138	29.820	-1.763	4.947	0.873
1200S300-68	0.0713	1.335	4.54	27.020	4.503	4.499	1.320	0.994	27.020	3.913	77.32	2658	6.316						2.262	36.764	-1.752	4.940	0.874
1200S300-97	0.1017	1.881	6.40	37.616	6.269	4.472	1.786	0.974	37.616	6.035	133.59	7814	6.006						6.484	50.127	-1.728	4.892	0.875
1200S300-118	0.1242	2.276	7.75	45.106	7.518	4.452	2.095	0.959	45.106	7.323	165.76	13479	6.059						11.704	59.182	-1.711	4.865	0.876
1200S350-54 <sup>1</sup>	0.0566	1.165	3.96	24.860	4.143	4.620	1.866	1.266	24.620	3.278	64.78	1321	6.606						1.244	53.910	-2.386	5.352	0.801
1200S350-68	0.0713	1.460	4.97	30.996	5.166	4.608	2.306	1.257	30.996	4.908	96.98	2658	6.115						2.473	66.670	-2.375	5.335	0.802
1200S350-97	0.1017	2.059	7.01	43.269	7.211	4.584	3.159	1.239	43.269	7.071	154.21	7814	6.048						7.098	91.506	-2.353	5.300	0.803
1200S350-118	0.1242	2.494	8.48	51.992	8.665	4.566	3.741	1.225	51.992	8.665	192.74	13479	6.000						12.821	108.579	-2.336	5.273	0.804
1350S162-54 <sup>1</sup>	0.0566	0.981	3.34	21.228	3.145	4.652	0.216	0.469	21.228	2.589	51.16	1171	7.337						1.047	8.221	-0.693	4.727	0.979
1350S162-68	0.0713	1.228	4.18	26.368	3.906	4.634	0.261	0.461	26.368	3.734	73.78	2354	6.880						2.081	10.020	-0.683	4.707	0.979
1350S162-97	0.1017	1.728	5.88	36.510	5.409	4.596	0.338	0.442	36.510	5.409	129.80	6912	6.750						5.959	13.335	-0.662	4.665	0.980
1350S200-54 <sup>1</sup>	0.0566	1.037	3.53	23.688	3.509	4.778	0.403	0.623	23.688	2.955	58.40	1171	7.284						1.108	14.965			





# Supplemental Web Crippling Table

<b>Allowable Web Crippling Loads (lbs) – Single Members (Fy=33ksi)</b>																		
Web Size	Design Thickness (in.)	Thickness (mils)	Condition 1				Condition 2				Condition 3				Condition 4			
			Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)			
			1	3.5	4	6	1	3.5	4	6	1	3.5	4	6	1	3.5	4	6
162	0.0451	43	383	557	591	730	632	877	943	1210	278	404	429	530	766	819	830	873
162	0.0566	54	597	821	865	1045	982	1250	1335	1675	434	598	630	761	1233	1302	1316	1371
162	0.0713	68	928	1213	1270	1499	1536	1880	1948	2344	678	886	928	1095	1984	2072	2090	2161
250	0.1017	97	1812	2218	2299	2624	3035	3523	3621	4012	1323	1619	1678	1915	3992	4118	4143	4244
350	0.1017	97	1778	2176	2256	2574	2992	3474	3571	3956	1291	1580	1637	1868	3870	3992	4016	4114
362	0.1017	97	1774	2171	2250	2568	2987	3468	3564	3949	1287	1575	1632	1863	3854	3976	4000	4098
600	0.1242	118	2538	3011	3106	3484	4323	4900	5015	5476	1828	2168	2236	2509	5502	5644	5672	5786
725	0.0451	43	290	421	447	552	518	720	774	993	191	277	294	363	458	490	496	522
725	0.0566	54	482	663	700	844	844	1074	1147	1438	328	451	475	574	847	894	904	942
725	0.0713	68	788	1031	1079	1273	1365	1671	1732	2084	547	716	750	884	1500	1567	1580	1634
725	0.1017	97	1650	2020	2094	2389	2834	3291	3382	3747	1171	1434	1486	1696	3412	3520	3541	3627
800	0.1242	118	2457	2914	3006	3372	4221	4784	4897	5347	1751	2078	2143	2404	5204	5339	5366	5474
925	0.0451	43	256	373	396	489	478	664	714	916	160	232	246	304	348	373	378	397
925	0.0566	54	442	608	641	773	794	1011	1080	1354	290	398	420	507	710	749	757	789
925	0.0713	68	739	966	1011	1193	1305	1596	1655	1991	501	655	686	809	1328	1387	1399	1446
925	0.1017	97	1582	1936	2007	2291	2750	3193	3281	3635	1108	1356	1405	1604	3168	3268	3288	3368
1000	0.1242	118	2375	2817	2906	3259	4119	4669	4779	5218	1675	1987	2049	2299	4907	5034	5059	5161
1150	0.0566	54	396	545	574	693	739	940	1004	1260	247	340	358	432	555	586	593	618
