B12
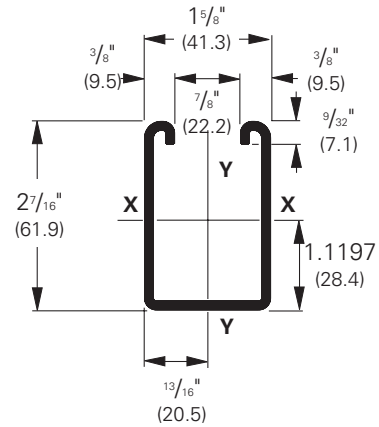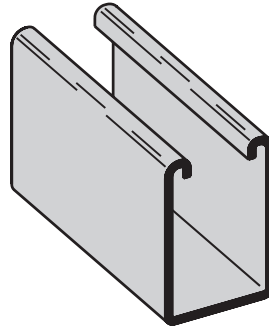
- Thickness: 12 Gauge (2.6 mm)
- Standard lengths: 10' (3.05 m) & 20' (6.09 m)
- Standard finishes: Plain, DURA GREEN™, Pre-Galvanized, Hot-Dipped Galvanized, Aluminum
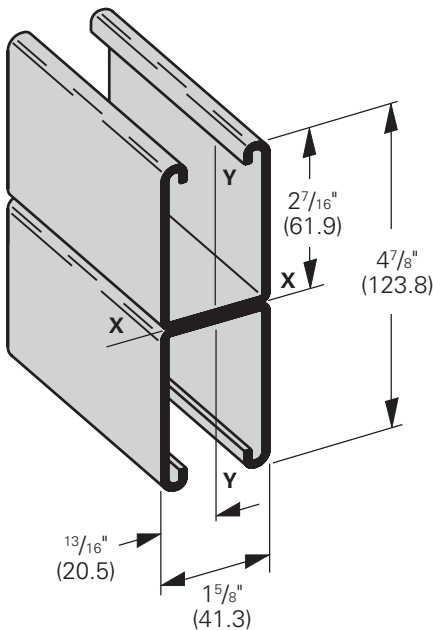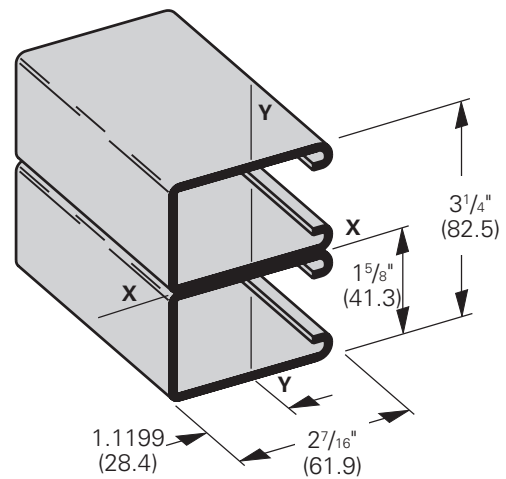- Weight: 2.47 Lbs./Ft. (3.67 kg/m)

Note:
Aluminum loading, for B12, can be determined by multiplying load data times a factor of 0.38

Section Properties			X - X Axis			Y - Y Axis		
Channel	Weight lbs./ft. kg/m	Areas of Section sq. in. cm²	Momentof Inertia (I) in.⁴ cm⁴	Section Modulus (S) in.³ cm³	Radius of Gyration (r) in. cm	Moment of Inertia (I) in.⁴ cm⁴	Section Modulus (S) in.³ cm³	Radius of Gyration (r) in. cm
B12	2.484 (3.70)	.731 (4.71)	.5349 (22.26)	.4061 (6.65)	.856 (2.17)	.3377 (14.06)	.4156 (6.81)	.680 (1.73)
B12A	4.969 (7.40)	1.462 (9.43)	2.9036 (120.86)	1.1915 (19.52)	1.409 (3.58)	.6756 (28.12)	.8315 (13.63)	.680 (1.73)

Calculations of section properties are based on metal thicknesses as determined by the AISI Cold-Formed Steel Design Manual.

B12A
Wt. 4.94 Lbs./Ft. (7.35 kg/m)

B12B
Wt. 4.94 Lbs./Ft. (7.35 kg/m)

Reference page 48 for general fitting and standard finish specifications.

