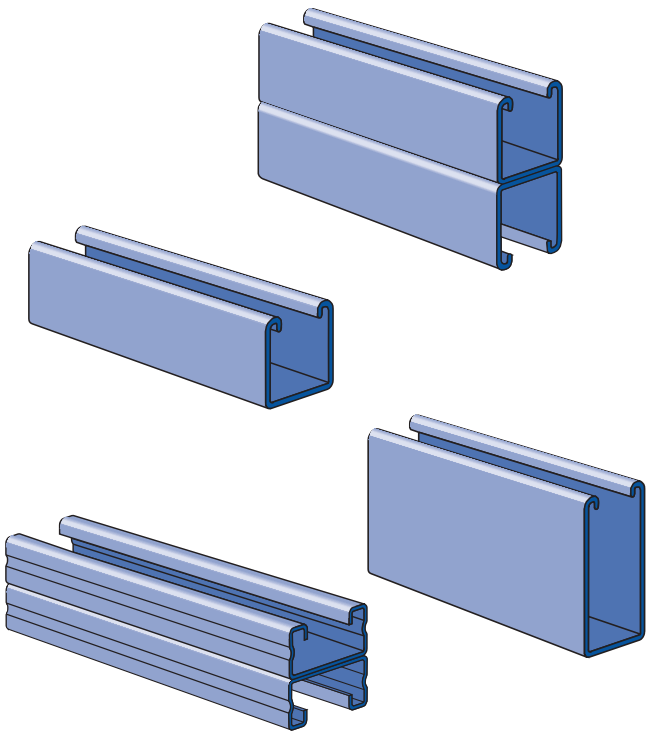
1⅝" CHANNEL



Channel Selection Chart 23

P1000 (12 Gauge) ..... 24 - 29

P1100 (14 Gauge) ..... 30 - 32

P2000 (16 Gauge) ..... 33 - 35

P3000 (12 Gauge) ..... 36 - 38

P3300 (12 Gauge) ..... 39 - 41

P4000 (16 Gauge) ..... 42 - 44

P4100 (14 Gauge) ..... 45 - 47

P4400 (12 Gauge) ..... 48 - 50

P4520 (12 Gauge) ..... 51 - 53

P5000 (12 Gauge) ..... 54 - 56

P5500 (12 Gauge) ..... 57 - 59

Closure Strips 60

End Caps and Frame Caps 61

Lateral Bracing Load Reduction Chart & Bearing Loads 62

MATERIAL

Unistrut channels are accurately and carefully cold formed to size from low-carbon strip steel.

All spot-welded combination members, except P1001T, are welded 3" (76 mm) maximum on center.

STEEL: PLAIN

12 Ga. (2.7 mm), 14 Ga.(1.9 mm) and
16 Ga. (1.5 mm) ASTM A1011 SS GR 33

STEEL: PRE-GALVANIZED

12 Ga. (2.7 mm), 14 Ga. (1.9 mm) and
16 Ga. (1.5mm) ASTM A653 GR 33

For other materials, see Special Metals or Fiberglass sections.

FINISHES

All channels are available in:

- Perma Green III (GR)
- Pre-galvanized (PG), conforming to ASTM A653 G90
- Hot-dipped galvanized (HG), conforming to ASTM A123
- Plain (PL)
- Unistrut Defender™ (DF), conforming to ASTM A1046

DIMENSIONS

Imperial dimensions are illustrated in inches. Metric dimensions are shown in millimeters and rounded to one decimal place.

STANDARD LENGTHS

Standard lengths are 10 feet (3.05m) and 20 feet (6.10m). Tolerances are ±⅛" (3 mm). Special lengths are available for a small cutting charge with a tolerance of ±⅛" (3 mm).