1150	0.0713	68	683	893	935	1103	1236	1513	1568	1887	449	587	615	725	1134	1185	1195	1235
1150	0.1017	97	1506	1843	1910	2180	2655	3082	3168	3510	1036	1268	1314	1500	2893	2985	3003	3076
1200	0.1242	118	2293	2720	2805	3147	4018	4553	4661	5089	1598	1896	1956	2194	4609	4729	4752	4848
1350	0.0713	68	633	828	867	1023	1176	1438	1491	1794	403	526	551	650	962	1005	1014	1048
1350	0.1017	97	1438	1759	1824	2081	2571	2984	3067	3398	972	1190	1234	1408	2649	2733	2749	2816
1400	0.0713	68	621	812	850	1003	1160	1420	1472	1771	391	511	535	632	919	960	968	1001
1400	0.1017	97	1420	1738	1802	2056	2550	2960	3042	3370	956	1171	1213	1385	2588	2670	2686	2751
1400	0.1242	118	2211	2623	2705	3035	3916	4438	4543	4960	1522	1805	1862	2089	4312	4423	4446	4535
1600	0.1017	97	1352	1655	1716	1958	2465	2862	2941	3259	893	1093	1133	1292	2344	2418	2433	2492
1600	0.1242	118	2129	2526	2605	2922	3814	4323	4424	4831	1445	1715	1768	1984	4014	4118	4139	4222

<b>Allowable Web Crippling Loads (lbs) – Single Members (Fy=50ksi)</b>																		
Web Size	Design Thickness (in.)	Thickness (mils)	Condition 1				Condition 2				Condition 3				Condition 4			
			Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)			
			1	3.5	4	6	1	3.5	4	6	1	3.5	4	6	1	3.5	4	6
162	0.0566	54	750	1032	1088	1314	1320	1680	1794	2250	546	751	792	956	1656	1749	1768	1842
162	0.0713	68	1167	1526	1598	1885	2064	2525	2618	3149	852	1115	1167	1377	2665	2784	2808	2903
250	0.1017	97	2279	2789	2891	3299	4077	4733	4864	5389	1663	2035	2110	2408	5363	5532	5566	5701
350	0.1017	97	2236	2737	2837	3237	4020	4667	4797	5314	1623	1986	2059	2350	5199	5363	5395	5527
362	0.1017	97	2231	2730	2830	3229	4013	4659	4788	5305	1618	1980	2053	2342	5178	5342	5374	5505
600	0.1242	118	3192	3787	3906	4382	5808	6582	6737	7357	2299	2727	2812	3155	7391	7582	7621	7774
725	0.0566	54	607	834	880	1062	1133	1442	1540	1932	412	567	598	721	1138	1202	1214	1265
725	0.0713	68	992	1296	1357	1601	1834	2244	2326	2799	689	900	943	1112	2015	2105	2123	2195
725	0.1017	97	2076	2540	2633	3005	3808	4421	4543	5034	1473	1803	1869	2132	4584	4728	4757	4873
800	0.1242	118	3089	3665	3780	4240	5671	6427	6579	7184	2202	2613	2695	3023	6991	7172	7209	7353
925	0.0566	54	556	764	806	973	1067	1358	1450	1819	364	501	528	638	953	1007	1018	1060
925	0.0713	68	929	1215	1272	1501	1753	2145	2223	2674	630	824	863	1018	1783	1863	1879	1943
925	0.1017	97	1990	2435	2524	2881	3694	4289	4408	4884	1393	1705	1767	2016	4256	4390	4417	4524
1000	0.1242	118	2986	3543	3654	4099	5534	6272	6420	7010	2106	2499	2577	2891	6592	6762	6796	6933
1150	0.0566	54	498	685	722	872	992	1263	1349	1692	311	427	451	544	746	788	796	830
1150	0.0713	68	859	1123	1176	1387	1661	2032	2106	2534	565	738	773	912	1523	1592	1605	1660
1150	0.1017	97	1893	2317	2402	2741	3567	4141	4256	4715	1303	1594	1653	1886	3887	4009	4034	4132
1200	0.1242	118	2883	3421	3528	3958	5397	6117	6261	6837	2010	2384	2459	2759	6192	6352	6384	6513
1350	0.0713	68	797	1042	1091	1287	1579	1932	2003	2410	506	662	693	818	1292	1350	1362	1408
1350	0.1017	97	1808	2212	2293	2617	3453	4009	4121	4565	1223	1496	1551	1770	3559	3671	3694	3783
1400	0.0713	68	781	1021	1069	1261	1559	1907	1977	2379	492	643	673	794	1234	1290	1301	1345
1400	0.1017	97	1786	2186	2266	2586	3425	3977	4087	4528	1203	1472	1526	1741	3477	3587	3609	3696
1400	0.1242	118	2780	3298	3402	3816	5260	5962	6103	6664	1914	2270	2342	2627	5792	5942	5972	6092
