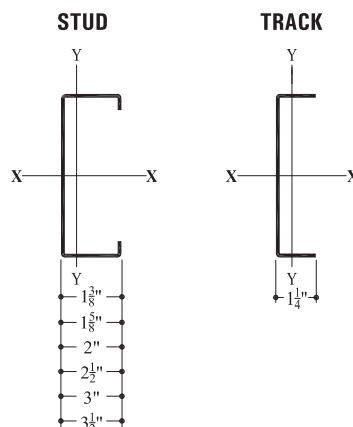


SYMBOLS AND DEFINITIONS:

A	Gross cross sectional area of the member.
I_x, I_y	Moment of Inertia of the gross section about the principal axis.
I_{x_e}	Moment of Inertia of the effective section stressed at yield about the principal axis.
R_x, R_y	Radius of gyration of the gross section.
S_x	Section Modulus of the gross section.
S_{x_e}	Section Modulus of the effective section stressed at yield about the principal axis.
M_a	Allowable bending moment with contribution due to coldworking where applicable
V_a	Allowable shear force at punched sections
C_w	Torsional warping constant of the cross section
J	St. Venant torsion constant
R_o	Polar radius of gyration of the cross section about the shear center
Beta	$1-(X_o/R_o)^2$
X_o	Distance from shear center to centroid along the principal axis.



NOTES:

1. Section properties are based on the North American Specification for the Design of Cold Formed Steel Structural Members, 2001 edition.
2. Gross and torsional properties were based on the unreduced cross section of the shape.
3. S_{x_e} was based on the effective section stressed at yield. For further information consult AISI Section B2.
4. All products annotated by "*" exceed the h/t ratio of 200 and require a web stiffener at support and concentrated load locations.
5. Allowable bending moment, M_a was calculated according to AISI Section C3.1.1, Procedure 1, based on the initiation of yielding in the effective section.
6. Refer to page 3 for physical dimensions of sections.
7. Weights shown are based on the uncoated base metal design thickness.
8. Designer should check the Product Availability Matrix on page 3.
9. Allowable shear, V_a was calculated in accordance with Section C3.2.2 at punched section.

Physical and Structural Properties

Member		Physical Properties		Gross Section Properties							Effective Section Properties				Section Properties				Torsional Properties						
MIW Type	SSMA	Flange/ Leg (in.)	Lip (in.)	Design Thickness (in.)	Weight (p/lf.)	Area (in. ²)	Ix (in. ⁴)	Sx (in. ³)	Rx (in.)	Iy (in. ⁴)	Ry (in.)	33ksi				50 ksi				J x1000 (in. ⁴)	Cw (in. ⁶)	Xo (in.)	Ro (in.)	β Beta	
												Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)	Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)						
2-1/2" Members																									
212CW20	250S137-33	1 3/8"	3/8"	0.0346	0.671	0.197	0.203	0.163	1.015	0.052	0.515	0.195	0.144	3.123	0.203	0.195	0.129	3.874	0.262	0.079	0.075	-1.170	1.633	0.486	
212CW18	250S137-43	1 3/8"	3/8"	0.0451	0.869	0.255	0.261	0.209	1.011	0.067	0.511	0.249	0.195	4.306	0.199	0.249	0.186	5.555	0.302	0.173	0.094	-1.158	1.620	0.489	
212CW16	250S137-54	1 3/8"	3/8"	0.0566	1.075	0.316	0.318	0.255	1.004	0.080	0.504	0.304	0.243	5.487	0.182	0.304	0.231	7.766	0.276	0.337	0.113	-1.150	1.608	0.488	
212CW14	250S137-68	1 3/8"	3/8"	0.0713	1.327	0.390	0.386	0.309	0.995	0.096	0.495	0.369	0.294	6.848	0.182	0.369	0.293	10.133	0.182	0.661	0.134	-1.141	1.593	0.487	
212SW20	250S162-33	1 5/8"	1/2"	0.0346	0.760	0.223	0.235	0.188	1.027	0.087	0.624	0.227	0.172	3.391	0.203	0.227	0.153	4.586	0.262	0.089	0.144	-1.501	1.923	0.391	
212SW18	250S162-43	1 5/8"	1/2"	0.0451	0.984	0.289	0.302	0.242	1.022	0.111	0.620	0.291	0.231	5.012	0.199	0.291	0.205	6.129	0.302	0.196	0.182	-1.489	1.909	0.392	
212SW16	250S162-54	1 5/8"	1/2"	0.0566	1.219	0.358	0.370	0.296	1.016	0.135	0.614	0.356	0.284	6.301	0.182	0.356	0.271	8.969	0.276	0.383	0.219	-1.482	1.898	0.391	
212SW14	250S162-68	1 5/8"	1/2"	0.0713	1.509	0.444	0.450	0.360	1.008	0.162	0.605	0.433	0.345	7.870	0.182	0.433	0.342	11.588	0.182	0.752	0.262	-1.474	1.885	0.389	