CURVED CHANNEL

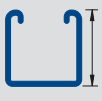
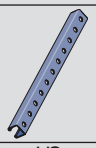
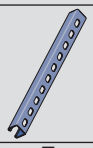
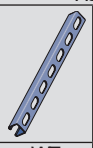
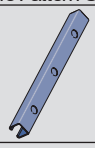
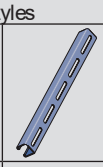
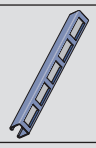
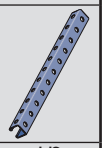
Contact your local Unistrut Service Center or Unistrut Corporation for more information.

LOAD DATA

All beam and column load data pertains to carbon steel and stainless steel channels. Load tables and charts are constructed to be in accordance with the SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS 2007 EDITION published by the AMERICAN IRON AND STEEL INSTITUTE USING ASD METHOD. Loads are based on 33 ksi steel cold formed to 42 ksi.

Type of Load	Safety Factor to Yield Strength
Beam Loads	1.67
Column Load	1.80

Channel Selection Chart

Channel	Channel Dimensions		Material & Thickness			Hole Pattern Styles						
	 Width	 Height	Steel	Stainless Steel	Alum.	 HS	 T	 WT	 KO	 SL	 DS	 H3
	In *(mm)*	In *(mm)*	gauge	gauge	In *(mm)*				*Steel Only*			
P1000	1⅝ (41.3)	1⅝ (41.3)	12 ga	12 ga	0.109 (2.8)	■	■	■	■	■	■	■
P1100	1⅝ (41.3)	1⅝ (41.3)	14 ga	14 ga	—	■	■	■	■	■	–	–
P2000	1⅝ (41.3)	1⅝ (41.3)	16 ga	—	—	■	■	■	■	■	–	–
P3000	1⅝ (41.3)	1⅜ (34.9)	12 ga	—	—	■	■	■	■	■	–	–
P3300	1⅝ (41.3)	⅞ (22.2)	12 ga	12 ga	—	■	■	■	–	■	–	–
P4000	1⅝ (41.3)	13⁄16 (20.6)	16 ga	16 ga	0.078 (2.0)	■	■	■	–	■	–	–
P4100	1⅝ (41.3)	13⁄16 (20.6)	14 ga	—	—	■	■	■	–	■	–	–
P4400	1⅝ (41.3)	1(25.4)	12 ga	—	—	■	■	■	–	■	–	–
P4520	1⅝ (41.3)	13⁄16 (20.6)	12 ga	—	—	■	■	■	–	■	–	–
P5000	1⅝ (41.3)	3¼ (82.6)	12 ga	12 ga	—	■	■	■	■	■	–	–
P5500	1⅝ (41.3)	2 7⁄16 (61.9)	12 ga	—	0.109 (2.8)	■	■	■	■	■	–	–

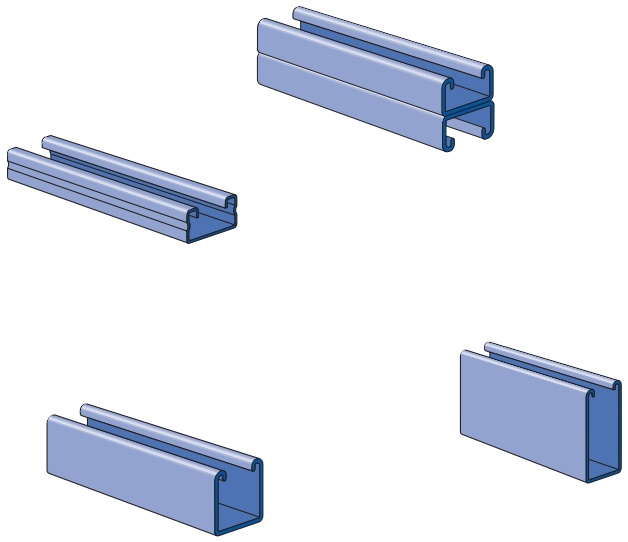
Channels & Combinations in Descending Order of Strength