1600	0.1017	97	1701	2081	2157	2462	3312	3845	3952	4378	1123	1374	1424	1625	3149	3248	3268	3348
1600	0.1242	118	2677	3176	3276	3675	5124	5807	5944	6491	1818	2156	2224	2495	5393	5533	5560	5672

# Supplemental Web Crippling Table

<b>Allowable Web Crippling Loads (lbs) – Back-to-Back Members (Fy=33ksi)</b>																		
Design			Condition 1				Condition 2				Condition 3				Condition 4			
Web Size	Thickness (in.)	Thickness (mils)	Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)			
			1	3.5	4	6	1	3.5	4	6	1	3.5	4	6	1	3.5	4	6
162	0.0451	43	555	734	761	853	930	1338	1399	1610	416	550	570	639	926	1333	1393	1603
162	0.0566	54	832	1081	1118	1247	1412	1997	2084	2387	671	873	902	1006	1414	2000	2087	2390
162	0.0713	68	1261	1611	1663	1843	2175	3023	3149	3587	1104	1411	1456	1615	2194	3050	3176	3618
250	0.1017	97	2438	3035	3124	3432	4303	5819	6044	6827	2411	3003	3090	3396	4399	5949	6179	6979
350	0.1017	97	2469	3074	3164	3476	4303	5819	6044	6827	2383	2967	3054	3355	4399	5949	6179	6979
362	0.1017	97	2473	3079	3169	3482	4303	5819	6044	6827	2379	2963	3049	3350	4399	5949	6179	6979
600	0.1242	118	3647	4479	4602	5031	6384	8501	8815	9907	3698	4541	4666	5101	6586	8770	9094	10221
725	0.0451	43	640	846	877	983	930	1338	1399	1610	353	466	483	542	802	1154	1206	1388
725	0.0566	54	939	1220	1262	1407	1412	1997	2084	2387	590	767	794	885	1293	1830	1910	2187
725	0.0713	68	1390	1776	1834	2033	2175	3023	3149	3587	999	1277	1318	1461	2094	2911	3032	3454
725	0.1017	97	2585	3219	3313	3641	4303	5819	6044	6827	2275	2833	2916	3204	4399	5949	6179	6979
800	0.1242	118	3721	4570	4695	5133	6384	8501	8815	9907	3624	4450	4573	4999	6586	8770	9094	10221
925	0.0451	43	640	846	877	983	930	1338	1399	1610	330	436	452	507	740	1065	1114	1281
925	0.0566	54	968	1258	1301	1451	1412	1997	2084	2387	561	730	755	842	1218	1724	1799	2060
925	0.0713	68	1436	1835	1894	2100	2175	3023	3149	3587	962	1229	1269	1407	2002	2782	2898	3301
925	0.1017	97	2648	3297	3393	3728	4303	5819	6044	6827	2218	2762	2843	3123	4271	5775	5998	6775
1000	0.1242	118	3795	4660	4789	5235	6384	8501	8815	9907	3550	4359	4479	4897	6497	8651	8971	10082
1150	0.0566	54	968	1258	1301	1451	1412	1997	2084	2387	529	688	711	793	1134	1604	1674	1917
1150	0.0713	68	1478	1888	1949	2161	2175	3023	3149	3587	920	1175	1213	1345	1898	2638	2748	3130
1150	0.1017	97	2718	3384	3483	3827	4303	5819	6044	6827	2154	2682	2760	3033	4124	5577	5793	6543
1200	0.1242	118	3869	4751	4882	5338	6384	8501	8815	9907	3476	4268	4386	4795	6338	8439	8750	9835
1350	0.0713	68	1478	1888	1949	2161	2175	3023	3149	3587	883	1128	1164	1291	1805	2509	2614	2977
1350	0.1017	97	2780	3462	3563	3915	4303	5819	6044	6827	2096	2610	2687	2952	3994	5401	5610	6336
1400	0.0713	68	1478	1888	1949	2161	2175	3023	3149	3587	873	1116	1152	1277	1782	2477	2580	2939
1400	0.1017	97	2796	3481	3583	3937	4303	5819	6044	6827	2082	2593	2668	2932	3962	5357	5564	6285
1400	0.1242	118	3943	4842	4976	5440	6384	8501	8815	9907	3402	4177	4292	4693	6178	8226	8530	9587
1600	0.1017	97	2851	3550	3653	4014	4303	5819	6044	6827	2025	2521	2595	2851	3832	5181	5382	6078
1600	0.1242	118	4017	4933	5069	5542	6384	8501	8815	9907	3328	4086	4199	4591	6019	8014	8310	9340

<b>Allowable Web Crippling Loads (lbs) – Back-to-Back Members (Fy=50ksi)</b>																		
Design			Condition 1				Condition 2				Condition 3				Condition 4			
Web Size	Thickness (in.)	Thickness (mils)	Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)				Bearing Length (in.)			
