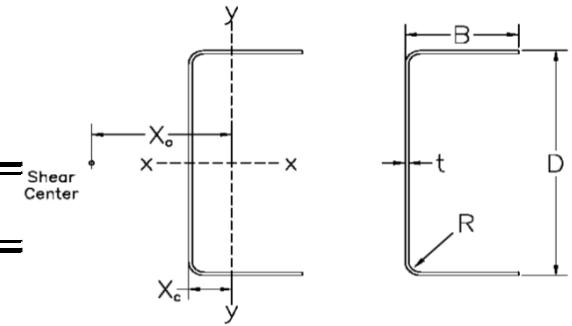




Channel Sections: Effective Section Properties

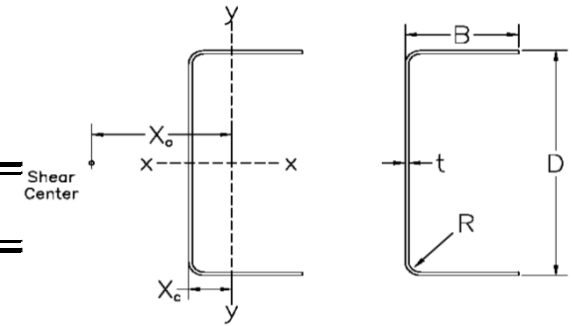


- Section properties are calculated in accordance with the 2016 AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
- Material: A1011 HSLAS Grade 55 Class 1 Steel or A653 SS Grade 55 Steel
- Strength Increase due to Cold Working has been applied where applicable
- Web Crippling values are based on a 4 inch bearing length, one flange fastened to support
- Appropriate factors of safety have been applied for Allowable Stress Design (ASD)
- Strength calculations based on a fully braced condition
- Consult with an engineering professional before using the above design aids