Channel	Area In² *(cm²)*	Weight lbs/ft *(kg/m)*	I In⁴ *(cm⁴)*	s In³*(cm³)*	Allow. Moment In-lbs *(N•m)*
P5001	1.793	6.10	6.227	1.916	48,180
	11.57	9.1	259.2	31.4	5,440
P1004A	1.965	6.68	4.068	1.669	41,980
	12.68	9.9	169.3	27.4	4,740
P5501	1.452	4.94	2.805	1.151	28,940
	9.37	7.3	116.8	18.9	3,270
P1001C41	2.221	7.55	1.856	1.142	28,720
	14.33	11.2	77.2	18.7	3,250
P5000	0.897	3.05	1.098	0.627	15,770
	5.78	4.5	45.7	10.3	1,780
P1001	1.111	3.78	0.928	0.571	14,360
	7.16	5.6	38.6	9.4	1,620
P1101	0.835	2.84	0.733	0.451	11,340
	5.39	4.2	30.5	7.4	1,280
P3001	1.000	3.40	0.591	0.430	10,810
	6.45	5.1	24.6	7.0	1,220
P5500	0.726	2.47	0.522	0.390	9,820
	4.68	3.7	21.7	6.4	1,110
P2001	0.684	2.32	0.618	0.381	9,570
	4.41	3.5	25.7	6.2	1,080
P9200	0.489	2.23	0.279	0.297	7,480
	3.16	3.3	11.6	4.9	850
P4401	0.849	5.77	0.26	0.26	6,410
	5.48	8.5	10.6	4.2	725
A1001	0.609	2.07	0.302	0.242	6,070
	3.93	3.1	12.6	4.0	690
P9000	0.387	1.88	0.166	0.205	5,150
	2.50	2.8	6.9	3.4	580
P1000	0.555	1.89	0.185	0.202	5,070
	3.58	2.8	7.7	3.3	570
P3301	0.790	2.69	0.176	0.201	5,060
	5.10	4.0	7.3	3.3	570
P4521	0.77	2.62	0.15	0.18	4,538
	4.97	3.9	6.1	2.9	513

Channel	Area In² *(cm²)*	Weight lbs/ft *(kg/m)*	I In⁴ *(cm⁴)*	s In³*(cm³)*	Allow. Moment In-lbs *(N•m)*
P1100	0.418	1.42	0.145	0.162	4,060
	2.69	2.1	6.0	2.6	460
P3000	0.500	1.70	0.120	0.153	3,850
	3.23	2.5	5.0	2.5	430
P4101	0.579	1.97	0.117	0.143	3,610
	3.74	2.9	4.9	2.4	410
P2000	0.342	1.16	0.125	0.140	3,520
	2.21	1.7	5.2	2.3	400
P4001	0.478	1.66	0.104	0.128	3,210
	3.14	2.5	4.3	2.1	360
A3301	0.459	1.56	0.077	0.103	2,590
	2.96	2.3	3.2	1.7	290
P4400	0.424	2.89	0.053	0.092	2,300
	2.74	4.3	2.2	1.5	260
A1000	0.305	1.04	0.061	0.086	2,170
	1.96	1.5	2.5	1.4	250
P3300	0.395	1.34	0.037	0.072	1,800
	2.55	2.0	1.5	1.2	200
P4520	0.384	1.31	0.031	0.064	1,615
	2.48	1.9	1.3	1.0	183
A4001	0.264	0.90	0.037	0.058	1,470
	1.70	1.3	1.5	1.0	170
P6001	0.213	0.73	0.045	0.055	1,400
	1.38	1.1	1.9	0.9	160
P4100	0.290	0.98	0.026	0.054	1,360
	1.87	1.5	1.1	0.9	150
P4000	0.244	0.83	0.023	0.049	1,230
	1.57	1.2	0.9	0.8	140
A3300	0.230	0.78	0.017	0.038	950
	1.48	1.2	0.7	0.6	110
P6000	0.107	0.36	0.009	0.020	510
	0.69	0.5	0.4	0.3	60
P7001	0.148	0.50	0.007	0.018	460
	0.96	0.8	0.3	0.3	50
P7000	0.074	0.25	0.002	0.007	170
	0.48	0.4	0.1	0.1	20

Combinations not shown in catalog are available on special order.
Consult factory for more details.