			1	3.5	4	6	1	3.5	4	6	1	3.5	4	6	1	3.5	4	6
162	0.0566	54	1260	1638	1694	1890	1530	2166	2260	2588	671	873	902	1006	1414	2000	2087	2390
162	0.0713	68	1910	2441	2519	2793	2358	3278	3414	3889	1104	1411	1456	1615	2194	3050	3176	3618
250	0.1017	97	3693	4599	4733	5201	4666	6309	6553	7401	2411	3003	3090	3396	4399	5949	6179	6979
350	0.1017	97	3740	4658	4794	5267	4666	6309	6553	7401	2383	2967	3054	3355	4399	5949	6179	6979
362	0.1017	97	3746	4665	4801	5275	4666	6309	6553	7401	2379	2963	3049	3350	4399	5949	6179	6979
600	0.1242	118	5526	6786	6973	7623	6922	9216	9557	10741	3698	4541	4666	5101	6586	8770	9094	10221
725	0.0566	54	1422	1849	1912	2132	1530	2166	2260	2588	590	767	794	885	1293	1830	1910	2187
725	0.0713	68	2106	2691	2778	3080	2358	3278	3414	3889	999	1277	1318	1461	2094	2911	3032	3454
725	0.1017	97	3917	4878	5020	5516	4666	6309	6553	7401	2275	2833	2916	3204	4399	5949	6179	6979
800	0.1242	118	5638	6924	7114	7778	6922	9216	9557	10741	3624	4450	4573	4999	6586	8770	9094	10221
925	0.0566	54	1466	1906	1971	2198	1530	2166	2260	2588	561	730	755	842	1218	1724	1799	2060
925	0.0713	68	2176	2780	2870	3182	2358	3278	3414	3889	962	1229	1269	1407	2002	2782	2898	3301
925	0.1017	97	4012	4995	5141	5649	4666	6309	6553	7401	2218	2762	2843	3123	4271	5775	5998	6775
1000	0.1242	118	5750	7061	7256	7933	6922	9216	9557	10741	3550	4359	4479	4897	6497	8651	8971	10082
1150	0.0566	54	1466	1906	1971	2198	1530	2166	2260	2588	529	688	711	793	1134	1604	1674	1917
1150	0.0713	68	2239	2861	2953	3274	2358	3278	3414	3889	920	1175	1213	1345	1898	2638	2748	3130
1150	0.1017	97	4118	5128	5277	5799	4666	6309	6553	7401	2154	2682	2760	3033	4124	5577	5793	6543
1200	0.1242	118	5862	7199	7397	8087	6922	9216	9557	10741	3476	4268	4386	4795	6338	8439	8750	9835
1350	0.0713	68	2239	2861	2953	3274	2358	3278	3414	3889	883	1128	1164	1291	1805	2509	2614	2977
1350	0.1017	97	4212	5245	5398	5932	4666	6309	6553	7401	2096	2610	2687	2952	3994	5401	5610	6336
1400	0.0713	68	2239	2861	2953	3274	2358	3278	3414	3889	873	1116	1152	1277	1782	2477	2580	2939
1400	0.1017	97	4236	5275	5429	5965	4666	6309	6553	7401	2082	2593	2668	2932	3962	5357	5564	6285
1400	0.1242	118	5975	7337	7539	8242	6922	9216	9557	10741	3402	4177	4292	4693	6178	8226	8530	9587
1600	0.1017	97	4319	5378	5535	6082	4666	6309	6553	7401	2025	2521	2595	2851	3832	5181	5382	6078
1600	0.1242	118	6087	7475	7680	8397	6922	9216	9557	10741	3328	4086	4199	4591	6019	8014	8310	9340