212T20	250T125-33	1 1/4"	none	0.0346	0.588	0.173	0.192	0.145	1.054	0.027	0.397	0.166	0.103	2.033	0.104	0.157	0.096	2.875	1.260	0.069	0.033	-0.771	1.365	0.681	
212T18	250T125-43	1 1/4"	none	0.0451	0.766	0.225	0.250	0.188	1.055	0.035	0.395	0.231	0.147	2.909	0.136	0.220	0.137	4.090	2.054	0.153	0.042	-0.766	1.362	0.684	
212T16	250T125-54	1 1/4"	none	0.0566	0.961	0.282	0.318	0.236	1.062	0.044	0.392	0.310	0.203	4.013	0.162	0.297	0.188	5.640	2.563	0.301	0.054	-0.763	1.365	0.688	
212T14	250T125-68	1 1/4"	none	0.0713	1.209	0.355	0.409	0.297	1.072	0.054	0.389	0.409	0.281	5.556	0.112	0.403	0.262	7.847	3.199	0.602	0.068	-0.758	1.370	0.694	
3-5/8" Members																									
358CW20	362S137-33	1 3/8"	3/8"	0.0346	0.804	0.236	0.249	0.264	1.424	0.059	0.501	0.466	0.233	4.603	0.521	0.464	0.198	5.937	0.552	0.094	0.162	-1.026	1.826	0.684	
358CW18	362S137-43	1 3/8"	3/8"	0.0451	1.041	0.306	0.316	0.340	1.419	0.076	0.497	0.605	0.321	6.346	0.676	0.602	0.293	8.760	0.832	0.207	0.204	-1.015	1.814	0.687	
358CW16	362S137-54	1 3/8"	3/8"	0.0566	1.291	0.379	0.376	0.417	1.412	0.091	0.490	0.747	0.404	7.978	0.705	0.745	0.383	11.467	1.016	0.405	0.246	-1.006	1.801	0.688	
358CW14	362S137-68	1 3/8"	3/8"	0.0713	1.600	0.470	0.923	0.509	1.401	0.109	0.481	0.913	0.500	11.656	0.662	0.913	0.496	14.845	1.004	0.797	0.294	-0.996	1.785	0.689	
358SW20	362S162-33	1 5/8"	1/2"	0.0346	0.892	0.262	0.551	0.304	1.450	0.089	0.616	0.539	0.269	5.305	0.521	0.535	0.235	7.047	0.552	0.105	0.293	-1.334	2.085	0.582	
358SW18	362S162-43	1 5/8"	1/2"	0.0451	1.156	0.340	0.710	0.392	1.446	0.127	0.611	0.689	0.373	7.365	0.676	0.696	0.322	9.651	0.832	0.230	0.371	-1.323	2.052	0.585	
358SW16	362S162-54	1 5/8"	1/2"	0.0566	1.436	0.422	0.873	0.482	1.438	0.154	0.605	0.864	0.468	9.251	0.705	0.862	0.445	13.325	1.016	0.451	0.449	-1.314	2.040	0.585	
358SW14	362S162-68	1 5/8"	1/2"	0.0713	1.782	0.524	1.069	0.590	1.429	0.186	0.596	1.060	0.581	13.244	0.662	1.060	0.577	17.259	1.004	0.887	0.540	-1.305	2.024	0.585	
358SW12	362S162-97	1 5/8"	1/2"	0.1017	2.464	0.724	1.435	0.792	1.408	0.241	0.577	1.427	0.781	18.736	0.577	1.427	0.781	27.696	0.875	2.496	0.699	-1.285	1.992	0.584	
358SW10	362S162-118	1 5/8"	1/2"	0.1242	2.995	0.880	1.701	0.939	1.390	0.277	0.561	1.694	0.925	23.094	0.511	1.694	0.925	33.986	0.774	4.732	0.803	-1.270	1.965	0.582	
358J20	362S200-33	2"	5/8"	0.0346	1.010	0.297	0.648	0.358	1.478	0.177	0.772	0.633	0.293	5.795	0.521	0.607	0.260	7.771	0.552	0.118	0.571	-1.770	2.432	0.470	
358J18	362S200-43	2"	5/8"	0.0451	1.310	0.385	0.836	0.461	1.474	0.227	0.767	0.825	0.428	8.453	0.676	0.822	0.377	11.278	0.832	0.261	0.726	-1.758	2.419	0.472	
358J16	362S200-54	2"	5/8"	0.0566	1.628	0.479	1.030	0.568	1.467	0.277	0.761	1.021	0.555	10.964	0.705	1.020	0.491	14.699	1.016	0.511	0.884	-1.750	2.407	0.472	
358J14	362S200-68	2"	5/8"	0.0713	2.025	0.595	1.266	0.698	1.459	0.337	0.753	1.256	0.690	15.347	0.662	1.256	0.669	20.021	1.004	1.008	1.070	-1.741	2.393	0.471	
358J12	362S200-97	2"	5/8"	0.1017	2.810	0.826	1.712	0.945	1.440	0.446	0.735	1.703	0.933	21.698	0.577	1.703	0.933	32.195	0.875	2.847	1.404	-1.724	2.363	0.468	
358J10	362S200-118	2"	5/8"	0.1242	3.427	1.007	2.042	1.127	1.424	0.522	0.720	2.035	1.114	26.783	0.511	2.035	1.114	39.581	0.774	5.415	1.634	-1.710	2.339	0.466	
358T20	362T125-33	1 1/4"	none	0.0346	0.721	0.212	0.438	0.232	1.439	0.030	0.377	0.385	0.174	3.437	0.104	0.368	0.164	4.922	1.039	0.085	0.075	-0.667	1.630	0.833	
358T18	362T125-43	1 1/4"	none	0.0451	0.939	0.276	0.572	0.302	1.439	0.039	0.375	0.531	0.245	4.839	0.139	0.508	0.230	6.892	2.141	0.187	0.097	-0.663	1.628	0.834	
358T16	362T125-54	1 1/4"	none	0.0566	1.177	0.346	0.723	0.378	1.445	0.048	0.373	0.705	0.332	6.569	0.162	0.678	0.312	9.342	3.372	0.369	0.123	-0.659	1.632	0.837	