1¼" FRAMING SYSTEM



A1000 (14 Gauge) ..... 171 - 172

A3300 (14 Gauge) ..... 173 - 174

Channel Nuts and Closure Strips 175

Flat Plate Fittings ..... 175 - 176

Ninety Degree Fittings 176

Angle and Wing Shape Fittings 176

"U" Shape Fittings 177

Pipe / Tubing Clips 177

Brackets 177

MATERIAL

Unistrut channels are accurately and carefully cold formed to size from low-carbon strip steel.

STEEL: PLAIN

14 Gauge (1.9 mm), ASTM A1011 SS GR 33
19 Gauge (1.0 mm) ASTM A1008

STEEL: PRE-GALVANIZED

14 Gauge (1.9 mm) ASTM A653 GR 33,
19 Gauge (1.0 mm) ASTM A653 GR 33

Channel nuts are manufactured from mild steel bars conforming to ASTM A576, GR 1015, and are case hardened.

Fittings are made from hot rolled, pickled and oiled steel plate or strip and conform to ASTM A1011 SS GR 33.

Many framing channels are available in special metal on request. Consult factory for ordering information.

FINISHES

All channels and fittings are available in: Perma-Green III (GR), Pre-galvanized (PG), conforming to ASTM A653 GR 33 and plain (PL).

Nuts are available in plain or electro-galvanized (EG) finish.

Fittings are available in Perma-Green III (GR) or plain (PL).

STANDARD LENGTHS

Standard lengths are 10 feet (3.05M) and 20 feet (6.10M). Tolerances are: +⅛" (3.2 mm) to +½" (12.7 mm) to allow for cutting. Special lengths are available for a small cutting charge with a tolerance of ±⅛" (3.2mm).

APPLICATION

A framing system designed for medium loads, the 1¼" series is especially suitable for use in the OEM, commercial and display markets. It maintains a lightness in scale and a clean line that makes it aesthetically pleasing as well as functional.

THREADS

All threads on the nuts and bolts are Unified and American coarse screw threads.

DESIGN BOLT TORQUE

BOLT SIZE	¼"-20	5⁄16"-18	⅜"-16
Rec. Torque Ft/Lbs (N•m)	6 (8)	11 (15)	19 (26)
Max Torque Ft/Lbs (N•m)	7 (9)	15 (20)	25 (34)

DIMENSIONS

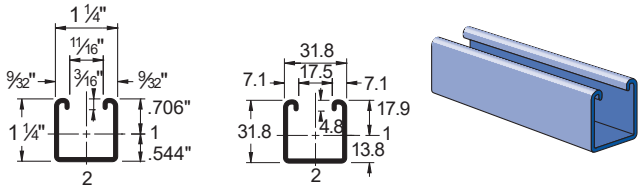
Imperial dimensions are illustrated in inches. Metric dimensions are shown in parenthesis or as noted. Unless noted, all metric dimensions are in millimeters and rounded to one decimal place.

LOAD DATA

All beam and column load data pertains to carbon steel and stainless steel channels. Load tables and charts are constructed to be in accordance with the SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS 2007 EDITION published by the AMERICAN IRON AND STEEL INSTITUTE USING ASD METHOD. Loads are based on 33 ksi steel cold formed to 42 ksi.

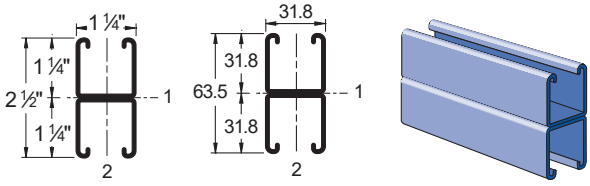
Type of Load	Safety Factor to Yield Strength	Safety Factor to Ultimate Strength
Beam Loads	1.67	2.0
Column Load	1.80	2.2

A1000 – 1¼" x 1¼"



Wt/100 Ft: 104 Lbs(154 kg/100m)
Allowable Moment 2,170 In-Lbs (240 N•m)
14 Gauge Nominal Thickness .075" (1.9mm)