Member	Ga.	Effective Section Properties																				Web Crippling			
		Compression		Tension	Shear		Positive Moment (X Axis)				Negative Moment (X Axis)				Positive Moment (Y Axis)				Negative Moment (Y Axis)				End	Interior	
		A _e (in ²)	P _a (kip)	T _a (kip)	V _{ay} (kip)	V _{ax} (kip)	M _{ax} (kip-in)	I _x (in ⁴)	S _{e TOP} (in ³)	S _{e BOT} (in ³)	M _{ax} (kip-in)	I _x (in ⁴)	S _{e TOP} (in ³)	S _{e BOT} (in ³)	M _{ay} (kip-in)	I _y (in ⁴)	S _{e LEFT} (in ³)	S _{e RIGHT} (in ³)	M _{ay} (kip-in)	I _y (in ⁴)	S _{e LEFT} (in ³)	S _{e RIGHT} (in ³)	P _a (kip)	P _a (kip)	
4.1875	x 2	12	0.65	19.91	27.75	7.56	7.59	28.50	1.95	0.87	1.01	28.50	1.95	1.01	0.87	6.04	0.25	0.52	0.18	7.75	0.36	0.62	0.24	2.25	3.19
4.1875	x 2	14	0.34	10.37	18.57	5.22	5.10	17.01	1.22	0.52	0.67	17.01	1.22	0.67	0.52	2.55	0.09	0.26	0.08	5.08	0.23	0.42	0.15	0.77	1.31
4.1875	x 2	16	0.25	7.68	15.52	3.70	4.26	13.55	0.99	0.41	0.55	13.55	0.99	0.55	0.41	1.70	0.05	0.19	0.05	4.14	0.18	0.32	0.13	0.47	0.86
4.1875	x 2.5	12	0.66	20.26	31.09	7.56	9.68	30.04	2.15	0.91	1.18	30.04	2.15	1.18	0.91	7.45	0.34	0.60	0.23	11.62	0.64	0.83	0.35	2.25	3.19
4.1875	x 2.5	14	0.34	10.48	20.84	5.22	6.52	17.78	1.33	0.54	0.78	17.78	1.33	0.78	0.54	3.03	0.11	0.30	0.09	7.61	0.41	0.54	0.23	0.77	1.31
4.1875	x 2.5	16	0.25	7.75	17.43	3.70	5.46	14.13	1.08	0.43	0.64	14.13	1.08	0.64	0.43	2.00	0.06	0.22	0.06	6.21	0.33	0.41	0.19	0.47	0.86
4.1875	x 3	12	0.67	20.49	34.44	7.56	11.78	31.20	2.33	0.95	1.34	31.20	2.33	1.34	0.95	8.69	0.42	0.67	0.26	16.17	1.04	1.06	0.49	2.25	3.19
4.1875	x 3	14	0.35	10.56	23.11	5.22	7.94	18.36	1.43	0.56	0.89	18.36	1.43	0.89	0.56	3.45	0.13	0.33	0.10	10.58	0.66	0.67	0.32	0.77	1.31
4.1875	x 3	16	0.26	7.79	19.33	3.70	6.65	14.57	1.16	0.44	0.73	14.57	1.16	0.73	0.44	2.26	0.08	0.23	0.07	8.62	0.53	0.52	0.26	0.47	0.86
6.1875	x 2	12	0.70	21.26	34.44	11.40	7.59	49.78	4.97	1.51	1.71	49.78	4.97	1.71	1.51	5.79	0.25	0.67	0.18	8.16	0.40	0.85	0.25	2.13	3.14
6.1875	x 2	14	0.35	10.78	23.11	5.13	5.10	30.37	3.14	0.92	1.13	30.37	3.14	1.13	0.92	2.39	0.08	0.34	0.07	5.20	0.24	0.48	0.16	0.72	1.28
6.1875	x 2	16	0.26	7.92	19.33	3.03	4.26	24.43	2.56	0.74	0.93	24.43	2.56	0.93	0.74	1.59	0.05	0.25	0.05	4.22	0.19	0.36	0.13	0.43	0.84
6.1875	x 2.5	12	0.71	21.61	37.79	11.40	9.68	52.38	5.43	1.59	1.96	52.38	5.43	1.96	1.59	7.05	0.33	0.77	0.21	12.28	0.73	1.12	0.37	2.13	3.14
6.1875	x 2.5	14	0.36	10.89	25.38	5.13	6.52	31.72	3.41	0.96	1.29	31.72	3.41	1.29	0.96	2.82	0.10	0.38	0.09	7.80	0.43	0.61	0.24	0.72	1.28
6.1875	x 2.5	16	0.26	7.99	21.24	3.03	5.46	25.45	2.77	0.77	1.07	25.45	2.77	1.07	0.77	1.85	0.06	0.28	0.06	6.32	0.34	0.45	0.19	0.43	0.84
6.1875	x 3	12	0.71	21.84	41.13	11.40	11.78	54.40	5.83	1.65	2.19	54.40	5.83	2.19	1.65	8.16	0.40	0.85	0.25	17.07	1.17	1.38	0.52	2.13	3.14
6.1875	x 3	14	0.36	10.96	27.65	5.13	7.94	32.80	3.65	1.00	1.44	32.80	3.65	1.44	1.00	3.19	0.12	0.42	0.10	10.82	0.69	0.74	0.33	0.72	1.28
