# **Metal Framing Channels**



## Channel

Metal framing channel is cold formed on our modern rolling mills from 12 Ga. (2.6mm) and 14 Ga. (1.9mm) low carbon steel strips. A continuous slot with inturned lips provides the ability to make attachments at any point.

### Lengths & Tolerances

All channels excluding 'SH' style  $\pm 1/8''$  (3.2mm) on 10' (3.05m) and  $\pm 3/16''$  (4.76mm) on 20' (6.09m) All 'SH' channels only  $\pm 1/4''$  (6.35mm) on 10' (3.05m) and  $\pm 1/2''$  (12.70mm) on 20' (6.09m) Custom lengths are available upon request.

#### Slots

Slotted series of channels offer full flexibility. A variety of pre-punched slot patterns eliminate the need for precise field measuring for hole locations. Slots offer wide adjustments in the alignment and bolt sizing.

### Holes

A variety of pre-punched <sup>9</sup>/16" (14.3 mm) diameter hole patterns are available in our channels. These hole patterns provide an economical alternative to costly field drilling required for many applications.

#### Knockouts

When used with series B217-20 Closure Strips, knockout channels can be used to provide an economical U.L. listed surface raceway. Channels are furnished with <sup>7</sup>/8" (22.2 mm) knockouts on 6" (152 mm) centers, allowing for perfect fixture alignment on spans up to 20' (6.09 m).

Materials & Finishes (Unless otherwise noted) Steel: Plain & Pre-galvanized	Finish Code	Finish	Specification
12 Ga. (2.6) and 14 Ga. (1.9)	PLN	Plain	ASTM A1011, 33,000 PSI min. yield
Note: A minimum order may apply on	GRN	DURA GREEN™	
special material and finishes.		Pre-Galvanized	ASTM A653 33,000 PSI min. yield
	HDG	Hot-Dipped Galvanized	ASTM A123
Design Load (Steel & Stainless Steel)	YZN	Yellow Zinc Chromate	ASTM B633 SC3 Type II
The design loads given for strut beam loads	SS4	Stainless Steel Type 304	ASTM A240
are based on a simple beam condition using	SS6	Stainless Steel Type 316	ASTM A240
an allowable stress of 25.000 psi. This	AL	Aluminum	Aluminum 6063-T6

of 1.68. This is based upon virgin steel minimum yield strength of 33,000 psi cold worked during rolling to an average yield stress of 42,000 psi. For aluminum channel loading multiply steel loading by a factor of 0.38.

## Welding

allowable stress results in a safety factor

Weld spacing is maintained between 2<sup>1</sup>/2 inches (63.5 mm) and 4 inches (101.6 mm) on center. Through high quality control testing of welded channels and continuous monitoring of welding equipment, we provide the most consistent combination channels available today.

### Metric

Metric dimensions are shown in parentheses. Unless noted, all metric dimensions are in millimeters.

# **Selection Chart** for Channels, Materials and Hole Patterns

	Channel Dimensions			Material & Thickness * Stainless Steel			Channel Hole Pattern ** SH S H1 <sup>7</sup> /8 TH KO6				KO6		
Channel Type	Hei	ght	Wid	th J	Steel	Alum.	Туре 304	Туре 316	<sup>9</sup> /16" x 1 <sup>1</sup> /8" slots on 2" centers	<sup>13</sup> /32" x 3" slots	9/16" diameter holes	9/16" diameter on 1 <sup>7</sup> /8" centers	7 <sub>/8"</sub> diameter knockouts
	<u>+ </u> L				1	<u>2</u>	<u>3</u>	<u>4</u>	G/	5	A/	D <sup>o</sup>	Ø
B11	3 <sup>1</sup> /4″	(82.5)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	.105	_	_	1	<u>1</u>	<u>1</u>	-	<u>1</u>
B12	2 <sup>7</sup> /16"	(61.9)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	.105	_	_	<u>12</u>	<u>1</u>	<u>12</u>	_	<u>12</u>
B22	1 <sup>5</sup> /8″	(41.3)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	.105	12 Ga.	12 Ga.	<u>1234</u>	<u>1</u> <u>3</u>	<u>1234</u>	<u>1</u>	<u>12</u>
B24	1 <sup>5</sup> /8″	(41.3)	1 <sup>5</sup> /8″	(41.3)	14 Ga.		14 Ga.	14 Ga.	<u>1234</u>	<u>1</u>	<u>1234</u>	-	<u>12</u>
B32	1 <sup>3</sup> /8″	(34.9)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	-	12 Ga.	-	<u>13</u>	<u>1</u>	<u>13</u>	-	<u>1</u>
B42	1″	(25.4)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	-	12 Ga.	_	<u>13</u>	<u>1</u>	<u>13</u>	-	<u>1</u>
B52	<sup>13</sup> /16″	(20.6)	1 <sup>5</sup> /8″	(41.3)	12 Ga.	-	12 Ga.	12 Ga.	<u>134</u>	<u>1</u>	<u>1</u>	-	<u>1</u>
B54	<sup>13</sup> /16"	(20.6)	1 <sup>5</sup> /8″	(41.3)	14 Ga.	.080	14 Ga.	14 Ga.	<u>1234</u>	<u>1</u>	<u>1234</u>	-	<u>12</u>
B62	<sup>13</sup> /16"	(20.6)	<sup>13</sup> /16″	(20.6)	18 Ga.	-	-	-	-	_	-	-	-
B72	<sup>13</sup> /32″	(10.3)	<sup>13</sup> /16"	(20.6)	18 Ga.	-	_	_	-	_	-	—	-

The selection has been prepared to provide a reference for available channel, materials and hole patterns. Material types available for various hole patterns are defined by numbers  $\underline{1}$  thru  $\underline{4}$ .