358T14	362T125-68	1 1/4"	none	0.0713	1.482	0.436	0.921	0.475	1.454	0.060	0.370	0.921	0.453	8.955	0.162	0.907	0.427	12.776	4.703	0.738	0.155	-0.655	1.637	0.840	
358T12	362T125-97	1 1/4"	none	0.1017	2.112	0.621	1.344	0.675	1.471	0.082	0.364	1.343	0.675	15.242	0.162	1.343	0.675	20.204	6.622	2.140	0.223	-0.646	1.648	0.846	
358T10	362T125-118	1 1/4"	none	0.1242	2.635	0.774	1.708	0.839	1.485	0.100	0.359	1.707	0.839	19.508	0.162	1.707	0.839	28.945	8.178	4.163	0.281	-0.639	1.656	0.851	

Physical and Structural Properties

Member		Physical Properties				Gross Section Properties						Effective Section Properties								Torsional Properties					
MIW Type	SSMA	Flange/ Leg (in.)	Lip (in.)	Design Thickness (in.)	Weight (p/lf.)	Area (in. ²)	I _x (in. ⁴)	S _x (in. ³)	R _x (in.)	I _y (in. ⁴)	R _y (in.)	33ksi				50 ksi				J x1000 (in. ⁴)	C _w (in. ⁶)	X _o (in.)	R _o (in.)	β Beta	
												I _x _e (in. ⁴)	S _x _e (in. ³)	M _a (k-in)	V _a (k)	I _x _e (in. ⁴)	S _x _e (in. ³)	M _a (k-in)	V _a (k)						
4" Members																									
4CW20	400S137-33	1 3/8"	3/8"	0.0346	0.848	0.249	0.603	0.302	1.556	0.061	0.496	0.584	0.260	5.133	0.595	0.580	0.221	6.607	0.595	0.099	0.200	-0.987	1.908	0.733	
4CW18	400S137-43	1 3/8"	3/8"	0.0451	1.099	0.323	0.776	0.388	1.551	0.078	0.491	0.761	0.360	7.115	0.810	0.755	0.327	9.782	0.997	0.219	0.253	-0.976	1.897	0.736	
4CW16	400S137-54	1 3/8"	3/8"	0.0566	1.364	0.401	0.953	0.477	1.543	0.094	0.484	0.944	0.455	8.997	0.944	0.938	0.430	12.874	1.223	0.428	0.305	-0.967	1.884	0.73 7	
4CW14	400S137-68	1 3/8"	3/8"	0.0713	1.691	0.497	1.165	0.583	1.531	0.112	0.475	1.159	0.571	11.274	0.895	1.157	0.561	16.786	1.356	0.842	0.365	-0.956	1.867	0.7 38	
4SW20	400S162-33	1 5/8"	1/2"	0.0346	0.936	0.275	0.692	0.346	1.586	0.103	0.611	0.674	0.300	5.923	0.595	0.669	0.262	7.849	0.595	0.110	0.358	-1.288	2.133	0.635	
4SW18	400S162-43	1 5/8"	1/2"	0.0451	1.214	0.357	0.892	0.446	1.582	0.131	0.606	0.876	0.418	8.255	0.810	0.872	0.360	10.777	0.997	0.242	0.454	-1.276	2.121	0.63 8	
4SW16	400S162-54	1 5/8"	1/2"	0.0566	1.508	0.443	1.098	0.549	1.574	0.159	0.600	1.088	0.527	10.423	0.944	1.082	0.499	14.947	1.223	0.473	0.550	-1.268	2.108	0.6 38	
4SW14	400S162-68	1 5/8"	1/2"	0.0713	1.873	0.550	1.346	0.673	1.564	0.192	0.591	1.340	0.661	13.061	0.895	1.338	0.651	19.492	1.356	0.933	0.663	-1.258	2.092	0.6 39	
4SW12	400S162-97	1 5/8"	1/2"	0.1017	2.594	0.762	1.813	0.907	1.542	0.250	0.572	1.811	0.898	21.544	0.797	1.811	0.898	31.848	1.207	2.627	0.860	-1.238	2.059	0.6 39	
4SW10	400S162-118	1 5/8"	1/2"	0.1242	3.157	0.928	2.154	1.077	1.524	0.287	0.556	2.157	1.067	26.636	0.719	2.157	1.067	39.198	1.090	4.988	0.990	-1.222	2.031	0.6 38	
4J20	400S200-33	2"	5/8"	0.0346	1.054	0.310	0.812	0.406	1.619	0.183	0.769	0.791	0.327	6.463	0.595	0.758	0.289	8.666	0.595	0.124	0.689	-1.715	2.481	0.522	
4J18	400S200-43	2"	5/8"	0.0451	1.367	0.402	1.048	0.524	1.615	0.235	0.764	1.033	0.479	9.474	0.810	1.028	0.421	12.605	0.997	0.272	0.876	-1.703	2.468	0.524	
4J16	400S200-54	2"	5/8"	0.0566	1.701	0.500	1.292	0.646	1.608	0.287	0.758	1.282	0.624	12.339	0.944	1.278	0.550	16.472	1.223	0.534	1.068	-1.695	2.456	0.524	
4J14	400S200-68	2"	5/8"	0.0713	2.116	0.622	1.590	0.795	1.599	0.349	0.750	1.584	0.783	15.462	0.895	1.582	0.753	22.558	1.356	1.054	1.295	-1.686	2.441	0.523	
4J12	400S200-97	2"	5/8"	0.1017	2.940	0.864	2.156	1.078	1.580	0.463	0.732	2.153	1.069	24.852	0.797	2.153	1.069	36.874	1.207	2.978	1.704	-1.667	2.411	0.522	
4J10	400S200-118	2"	5/8"	0.1242	3.590	1.055	2.577	1.289	1.563	0.541	0.716	2.579	1.279	30.755	0.719	2.579	1.279	45.451	1.090	5.671	1.987	-1.653	2.385	0.520	
4T20	400T125-33	1 1/4"	none	0.0346	0.765	0.225	0.549	0.265	1.563	0.031	0.371	0.484	0.201	3.971	0.940	0.465	0.189	5.668	0.940	0.090	0.094	-0.639	1.729	0.863	