6.1875	x 3	16	0.26	8.03	23.15	3.03	6.65	25.12	2.88	0.76	1.20	25.12	2.88	1.20	0.76	2.08	0.07	0.30	0.06	8.78	0.55	0.56	0.27	0.43	0.84
8.1875	x 2	12	0.72	21.90	41.13	11.40	7.59	75.62	9.89	2.30	2.55	75.62	9.89	2.55	2.30	5.61	0.24	0.81	0.17	8.33	0.42	1.00	0.25	2.03	3.10
8.1875	x 2	14	0.36	10.98	27.65	3.79	5.10	46.84	6.30	1.42	1.68	46.84	6.30	1.68	1.42	2.29	0.08	0.41	0.07	5.26	0.25	0.52	0.16	0.68	1.26
8.1875	x 2	16	0.26	8.04	23.15	2.24	4.26	30.48	4.55	0.93	1.39	30.48	4.55	1.39	0.93	1.52	0.05	0.30	0.05	4.26	0.20	0.37	0.13	0.40	0.82
8.1875	x 2.5	12	0.73	22.25	44.48	11.40	9.68	79.36	10.72	2.41	2.86	79.36	10.72	2.86	2.41	6.76	0.32	0.93	0.21	12.50	0.76	1.26	0.38	2.03	3.10
8.1875	x 2.5	14	0.36	11.09	29.92	3.79	6.52	47.22	6.66	1.43	1.88	47.22	6.66	1.88	1.43	2.68	0.10	0.46	0.08	7.88	0.44	0.64	0.24	0.68	1.26
8.1875	x 2.5	16	0.27	8.10	25.05	2.24	5.46	33.51	5.03	1.02	1.55	33.51	5.03	1.55	1.02	1.75	0.06	0.33	0.05	6.38	0.35	0.47	0.19	0.40	0.82
8.1875	x 3	12	0.74	22.48	47.82	11.40	11.78	82.34	11.46	2.50	3.18	82.34	11.46	3.18	2.50	7.77	0.39	1.02	0.24	17.37	1.21	1.52	0.53	2.03	3.10
8.1875	x 3	14	0.37	11.16	32.19	3.79	7.94	46.79	6.91	1.42	2.08	46.79	6.91	2.08	1.42	3.01	0.12	0.50	0.09	10.93	0.71	0.78	0.33	0.68	1.26
8.1875	x 3	16	0.27	8.15	26.96	2.24	6.65	33.44	5.23	1.02	1.72	33.44	5.23	1.72	1.02	1.95	0.07	0.36	0.06	8.85	0.55	0.58	0.27	0.40	0.82
10.1875	x 2	12	0.73	22.28	47.82	9.71	7.59	98.42	16.47	2.99	3.52	98.42	16.47	3.52	2.99	5.48	0.24	0.94	0.17	8.41	0.43	1.08	0.26	1.94	3.06
10.1875	x 2	14	0.36	11.09	32.19	3.01	5.10	52.26	9.59	1.59	2.31	52.26	9.59	2.31	1.59	2.22	0.08	0.47	0.07	5.29	0.25	0.54	0.16	0.64	1.24
10.1875	x 2	16	0.27	8.11	26.96	1.78	4.26	38.94	7.44	1.18	1.91	38.94	7.44	1.91	1.18	1.47	0.04	0.35	0.04	4.28	0.20	0.39	0.13	0.38	0.81
10.1875	x 2.5	12	0.74	22.63	51.17	9.71	9.68	110.91	18.43	3.37	3.91	110.91	18.43	3.91	3.37	6.55	0.31	1.07	0.20	12.62	0.78	1.35	0.38	1.94	3.06
10.1875	x 2.5	14	0.37	11.20	34.46	3.01	6.52	58.00	10.59	1.76	2.54	58.00	10.59	2.54	1.76	2.57	0.09	0.53	0.08	7.93	0.45	0.67	0.24	0.64	1.24
10.1875	x 2.5	16	0.27	8.17	28.87	1.78	5.46	39.70	7.85	1.21	2.13	39.70	7.85	2.13	1.21	1.68	0.05	0.38	0.05	6.41	0.35	0.48	0.19	0.38	0.81
10.1875	x 3	12	0.75	22.85	54.52	9.71	11.78	114.93	19.61	3.49	4.29	114.93	19.61	4.29	3.49	7.48	0.37	1.18	0.23	17.55	1.24	1.61	0.53	1.94	3.06
10.1875	x 3	14	0.37	11.28	36.73	3.01	7.94	57.99	11.01	1.76	2.80	57.99	11.01	2.80	1.76	2.88	0.11	0.57	0.09	11.00	0.72	0.80	0.33	0.64	1.24
10.1875	x 3	16	0.27	8.22	30.78	1.78	6.65	41.77	8.35	1.27	2.32	41.77	8.35	2.32	1.27	1.87	0.06	0.41	0.06	8.89	0.56	0.59	0.27	0.38	0.81
12.1875	x 2	12	0.74	22.52	54.52	8.04	7.59	122.18	25.06	3.71	4.61	122.18	25.06	4.61	3.71	5.37	0.23	1.06	0.16	8.46	0.44	1.14	0.26	1.86	3.03
12.1875	x 2	14	0.37	11.17	36.73	2.49	5.10	63.88	14.38	1.94	3.01	63.88	14.38	3.01	1.94	2.17	0.07	0.53	0.07	5.32	0.26	0.55	0.16	0.60	1.23