Some stainless steel channels with hole patterns are available on special order only.

*Metric equivalent for	thicknesses shown in chart.	** <u>1</u> - Steel
12 Ga. = 2.6 mm	18 Ga. = 1.2 mm	<u>2</u> - Aluminum
14 Ga. = 1.9 mm	.105 = 2.6 mm	<u>3</u> - Type 304 Stainless Steel
16 Ga. = 1.5 mm	.080 = 2.0 mm	$\underline{4}$ - Type 316 Stainless Steel

Properties may vary due to commercial tolerances of the material.

Channel Part Numbering Example: B22 SH - 120 SS4										
Channel Type	Hole Patterns	Length	Material/Finish							
B11	SH (pg. 74)	120	GRN							
B12	S (pg. 74)	240	GLV							
B22	H178 (pg. 74)		HDG							
B24	TH (pg. 75)		PLN							
B32	K06 (pg. 75)		YZN							
B42	SHA (pg. 75)		SS4 (See page 222)							
B52	S58 (pg. 76)		SS6 (See page 222)							
B54	M (pg. 76)		AL (See pages 219-220)							
B62∆	H25 (pg. 76)									
B72∆	Leave blank for r	no hole patte	rn							
<sup>∆</sup> Hole patterns are not available on these channel sizes										

Reference page 48 for general fitting and standard finish specifications.

**Channel & Combinations** 

# B11 Channel, Combinations & Load Data

# B11

- Thickness: 12 Gauge (2.6 mm)
- Standard lengths: 10' (3.05 m) & 20' (6.09 m)
- Standard finishes: Plain, DURA GREEN<sup>™</sup>, Pre-Galvanized, Hot-Dipped Galvanized, Aluminum
- Weight: 3.05 Lbs./Ft. (4.54 kg/m)

Note:

Aluminum loading, for B11, can be determined by multiplying load data times a factor of 0.38



Section	Properties			X - X Axi	S	Y - Y Axis			
Channel	nnel Weight Section		Momentof 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	
B11 B11A	3.059 (4.55) 6.119 (9.11)	.900 (5.81) 1.800(11.61)	1.1203(46.63) 6.3931(266.10)	.6472 (10.61) 1.9671 (32.24)	1.116 (2.83) 1.885 (4.79)	.4357 (18.14) .8714 (36.27)	.5362 (8.79) 1.0725(17.58)	.696 (1.77) .696 (1.77)	

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

Beam Loading

							Uniform Load @ Deflection =				
Beam	Span	Channel	Uniform Load and Deflection			1/240 S	pan	1/360	1/360 Span		
In.	mm	Style	Lbs.	kN	In.	mm	Lbs.	kN	Lbs.	kN	
24	(609)	B11 B11A	5130 5130*	(22.82) (22.82)	.029 .005	(.73) (.13)	5130 5130*	(22.82) (22.82)	5130 5130*	(22.82) (22.82)	
36	(914)	B11 B11A	3488 5130*	(15.51) (22.82)	.065 .017	(1.65) (.43)	3488 5130*	(15.51) (22.82)	3488 5130*	(15.51) (22.82)	
48	(1219)	B11 B11A	2616 5130*	(11.63) (22.82)	.117 .040	(2.97) (1.01)	2616 5130*	(11.63) (22.82)	2616 5130*	(11.63) (22.82)	
60	(1524)	B11 B11A	2093 5130*	(9.31) (22.82)	.183 .079	(4.65) (2.00)	2093 5130*	(9.31) (22.82)	1908 5130*	(8.49) (22.82)	
72	(1829)	B11 B11A	1744 5130*	(7.76) (22.82)	.263 .136	(6.68) (3.45)	1744 5130*	(7.76) (22.82)	1325 5130*	(5.89) (22.82)	
84	(2133)	B11 B11A	1495 4552	(6.65) (20.25)	.358 .191	(9.09) (4.85)	1460 4552	(6.49) (20.25)	974 4552	(4.33) (20.25)	
96	(2438)	B11 B11A	1308 3983	(5.82) (17.72)	.468 .250	(11.89) (6.35)	1118 3983	(4.97) (17.72)	745 3983	(3.31) (17.72)	
108	(2743)	B11 B11A	1163 3541	(5.17) (15.75)	.592 .317	(15.03) (8.05)	884 3541	(3.93) (15.75)	589 3353	(2.62) (14.91)	
120	(3048)	B11 B11A	1046 3187	(4.65) (14.17)	.731 .391	(18.57) (9.93)	716 3187	(3.18) (14.17)	477 2716	(2.12) (12.08)	
144	(3657)	B11 B11A	872 2656	(3.88) (11.81)	1.053 .563	(26.74) (14.30)	497 2656	(2.21) (11.81)	331 1886	(1.47) (8.39)	
168	(4267)	B11 B11A	747 2276	(3.32) (10.12)	1.433 .766	(36.40) (19.45)	365 2078	(1.62) (9.24)	243 1386	(1.08) (6.16)	
192	(4877)	B11 B11A	654 1992	(2.91) (8.86)	1.871 1.001	(47.52) (25.42)	280 1591	(1.24) (7.08)	186 1061	(0.83) (4.72)	
216	(5486)	B11 B11A	581 1770	(2.58) (7.87)	2.368 1.267	(60.15) (32.18)	221 1257	(0.98) (5.59)	147 838	(0.65) (3.73)	
240	(6096)	B11 B11A	523 1593	(2.32) (7.08)	2.924 1.564	(74.27) (39.72)	179 1018	(0.79) (4.53)	119 679	(0.53) (3.02)	

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 (289 MPa). 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.