4T18	400T125-43	1 1/4"	none	0.0451	0.996	0.293	0.716	0.344	1.564	0.040	0.369	0.666	0.282	5.568	1.739	0.639	0.266	7.956	2.078	0.199	0.122	-0.635	1.727	0.865	
4T16	400T125-54	1 1/4"	none	0.0566	1.250	0.367	0.904	0.431	1.569	0.049	0.367	0.883	0.381	7.528	2.739	0.849	0.359	10.739	3.372	0.392	0.153	-0.631	1.731	0.86 7	
4T14	400T125-68	1 1/4"	none	0.0713	1.573	0.462	1.150	0.541	1.577	0.061	0.364	1.150	0.517	10.220	3.435	1.134	0.488	14.622	5.205	0.783	0.193	-0.627	1.736	0.8 70	
4T12	400T125-97	1 1/4"	none	0.1017	2.242	0.659	1.674	0.768	1.594	0.084	0.358	1.673	0.768	17.352	4.842	1.673	0.768	23.001	7.307	2.271	0.277	-0.618	1.747	0.8 75	
4T10	400T125-118	1 1/4"	none	0.1242	2.797	0.822	2.123	0.955	1.607	0.102	0.353	2.122	0.955	22.200	5.987	2.122	0.955	32.940	9.071	4.419	0.347	-0.612	1.755	0.879	
6" Members																									
6CW20	600S137-33	1 3/8"	3/8"	0.0346	1.083	0.318	1.583	0.528	2.230	0.069	0.464	1.582	0.513	10.127	0.638	1.582	0.414	12.393	0.638	0.127	0.494	-0.823	2.422	0.8 85	
6CW18	600S137-43	1 3/8"	3/8"	0.0451	1.406	0.413	2.042	0.681	2.224	0.087	0.459	2.042	0.670	14.801	1.240	2.042	0.648	19.394	1.240	0.280	0.625	-0.813	2.412	0.8 86	
6CW16	600S137-54	1 3/8"	3/8"	0.0566	1.749	0.514	2.518	0.839	2.214	0.105	0.452	2.517	0.839	18.981	1.890	2.517	0.809	27.231	1.947	0.549	0.757	-0.804	2.398	0.8 88	
6CW14	600S137-68	1 3/8"	3/8"	0.0713	2.177	0.640	3.095	1.032	2.200	0.126	0.443	3.094	1.031	24.048	2.339	3.094	1.030	35.603	2.879	1.084	0.911	-0.793	2.380	0.8 89	
6SW20	600S162-33	1 5/8"	1/2"	0.0346	1.172	0.344	1.793	0.598	2.282	0.116	0.581	1.793	0.577	11.408	0.638	1.793	0.480	14.376	0.638	0.137	0.851	-1.091	2.596	0.8 23	
6SW18	600S162-43	1 5/8"	1/2"	0.0451	1.521	0.447	2.316	0.772	2.277	0.148	0.576	2.316	0.767	16.679	1.240	2.316	0.706	21.121	1.240	0.303	1.082	-1.080	2.585	0.8 25	
6SW16	600S162-54	1 5/8"	1/2"	0.0566	1.893	0.556	2.861	0.954	2.268	0.181	0.570	2.860	0.953	21.165	1.890	2.860	0.916	30.324	1.947	0.594	1.318	-1.071	2.572	0.8 27	
6SW14	600S162-68	1 5/8"	1/2"	0.0713	2.358	0.693	3.525	1.175	2.256	0.218	0.561	3.525	1.175	26.784	2.339	3.525	1.164	39.465	2.879	1.174	1.596	-1.061	2.555	0.8 28	
6SW12	600S162-97	1 5/8"	1/2"	0.1017	3.286	0.966	4.799	1.600	2.229	0.283	0.542	4.797	1.599	38.374	2.512	4.797	1.599	56.725	3.806	3.329	2.093	-1.039	2.518	0.8 30	
6SW10	600S162-118	1 5/8"	1/2"	0.1242	4.022	1.182	5.756	1.919	2.207	0.326	0.525	5.754	1.918	47.864	2.376	5.754	1.918	70.438	3.600	6.354	2.434	-1.021	2.488	0.8 32	
6J20	600S200-33	2"	5/8"	0.0346	1.289	0.379	2.076	0.692	2.341	0.209	0.743	2.059	0.618	12.218	0.638	2.016	0.521	15.598	0.638	0.151	1.577	-1.479	2.867	0.734	
6J18	600S200-43	2"	5/8"	0.0451	1.674	0.492	2.683	0.894	2.335	0.268	0.739	2.683	0.873	17.243	1.240	2.683	0.805	24.102	1.240	0.334	2.012	-1.468	2.855	0.736	
6J16	600S200-54	2"	5/8"	0.0566	2.086	0.613	3.320	1.107	2.327	0.329	0.732	3.319	1.106	24.073	1.890	3.319	1.015	30.394	1.947	0.655	2.461	-1.459	2.843	0.737	
6J14	600S200-68	2"	5/8"	0.0713	2.601	0.764	4.101	1.367	2.317	0.400	0.723	4.100	1.367	30.416	2.339	4.100	1.317	43.707	2.879	1.295	2.997	-1.448	2.826	0.737	
6J12	600S200-97	2"	5/8"	0.1017	3.632	1.067	5.613	1.871	2.293	0.530	0.705	5.612	1.871	43.494	2.512	5.612	1.871	64.535	3.806	3.679	3.981	-1.427	2.791	0.739	
6J10	600S200-118	2"	5/8"	0.1242	4.454	1.309	6.766	2.255	2.274	0.622	0.689	6.764	2.255	54.236	2.376	6.764	2.255	80.151	3.600	7.036	4.680	-1.409	2.762	0.740	
6JE18	600S250-43	2 1/2"	5/8"	0.0451	1.828	0.537	3.083	1.028	2.396	0.458	0.923	3.082	0.918	18.139	1.240	2.977	0.816	24.438	1.240	0.364	3.379	-1.898	3.193	0.6 47	