Beam Loading

Beam Span In.	mm	Channel Style	Uniform Load and Deflection Lbs.	kN	In.	mm	Uniform Load @ Deflection = 1/240 Span Lbs.	kN	1/360 Span Lbs.	kN
12	(305)	B12	3880	(17.26)	.009	(.23)	3880	(17.26)	3880	(17.26)
		B12A	3880*	(17.26)	.001	(.02)	3880*	(17.26)	3880*	(17.26)
24	(609)	B12	3273	(14.56)	.038	(.96)	3273	(14.56)	3273	(14.56)
		B12A	3880*	(17.26)	.008	(.20)	3880*	(17.26)	3880*	(17.26)
36	(914)	B12	2182	(9.70)	.086	(2.18)	2182	(9.70)	2182	(9.70)
		B12A	3880*	(17.26)	.028	(.71)	3880*	(17.26)	3880*	(17.26)
48	(1219)	B12	1636	(7.28)	.153	(3.88)	1636	(7.28)	1421	(6.32)
		B12A	3880*	(17.26)	.067	(1.70)	3880*	(17.26)	3880*	(17.26)
60	(1524)	B12	1309	(5.82)	.240	(6.09)	1309	(5.82)	909	(4.04)
		B12A	3847*	(17.11)	.130	(3.30)	3847*	(17.11)	3847*	(17.11)
72	(1829)	B12	1091	(4.85)	.345	(8.76)	947	(4.21)	632	(2.81)
		B12A	3206	(14.26)	.188	(4.77)	3206	(14.26)	3206	(14.26)
84	(2133)	B12	935	(4.16)	.470	(11.94)	696	(3.09)	464	(2.06)
		B12A	2748	(12.22)	.255	(6.48)	2748	(12.22)	2509	(11.16)
96	(2438)	B12	818	(3.64)	.614	(15.59)	533	(2.37)	355	(1.58)
		B12A	2404	(10.69)	.334	(8.48)	2404	(10.69)	1921	(8.54)
108	(2743)	B12	727	(3.23)	.777	(19.73)	421	(1.87)	281	(1.25)
		B12A	2137	(9.50)	.422	(10.72)	2137	(9.50)	1518	(6.75)
120	(3048)	B12	655	(2.93)	.959	(24.36)	341	(1.52)	227	(1.01)
		B12A	1924	(8.56)	.521	(13.23)	1844	(8.20)	1229	(5.47)

Based on simple beam condition using an allowable design stress of 25,000 psi (172 MPa) in accordance with MFMA, with adequate lateral bracing (see page 12 for further explanation). Actual yield point of cold rolled steel is 42,000 psi. To determine concentrated load capacity at mid span, multiply uniform load by 0.5 and corresponding deflection by 0.8. *Failure determined by weld shear.

Column Loading

Unbraced Height In.	mm	Channel Style	Max. Column Loading K = .80 Loaded@ C.G. Lbs.	kN	Loaded@ Slot Face Lbs.	kN	Max. Column Loading (Loaded @ C.G.) K = .65 Lbs.	kN	K = 1.0 Lbs.	kN	K = 1.2 Lbs.	kN
12	(305)	B12	10140	(45.10)	4752	(21.14)	10247	(45.58)	9965	(44.32)	9756	(43.40)
		B12A	20820	(92.61)	8023	(35.69)	20854	(92.76)	20763	(92.36)	20694	(92.05)
24	(609)	B12	9244	(41.12)	4514	(20.08)	9639	(42.87)	8629	(38.38)	7933	(35.29)
		B12A	20519	(91.27)	7956	(35.39)	20655	(91.88)	20293	(90.27)	20017	(89.04)
36	(914)	B12	7933	(35.29)	4137	(18.40)	8711	(35.75)	6786	(30.18)	5572	(24.78)
		B12A	20017	(89.04)	7844	(34.89)	20324	(90.40)	19509	(86.78)	18889	(84.02)
48	(1219)	B12	6386	(28.40)	3638	(16.18)	7562	(33.64)	4785	(21.28)	3717	(16.53)
		B12A	19315	(85.92)	7688	(34.20)	19861	(88.34)	18412	(81.90)	17309	(76.99)
60	(1524)	B12	4785	(21.28)	2963	(13.18)	6285	(27.96)	3523	(15.67)	2806	(12.48)
		B12A	18412	(81.90)	6941	(30.87)	19265	(85.69)	17002	(75.63)	15278	(67.96)
72	(1829)	B12	3717	(16.53)	2197	(9.77)	4964	(22.08)	2806	(12.48)	2271	(10.10)
		B12A	17309	(76.99)	5334	(23.73)	18536	(82.45)	15278	(67.96)	12795	(56.91)
84	(2133)	B12	3052	(13.57)	1717	(7.64)	3994	(17.76)	2345	(10.43)	1913	(8.51)
		B12A	16005	(71.19)	4176	(18.57)	17675	(78.62)	13240	(58.89)	9884	(43.96)
96	(2438)	B12	2600	(11.56)	1391	(6.19)	3350	(14.90)	2019	(8.98)	1650	(7.34)
		B12A	14500	(64.50)	3328	(14.80)	16682	(74.20)	10889	(48.43)	7567	(33.66)
108	(2743)	B12	2271	(10.10)	1155	(5.14)	2893	(12.87)	1773	(7.88)	1446	(6.43)
		B12A	12795	(56.91)	2692	(11.97)	15556	(69.19)	8610	(38.30)	5979	(26.59)
120	(3048)	B12	2019	(8.98)	977	(4.34)	2553	(11.35)	1577	(7.01)	1279**	(5.69)
		B12A	10889	(48.43)	2202	(9.79)	14298	(63.60)	6974	(31.02)	4843**	(21.54)

**Where the slenderness ratio $\frac{KL}{r}$ exceeds 200, and K = end fixity factor, L = actual length and r = radius of gyration.

Channel & Combinations