Channel Sections: Effective Section Properties



- Section properties are calculated in accordance with the 2016 AISI North American Specification for the Design of Cold-Formed Steel Structural Members.
- Material: A1011 HSLAS Grade 55 Class 1 Steel or A653 SS Grade 55 Steel
- Strength Increase due to Cold Working has been applied where applicable
- Web Crippling values are based on a 4 inch bearing length, one flange fastened to support
- Appropriate factors of safety have been applied for Allowable Stress Design (ASD)
- Strength calculations based on a fully braced condition
- Consult with an engineering professional before using the above design aids

Member	Ga.	Effective Section Properties																				Web Crippling		
		Compression		Tension	Shear		Positive Moment (X Axis)				Negative Moment (X Axis)				Positive Moment (Y Axis)				Negative Moment (Y Axis)				End	Interior
		A_e (in ²)	P_a (kip)	T_a (kip)	V_{ay} (kip)	V_{ax} (kip)	M_{ax} (kip-in)	I_x (in ⁴)	$S_{e\ TOP}$ (in ³)	$S_{e\ BOT}$ (in ³)	M_{ax} (kip-in)	I_x (in ⁴)	$S_{e\ TOP}$ (in ³)	$S_{e\ BOT}$ (in ³)	M_{ay} (kip-in)	I_y (in ⁴)	$S_{e\ LEFT}$ (in ³)	$S_{e\ RIGHT}$ (in ³)	M_{ay} (kip-in)	I_y (in ⁴)	$S_{e\ LEFT}$ (in ³)	$S_{e\ RIGHT}$ (in ³)	P_a (kip)	P_a (kip)
12.1875 x 2	16	0.27	8.15	30.78	1.48	4.26	39.56	11.10	1.44	2.48	39.56	11.10	2.48	1.44	1.43	0.04	0.39	0.04	4.30	0.20	0.39	0.13	0.35	0.80
12.1875 x 2.5	12	0.75	22.87	57.86	8.04	9.68	126.09	26.62	3.83	5.08	126.07	26.62	5.08	3.83	6.38	0.30	1.20	0.19	12.71	0.79	1.41	0.39	1.86	3.03
12.1875 x 2.5	14	0.37	11.28	39.00	2.49	6.52	65.27	15.14	1.98	3.33	65.27	15.14	3.33	1.98	2.50	0.09	0.59	0.08	7.96	0.46	0.68	0.24	0.60	1.23
12.1875 x 2.5	16	0.27	8.22	32.68	1.48	5.46	40.30	11.65	1.47	2.75	40.30	11.65	1.47	1.63	0.05	0.43	0.05	6.43	0.35	0.49	0.20	0.35	0.80	
12.1875 x 3	12	0.76	23.10	61.21	8.04	11.78	149.74	30.41	4.55	5.53	149.74	30.41	5.53	4.55	7.26	0.36	1.32	0.22	17.66	1.26	1.68	0.54	1.86	3.03
12.1875 x 3	14	0.37	11.35	41.26	2.49	7.94	69.29	16.16	2.10	3.58	69.29	16.16	3.58	2.10	2.78	0.11	0.64	0.08	11.05	0.73	0.82	0.34	0.60	1.23
12.1875 x 3	16	0.27	8.26	34.59	1.48	6.65	40.81	12.12	1.48	3.01	40.81	12.12	3.01	1.80	0.06	0.46	0.05	8.92	0.56	0.60	0.27	0.35	0.80	