6JE16	600S250-54	2 1/2"	5/8"	0.0566	2.279	0.670	3.820	1.273	2.389	0.562	0.917	3.819	1.159	22.896	1.890	3.766	1.069	31.999	1.947	0.715	4.146	-1.889	3.180	0.6 47	
6JE14	600S250-68	2 1/2"	5/8"	0.0713	2.844	0.836	4.728	1.576	2.379	0.688	0.908	4.727	1.508	32.824	2.339	4.723	1.386								

Physical and Structural Properties

Member Physical Properties						Gross Section Properties						Effective Section Properties								Torsional Properties						
M/W Type	SSMA	Flange/ Leg (in.)	Lip (in.)	Design Thickness (in.)	Weight (p/lf.)	Area (in. ²)	Ix (in. ⁴)	Sx (in. ³)	Rx (in.)	Iy (in. ⁴)	Ry (in.)	33ksi				50 ksi				J x1000 (in. ⁴)	Cw (in. ⁶)	Xo (in.)	Ro (in.)	β Beta		
												Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)	Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)							
8" Members																										
8J18	800S200-43	2"	5/8"	0.0451	1.981	0.582	5.303	1.326	3.018	0.292	0.708	5.302	1.294	25.570	1.051	5.302	1.063	31.831	1.051	0.395	3.763	-1.295	3.360	0.851		
8J16	800S200-54	2"	5/8"	0.0566	2.471	0.726	6.574	1.644	3.009	0.357	0.701	6.572	1.643	35.749	2.091	6.572	1.501	44.938	2.091	0.775	4.612	-1.286	3.347	0.852		
8J14	800S200-68	2"	5/8"	0.0713	3.086	0.907	8.142	2.036	2.996	0.435	0.692	8.140	2.035	45.286	3.367	8.140	1.964	65.207	3.367	1.537	5.631	-1.275	3.329	0.853		
8J12	800S200-97	2"	5/8"	0.1017	4.324	1.271	11.206	2.801	2.970	0.576	0.674	11.203	2.801	65.120	4.824	11.203	2.801	96.622	5.938	4.381	7.524	-1.253	3.293	0.85 5		
8J10	800S200-118	2"	5/8"	0.1242	5.318	1.563	13.572	3.393	2.947	0.676	0.658	13.569	3.392	81.598	4.950	13.569	3.392	120.587	7.259	8.402	8.889	-1.234	3.262	0.8 57		
8JE18	800S250-43	2 1/2"	5/8"	0.0451	2.135	0.627	6.017	1.504	3.097	0.500	0.893	6.015	1.315	25.979	1.051	5.910	1.078	32.265	1.051	0.425	6.320	-1.695	3.641	0.7 84		
8JE16	800S250-54	2 1/2"	5/8"	0.0566	2.664	0.783	7.467	1.867	3.089	0.614	0.886	7.465	1.712	33.821	2.091	7.377	1.527	45.721	2.091	0.836	7.769	-1.685	3.628	0.7 84		
8JE14	800S250-68	2 1/2"	5/8"	0.0713	3.329	0.978	9.263	2.316	3.077	0.752	0.877	9.261	2.220	48.331	3.367	9.240	2.059	61.648	3.367	1.658	9.526	-1.674	3.611	0.7 85		
8JE12	800S250-97	2 1/2"	5/8"	0.1017	4.670	1.372	12.792	3.198	3.053	1.009	0.858	12.789	3.191	72.065	4.824	12.789	3.053	102.693	5.938	4.731	12.837	-1.652	3.5 76	0.787		
8JE10	800S250-118	2 1/2"	5/8"	0.1242	5.751	1.690	15.540	3.885	3.033	1.196	0.841	15.537	3.884	90.301	4.950	15.537	3.791	130.757	7.259	9.085	15.279	-1.633	3.5 46	0.788		
8JX16	800S300-54	3"	1"	0.0566	3.001	0.882	8.792	2.198	3.158	1.145	1.139	8.782	2.011	39.732	2.091	8.532	1.801	53.932	2.091	0.942	15.946	-2.354	4.100	0.670		
8JX14	800S300-68	3"	1"	0.0713	3.754	1.103	10.927	2.732	3.148	1.411	1.131	10.925	2.696	53.274	3.367	10.925	2.508	75.092	3.367	1.869	19.634	-2.344	4.084	0.671		
8JX12	800S300-97	3"	1"	0.1017	5.276	1.550	15.154	3.789	3.127	1.922	1.114	15.151	3.788	83.846	4.824	15.151	3.675	121.429	5.938	5.345	26.700	-2.323	4.051	0.67 1		
8JX10	800S300-118	3"	1"	0.1242	6.507	1.912	18.477	4.619	3.109	2.308	1.099	18.474	4.619	104.824	4.950	18.474	4.619	155.988	7.259	10.280	32.027	-2.306	4.023	0.6 72		
8T20*	800T125-33	1 1/4"	none	0.0346	1.236	0.363	2.887	0.711	2.824	0.036	0.313	2.706	0.434	8.569	0.465	2.550	0.360	10.771	0.465	0.145	0.456	-0.443	2.876	0.97 6		
8T18	800T125-43	1 1/4"	none	0.0451	1.610	0.473	3.774	0.925	2.824	0.046	0.311	3.600	0.740	14.623	1.030	3.545	0.597	17.867	1.030	0.321	0.588	-0.440	2.875	0.9 77		
8T16	800T125-54	1 1/4"	none	0.0566	2.020	0.594	4.747	1.158	2.828	0.057	0.309	4.653	1.065	21.038	2.039	4.547	0.963	28.833	2.039	0.634	0.734	-0.437	2.878	0.9 77		
8T14	800T125-68	1 1/4"	none	0.0713	2.544	0.748	6.000	1.455	2.833	0.070	0.307	5.998	1.409	27.844	4.087	5.925	1.355	40.578	4.087	1.267	0.919	-0.434	2.883	0.9 77		