A1001 – 1¼" x 2½"



Wt/100 Ft: 207 Lbs (308 kg/100m)
Allowable Moment 6,070 In-Lbs (690 N•m)
14 Gauge Nominal Thickness .075" (1.9mm)

A1000 - Beam Loading

Span In	Max Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Defl. Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
18	960	0.04	960	960	960
24	720	0.07	720	720	660
36	480	0.16	480	440	300
48	360	0.29	330	250	170
60	290	0.45	210	160	110
72	240	0.65	150	110	70
84	210	0.90	110	80	50
96	180	1.16	80	60	40
108	160	1.46	70	50	30
120	140	1.75	50	40	30

A1001 - Beam Loading

Span In	Max Allowable Uniform Load Lbs	Defl. at Uniform Load In	Uniform Loading at Defl. Span/180 Lbs	Span/240 Lbs	Span/360 Lbs
18	1,650*	0.01	1,650*	1,650*	1,650*
24	1,650*	0.03	1,650*	1,650*	1,650*
36	1,350	0.09	1,350	1,350	1,350
48	1,010	0.16	1,010	1,010	820
60	810	0.26	810	790	530
72	670	0.37	670	550	370
84	580	0.50	540	400	270
96	510	0.66	410	310	210
108	450	0.83	330	240	160
120	400	1.01	260	200	130

A1000 - Column Loading

Unbraced Height In	Maximum Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G. K = 0.65 Lbs	K = 0.80 Lbs	K =1.0 Lbs	K = 1.2 Lbs
18	1,960	5,900	5,430	4,800	4,210
24	1,840	5,210	4,590	3,850	3,220
36	1,500	3,940	3,220	2,480	2,010
48	1,220	2,950	2,300	1,790	1,460
60	1,020	2,260	1,790	1,400	1,130
72	880	1,840	1,460	1,130	910
84	780	1,550	1,230	940	**
96	690	1,340	1,050	**	**
108	620	1,170	910	**	**

A1001 - Column Loading

Unbraced Height In	Maximum Allowable Load at Slot Face Lbs	Maximum Column Load Applied at C.G. K = 0.65 Lbs	K = 0.80 Lbs	K =1.0 Lbs	K = 1.2 Lbs
18	3,530	13,300	12,920	12,400	11,880
24	3,480	12,750	12,220	11,550	10,950
36	3,370	11,630	10,950	10,220	9,150
48	3,260	10,680	10,020	8,260	6,500
60	2,960	9,930	8,260	6,080	4,270
72	2,630	8,480	6,500	4,270	2,970
84	2,260	7,040	4,900	3,140	2,180
96	1,940	5,680	3,750	2,400	**
108	1,670	4,490	2,970	**	**
120	1,440	3,640	2,400	**	**

A1000/A1001 - Elements of Section

Parameter		A1000		A1001	
Area of Section		0.305	In^2	0.609	In^2
Axis 1-1					
	Moment of Inertia (I)	0.061	In^4	0.302	In^4
	Section Modulus (S)	0.086	In^3	0.242	In^3
	Radius of Gyration (r)	0.447	In	0.704	In
Axis 2-2					
	Moment of Inertia (I)	0.078	In^4	0.156	In^4
	Section Modulus (S)	0.125	In^3	0.250	In^3
	Radius of Gyration (r)	0.506	In	0.506	In

Notes:
* Load limited by spot weld shear.
** KL/r > 200
NR = Not Recommended.

1. Beam loads are given in total uniform load (W Lbs) not uniform load (w lbs/ft or w lbs/in).
2. Beam loads are based on a simple span and assumed to be adequately laterally braced. Unbraced spans can reduce beam load carrying capacity. Refer to Page 177 for reduction factors for unbraced lengths.
3. Deduct channel weight from the beam loads.
4. For concentrated midspan point loads, multiply beam loads by 50% and the corresponding deflection by 80%. For other load conditions refer to page 18.
5. All beam loads are for bending about Axis 1-1.