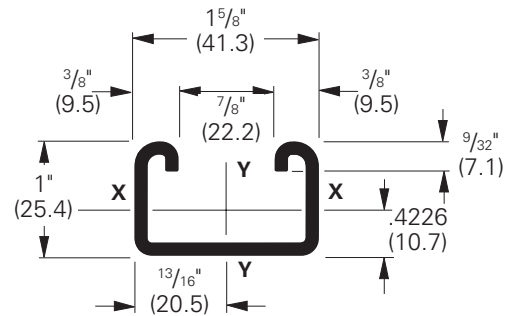
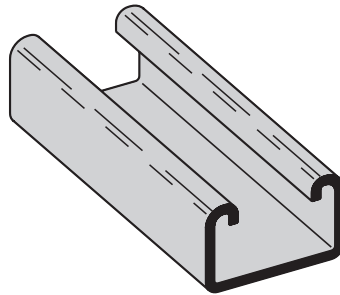


# B42 Channel & combinations

## B42

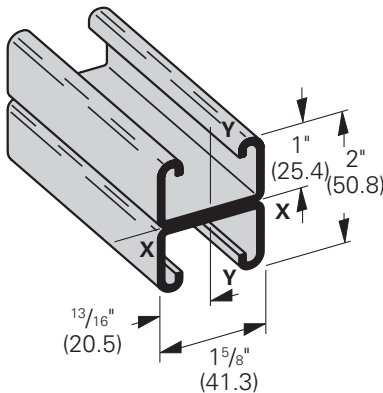
- Thickness: 12 Gauge (2.6 mm)
- Standard lengths: 10' (3.05 m) & 20' (6.09 m)
- Standard finishes: Plain, DURA GREEN™, Pre-Galvanized, Hot-Dipped Galvanized, Stainless Steel Type 304
- Weight: 1.44 Lbs./Ft. (2.14 kg/m)

Note: Also available in 14 gauge (1.9mm) material as B44

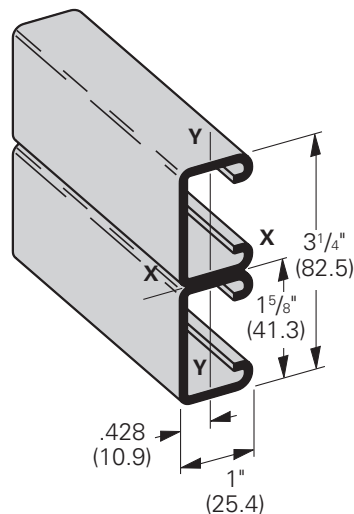


Section Properties			X - X Axis			Y - Y Axis		
Channel	Weight lbs./ft. kg/m	Areas of Section sq. in. cm <sup>2</sup>	Moment of Inertia (I) in. <sup>4</sup> cm <sup>4</sup>	Section Modulus (S) in. <sup>3</sup> cm <sup>3</sup>	Radius of Gyration (r) in. cm	Moment of Inertia (I) in. <sup>4</sup> cm <sup>4</sup>	Section Modulus (S) in. <sup>3</sup> cm <sup>3</sup>	Radius of Gyration (r) in. cm
<b>B42</b>	1.468 (2.18)	.432 (2.79)	.0554 (2.31)	.0968 (1.59)	.358 (.91)	.1645 (6.85)	.2025 (3.32)	.617 (1.57)
<b>B42A</b>	2.936 (4.37)	.864 (5.57)	.2689 (11.19)	.2689 (4.41)	.558 (1.42)	.3292 (13.70)	.4052 (6.64)	.617 (1.57)

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



**B42A**  
Wt. 2.88 Lbs./Ft. (4.28 kg/m)



**B42B**  
Wt. 2.88 Lbs./Ft. (4.28 kg/m)

Reference page 48 for general fitting and standard finish specifications.