8T12	800T125-97	1 1/4"	none	0.1017	3.626	1.066	8.616	2.062	2.844	0.097	0.301	8.613	2.062	46.564	8.843	8.613	2.062	61.721	10.885	3.674	1.293	-0.427	2.891	0.978		
8T10	800T125-118	1 1/4"	none	0.1242	4.526	1.330	10.817	2.562	2.852	0.117	0.297	10.813	2.561	59.536	12.274	10.813	2.561	88.338	16.975	7.150	1.595	-0.421	2.8 98	0.979		
10" Members																										
10SW18*	1000S162-43	1 5/8"	1/2"	0.0451	2.135	0.627	8.028	1.606	3.577	0.168	0.518	8.025	1.415	27.953	0.836	8.013	1.148	34.366	0.836	0.425	3.404	-0.836	3.710	0.949		
10SW16	1000S162-54	1 5/8"	1/2"	0.0566	2.664	0.783	9.953	1.981	3.566	0.204	0.511	9.950	1.990	39.322	1.661	9.950	1.713	51.291	1.661	0.836	4.159	-0.827	3.696	0.950		
10SW14	1000S162-68	1 5/8"	1/2"	0.0713	3.329	0.978	12.329	2.466	3.550	0.247	0.502	12.325	2.465	56.196	3.345	12.325	2.465	73.802	3.345	1.858	5.060	-0.816	3.67 7	0.951		
10SW12	1000S162-97	1 5/8"	1/2"	0.1017	4.670	1.372	16.972	3.394	3.517	0.320	0.483	16.966	3.393	81.427	6.434	16.966	3.393	120.368	7.177	4.731	6.707	-0.795	3.6 38	0.952		
10SW10	1000S162-118	1 5/8"	1/2"	0.1242	5.751	1.690	20.560	4.112	3.488	0.369	0.467	20.553	4.111	102.578	7.908	20.553	4.111	150.956	9.734	9.085	7.869	-0.777	3.604	0.954		
10J18*	1000S200-43	2"	5/8"	0.0451	2.288	0.672	9.088	1.818	3.676	0.309	0.677	9.085	1.582	31.260	0.836	9.045	1.318	39.446	0.836	0.456	6.189	-1.162	3.915	0.912		
10J16	1000S200-54	2"	5/8"	0.0566	2.856	0.839	11.281	2.256	3.666	0.378	0.671	11.278	2.256	44.570	1.661	11.278	1.835	54.943	1.661	0.896	7.595	-1.153	3.901	0.9 13		
10J14	1000S200-68	2"	5/8"	0.0713	3.572	1.050	13.998	2.800	3.652	0.460	0.662	13.994	2.799	62.281	3.345	13.994	2.744	82.155	3.345	1.779	9.290	-1.142	3.883	0.9 14		
10J12	1000S200-97	2"	5/8"	0.1017	5.016	1.474	19.341	3.868	3.622	0.610	0.643	19.335	3.867	89.913	6.434	19.335	3.867	133.409	7.177	5.082	12.460	-1.120	3.846	0.915		
10J10	1000S200-118	2"	5/8"	0.1242	6.183	1.817	23.506	4.701	3.597	0.715	0.627	23.499	4.700	113.051	7.908	23.499	4.700	167.069	9.734	9.768	14.768	-1.101	3.81 4	0.917		
10JE18*	1000S250-43	2 1/2"	5/8"	0.0451	2.442	0.718	10.205	2.041	3.772	0.531	0.861	10.202	1.618	31.973	0.836	10.141	1.341	40.147	0.836	0.486	10.404	-1.534	4.1 62	0.864		
10JE16	1000S250-54	2 1/2"	5/8"	0.0566	3.049	0.896	12.680	2.536	3.762	0.653	0.854	12.677	2.279	45.039	1.661	12.659	1.881	56.318	1.661	0.957	12.805	-1.525	4.1 48	0.865		
10JE14	1000S250-68	2 1/2"	5/8"	0.0713	3.814	1.121	15.755	3.151	3.749	0.799	0.844	15.751	3.028	65.929	3.345	15.738	2.771	82.961	3.345	1.899	15.726	-1.514	4.1 31	0.866		
10JE12	1000S250-97	2 1/2"	5/8"	0.1017	5.362	1.576	21.832	4.366	3.722	1.073	0.825	21.826	4.356	98.401	6.434	21.826	4.181	140.621	7.177	5.432	21.268	-1.491	4.094	0.867		
10JE10	1000S250-118	2 1/2"	5/8"	0.1242	6.615	1.944	26.601	5.320	3.699	1.271	0.809	26.594	5.319	123.652	7.908	26.594	5.198	179.308	9.734	10.450	25.389	-1.47 2	4.063	0.869		
10JX16	1000S300-54	3"	1"	0.0566	3.386	0.995	14.824	2.965	3.860	1.227	1.111	14.821	2.667	52.706	1.661	14.545	2.239	67.042	1.661	1.063	25.484	-2.153	4.557	0.77 7		
10JX14	1000S300-68	3"	1"	0.0713	4.239	1.246	18.451	3.690	3.849	1.513	1.102	18.446	3.846	72.041	3.345	18.446	3.384	101.320	3.345	2.111	31.425	-2.142	4.540	0.7 78		
10JX12	1000S300-97	3"	1"	0.1017	5.968	1.754	25.662	5.132	3.825	2.061	1.084	25.656	5.131	113.583	6.434	25.656	4.981	164.567	7.177	6.046	42.867	-2.120	4.506	0.7 79		
10JX10	1000S300-118	3"	1"	0.1242	7.371	2.166	31.367	6.274	3.806	2.476	1.069	31.360	6.272	142.355	7.908	31.360	6.272	211.838	9.734	11.645	51.554	-2.102	4.477	0.780		
10JXW16	1000S350-54	3 1/2"	1"	0.0566	3.579	1.052	16.223	3.245	3.928	1.768	1.297	15.948	2.760	54.531	1.661	15.584	2.316	69.326	1.661	1.123	36.305	-2.573	4.			

STRUCTURAL PROPERTIES

MARINO WARE®

Physical and Structural Properties

M/W Type	Member	Physical	Properties	Gross Section Properties								Effective Section Properties								Torsional Properties				
	SSMA	Flange/ Leg (in.)	Lip (in.)	Design Thickness (in.)	Weight (p lf.)	Area (in. ²)	Ix (in. ⁴)	Sx (in. ³)	Rx (in.)	Iy (in. ⁴)	Ry (in.)	33ksi				50 ksi				J x1000 (in. ⁴)	Cw (in. ⁶)	Xo (in.)	Ro (in.)	β Beta
												Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)	Ix _e (in. ⁴)	Sx _e (in. ³)	Ma (k-in)	Va (k)					
12" Members																								
12JE16*	1200S250-54	2 1/2"	5/8"	0.0566	3.434	1.009	19.686	3.281	4.417	0.683	0.823	19.680	2.682	53.005	1.377	19.680	2.239	67.024	1.377	1.078	19.354	-1.395	4.7 04	0.912
12JE14	1200S250-68	2 1/2"	5/8"	0.0713	4.300	1.263	24.490	4.082	4.403	0.836	0.813	24.483	3.963	76.309	2.771	24.483	3.262	97.676	2.771	2.141	23.796	-1.384	4.8 86	0.913
12JE12	1200S250-97	2 1/2"	5/8"	0.1017	6.055	1.779	34.025	5.671	4.373	1.122	0.794	34.015	5.658	127.807	7.411	34.015	5.445	183.140	7.411	6.134	32.259	-1.361	4.649	0.914
12JE10	1200S250-118	2 1/2"	5/8"	0.1242	7.479	2.198	41.551	6.925	4.348	1.329	0.778	41.539	6.923	160.949	9.919	41.539	6.776	233.728	11.538	11.816	36.591	-1.3 42	4.617	0.916
12JX16*	1200S300-54	3"	1"	0.0566	3.771	1.108	22.847	3.808	4.541	1.292	1.080	22.841	3.165	62.532	1.377	22.571	2.680	80.248	1.377	1.183	37.836	-1.986	5.072	0.84 7
12JX14	1200S300-68	3"	1"	0.0713	4.724	1.388	28.466	4.744	4.528	1.593	1.071	28.459	4.682	92.707	2.771	28.459	4.010	120.054	2.771	2.352	46.706	-1.975	5.055	0.8 47
12JX12	1200S300-97	3"	1"	0.1017	6.660	1.957	38.678	6.613	4.503	2.171	1.053	38.668	6.611	146.347	7.411	38.668	6.423	212.243	7.411	6.747	63.857	-1.953	5.020	0.849
12JX10	1200S300-118	3"	1"	0.1242	8.236	2.420	48.591	8.099	4.481	2.608	1.038	48.579	8.097	183.763	9.919	48.579	8.087	273.457	11.538	13.011	76.946	-1.935	4.99 0	0.850
12JXW16*	1200S350-54	3 1/2"	1"	0.0566	3.964	1.165	24.866	4.144	4.620	1.866	1.266	24.616	3.283	64.881	1.377	24.096	2.776	83.114	1.377	1.244	53.909	-2.386	5.352	0.801
12JXW14	1200S350-68	3 1/2"	1"	0.0713	4.967	1.460	31.003	5.167	4.609	2.306	1.257	30.995	4.908	96.977	2.771	30.921	4.051	121.294	2.771	2.473	66.669	-2.375	5.33 5	0.802
12JXW12	1200S350-97	3 1/2"	1"	0.1017	7.006	2.059	43.277	7.213	4.585	3.159	1.239	43.267	7.071	154.210	9.411	43.267	6.590	197.301	7.411	7.098	91.503	-2.352	5.3 00	0.803
12JXW10	1200S350-118	3 1/2"	1"	0.1242	8.668	2.547	53.067	8.845	4.565	3.811	1.223	53.055	8.842	197.150	9.919	53.055	8.442	280.722	11.538	13.694	110.624	-2.33 4	5.270	0.804
12T16*	1200T125-54	1 1/4"	none	0.0566	2.791	0.820	13.341	2.187	4.034	0.060	0.271	13.266	1.666	32.914	1.355	13.116	1.364	40.846	1.355	0.876	1.820	-0.337	4.05 7	0.993
12T14	1200T125-68	1 1/4"	none	0.0713	3.515	1.033	16.833	2.748	4.037	0.074	0.268	16.825	2.682	52.992	2.713	16.799	2.180	65.271	2.713	1.750	2.271	-0.334	4.06 0	0.993
12T12	1200T125-97	1 1/4"	none	0.1017	5.011	1.472	24.088	3.899	4.045	0.102	0.264	24.077	3.897	88.030	7.902	24.077	3.897	116.685	7.902	5.076	3.173	-0.328	4.0 67	0.994
12T10	1200T125-118	1 1/4"	none	0.1242	6.255	1.838	30.157	4.847	4.051	0.124	0.260	30.143	4.844	112.623	13.790	30.143	4.844	167.108	15.438	9.881	3.894	-0.32 3	4.072	0.994
14" Members																								
14SW14	1400S162-68	1 5/8"	1/2"	0.0713	4.300	1.263	28.963	4.138	4.788	0.262	0.456	28.951	3.849	76.056	2.365	28.951	3.384	101.311	2.365	2.141	10.882	-0.667	4.856	0.981
14SW12	1400S162-97	1 5/8"	1/2"	0.1017	6.055	1.779	40.130	5.733	4.749	0.341	0.438	40.113	5.731	137.512	6.939	40.113	5.731	171.571	6.939	6.134	14.488	-0.647	4.813	0.982