# B42 Beam & column loading data

## Beam Loading

Beam Span In. mm	Channel Style	Uniform Load and Deflection				Uniform Load @ Deflection =			
		Lbs.	kN	In.	mm	<sup>1</sup> / <sub>240</sub> Span		<sup>1</sup> / <sub>360</sub> Span	
		Lbs.	kN	In.	mm	Lbs.	kN	Lbs.	kN
12 (305)	<b>B42</b>	1538	(6.84)	.022	(.56)	1538	(6.84)	1538	(6.84)
	<b>B42A</b>	1590*	(7.07)	.005	(.13)	1590*	(7.07)	1590*	(7.07)
24 (609)	<b>B42</b>	769	(3.42)	.088	(2.23)	769	(3.42)	582	(2.59)
	<b>B42A</b>	1590*	(7.07)	.038	(.96)	1590*	(7.07)	1590*	(7.07)
36 (914)	<b>B42</b>	513	(2.28)	.198	(5.03)	388	(1.72)	259	(1.15)
	<b>B42A</b>	1428	(6.35)	.114	(2.89)	1428	(6.35)	1248	(5.55)
48 (1219)	<b>B42</b>	384	(1.71)	.352	(8.94)	218	(0.97)	145	(0.64)
	<b>B42A</b>	1071	(4.76)	.203	(5.15)	1053	(4.68)	702	(3.12)
60 (1524)	<b>B42</b>	308	(1.37)	.550	(13.97)	140	(0.62)	93	(0.41)
	<b>B42A</b>	857	(3.81)	.318	(8.08)	674	(3.00)	449	(2.00)
72 (1829)	<b>B42</b>	256	(1.14)	.792	(20.11)	97	(0.43)	65	(0.29)
	<b>B42A</b>	714	(3.17)	.457	(11.61)	468	(2.08)	312	(1.39)
84 (2133)	<b>B42</b>	220	(0.98)	1.079	(27.40)	71	(0.31)	48	(0.21)
	<b>B42A</b>	612	(2.72)	.623	(15.82)	344	(1.53)	229	(1.02)
96 (2438)	<b>B42</b>	192	(0.85)	1.409	(35.79)	55	(0.24)	36	(0.16)
	<b>B42A</b>	535	(2.38)	.813	(20.65)	263	(1.17)	176	(0.78)
108 (2743)	<b>B42</b>	171	(0.76)	1.783	(45.29)	43	(0.19)	29	(0.13)
	<b>B42A</b>	476	(2.12)	1.029	(26.13)	208	(0.92)	139	(0.62)
120 (3048)	<b>B42</b>	154	(0.68)	2.202	(55.93)	35	(0.15)	23	(0.10)
	<b>B42A</b>	428	(1.90)	1.271	(32.28)	168	(0.75)	112	(0.50)

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				Max. Column Loading (Loaded @ C.G.)					
		Loaded@ C.G.		Loaded@ Slot Face		K = .65		K = 1.0		K = 1.2	
		Lbs.	kN	Lbs.	kN	Lbs.	kN	Lbs.	kN	Lbs.	kN
12 (305)	<b>B42</b>	9138	(40.65)	3493	(15.54)	9283	(41.23)	8916	(39.66)	8670	(38.56)
	<b>B42A</b>	21094	(93.83)	5834	(25.95)	21304	(94.76)	20793	(92.49)	20469	(91.05)
24 (609)	<b>B42</b>	8137	(36.19)	3145	(13.99)	8540	(37.99)	7589	(33.76)	7050	(31.36)
	<b>B42A</b>	19757	(87.88)	5585	(24.84)	20299	(90.29)	18964	(84.35)	18094	(80.48)
36 (914)	<b>B42</b>	7050	(31.36)	2722	(12.11)	7657	(34.06)	5925	(26.35)	4335	(19.28)
	<b>B42A</b>	18094	(80.48)	5237	(23.29)	19067	(84.81)	16654	(74.08)	15057	(66.98)
48 (1219)	<b>B42</b>	5405	(24.04)	2227	(9.90)	6786	(30.18)	3512	(15.62)	2439	(10.85)
	<b>B42A</b>	16139	(71.79)	4818	(21.43)	17632	(78.43)	13906	(61.86)	11387	(50.65)
60 (1524)	<b>B42</b>	3512	(15.62)	1718	(7.64)	5272	(23.45)	2247	(9.99)	1561**	(6.94)
	<b>B42A</b>	13906	(61.86)	4352	(19.36)	16008	(71.21)	10710	(47.64)	7531	(33.50)
72 (1829)	<b>B42</b>	2439	(10.85)	1351	(6.01)	3694	(16.43)	1561**	(6.94)	1084**	(4.82)
	<b>B42A</b>	11387	(50.65)	3856	(17.15)	14200	(64.16)	7531	(33.50)	5230	(23.26)
84 (2133)	<b>B42</b>	1792	(7.97)	1087	(4.83)	2714	(12.07)	1147**	(5.10)	796**	(3.54)
	<b>B42A</b>	8645	(38.45)	3332	(14.82)	12206	(54.29)	5533	(24.61)	3842	(17.09)
96 (2438)	<b>B42</b>	1372**	(6.10)	891	(3.96)	2078	(9.24)	878**	(3.90)	—	—
	<b>B42A</b>	6619	(29.44)	2873	(12.78)	10012	(44.53)	4236	(18.84)	2942**	(13.08)
108 (2743)	<b>B42</b>	1084**	(4.82)	743	(3.30)	1642	(7.30)	—	—	—	—
	<b>B42A</b>	5230	(23.26)	2495	(11.10)	7922	(35.24)	3347	(14.89)	2324**	(10.34)
120 (3048)	<b>B42</b>	878**	(3.90)	628	(2.79)	1330**	(5.91)	—	—	—	—
	<b>B42A</b>	4236	(18.84)	2182	(9.70)	6417	(28.54)	2711**	(12.06)	1883**	(8.37)

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

Reference page 48 for general fitting and standard finish specifications.