14SW10	1400S162-118	1 5/8"	1/2"	0.1242	7.479	2.198	48.890	6.984	4.717	0.392	0.422	48.870	6.981	174.218	11.800	48.870	6.981	256.383	11.800	11.816	17.063	-0.630	4.777	0.983
14J14	1400S200-68	2"	5/8"	0.0713	4.542	1.335	32.295	4.614	4.919	0.494	0.609	32.283	4.327	85.499	2.365	32.283	3.753	112.363	2.365	2.262	19.920	-0.949	5.047	0.965
14J12	1400S200-97	2"	5/8"	0.1017	6.401	1.881	44.867	6.410	4.884	0.655	0.590	44.850	6.407	148.974	6.939	44.850	6.407	191.832	6.939	6.484	26.833	-0.927	5.006	0.966
14J10	1400S200-118	2"	5/8"	0.1242	7.912	2.325	54.789	7.827	4.855	0.767	0.575	54.768	7.824	188.201	11.800	54.768	7.824	278.128	11.800	12.499	31.925	-0.910	4.972	0.967
14JE14	1400S250-68	2 1/2"	5/8"	0.0713	4.785	1.406	35.754	5.108	5.043	0.865	0.784	35.741	4.623	91.361	2.365	35.741	3.760	112.582	2.365	2.383	33.827	-1.276	5.261	0.941
14JE12	1400S250-97	2 1/2"	5/8"	0.1017	6.747	1.983	49.778	7.111	5.011	1.161	0.765	49.762	7.096	160.281	6.939	49.762	6.886	206.162	6.939	6.835	45.940	-1.253	5.222	0.942
14JE10	1400S250-118	2 1/2"	5/8"	0.1242	8.344	2.452	60.899	8.700	4.984	1.375	0.749	60.879	8.697	202.187	11.800	60.879	8.523	294.007	11.800	13.181	55.041	-1.235	5.189	0.943
14JX14	1400S300-68	3"	1"	0.0713	5.210	1.531	41.260	5.894	5.192	1.659	1.041	41.248	5.531	109.290	2.365	41.248	4.644	139.042	2.365	2.594	65.681	-1.835	5.604	0.893
14JX12	1400S300-97	3"	1"	0.1017	7.353	2.161	57.610	8.230	5.164	2.261	1.023	57.594	8.228	182.128	6.939	57.594	8.128	243.355	6.939	7.449	89.953	-1.813	5.568	0.894
14JX10	1400S300-118	3"	1"	0.1242	9.100	2.674	70.658	10.094	5.140	2.715	1.008	70.637	10.091	229.033	11.800	70.637	10.091	340.824	11.800	14.376	108.550	-1.79 4	5.537	0.895
14JXW14	1400S350-68	3 1/2"	1"	0.0713	5.452	1.602	44.718	6.388	5.283	2.406	1.226	44.706	5.704	112.705	2.365	44.706	4.701	140.747	2.365	2.715	93.789	-2.216	5.8 59	0.857
14JXW12	1400S350-97	3 1/2"	1"	0.1017	7.699	2.262	62.522	8.932	5.257	3.296	1.207	62.505	8.761	191.077	6.939	62.505	8.192	245.281	6.939	7.799	128.936	-2.193	5.823	0.858
14JXW10	1400S350-118	3 1/2"	1"	0.1242	9.532	2.801	76.768	10.967	5.235	3.976	1.191	76.748	10.964	244.452	11.800	76.748	10.488	348.730	11.800	15.059	156.094	-2.174	5.793	0.859
14T14	1400T125-68	1 1/4"	none	0.0713	4.000	1.175	25.208	3.538	4.631	0.076	0.254	25.195	3.062	60.504	2.322	25.195	2.483	74.354	2.322	1.992	3.191	-0.299	4.64 8	0.996
14T12	1400T125-97	1 1/4"	none	0.1017	5.703	1.676	36.041	5.021	4.638	0.104	0.249	36.023	5.019	113.357	6.761	36.023	5.019	150.256	6.761	5.777	4.450	-0.294	4.654	0.996
14T10	1400T125-118	1 1/4"	none	0.1242	7.119	2.092	45.091	6.243	4.643	0.126	0.246	45.068	6.240	145.072	13.202	45.068	6.240	215.255	13.202	11.247	5.452	-0.2 89	4.658	0.996
16" Members																								
16SW14*	1600S162-68	1 5/8"	1/2"	0.0713	4.785	1.406	40.930	5.116	5.395	0.268	0.436	40.912	4.297	84.910	2.062	39.562	3.828	114.623	2.062	2.383	14.725	-0.612	5.448	0.987
16SW12	1600S162-97	1 5/8"	1/2"	0.1017	6.747	1.983	56.846	7.106	5.355	0.348	0.419	56.821	7.103	170.439	6.043	56.821	6.696	200.465	6.043	6.835	19.629	-0.592	5.404	0.988
16SW10	1600S162-118	1 5/8"	1/2"	0.1270	8.344	2.452	69.398	8.675	5.320	0.400	0.404	69.367	8.671	216.380	11.866	69.367	8.671	318.430	11.866	13.181	23.143	-0.576	5.367	0.989
16J14*	1600S200-68	2"	5/8"	0.0713	5.028	1.477	45.308	5.664	5.538	0.506	0.585	45.290	4.847	95.778	2.062	44.013	4.252	127.303	2.062	2.503	26.970	-0.876	5.637	0.976
16J12	1600S200-97	2"	5/8"	0.1017	7.093	2.084	63.072	7.884	5.501	0.671	0.567	63.047	7.881	183.238	6.043	63.047	7.476	223.841	6.043	7.186	36.380	-0.855	5.596	0.977
16J10	1600S200-118	2"	5/8"	0.1242	8.776	2.579	77.154	9.644	5.470	0.786	0.552													