Engineering data and specifications

Design data – metal framing channel

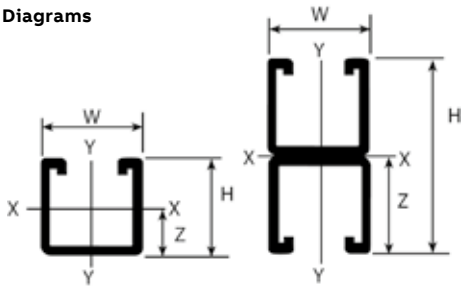
Table 1

Elements of sections properties for design

Nominal thickness (inches)
12 ga = 0.105
14 ga = 0.075
16 ga = 0.060

Legend	
I	Moment of inertia
S	Section Modulus
r	Radius of Gyration
Z	Nominal Axis
A	Area

Diagrams



Single channels Double channels

					X-X axis				Y-Y axis		
Section member	**Wt. lb/ft.**	**H (in.)**	**W (in.)**	**A $(in.)^2$**	**I $(in.)^4$**	**S $(in.)^3$**	**r (in.)**	**Z (in.)**	**I $(in.)^4$**	**S $(in.)^3$**	**r (in.)**
Single channel											
A1200	1.90	1.625	1.625	0.557	0.192	0.212	0.587	0.719	0.237	0.292	0.652
B1200	1.28	0.813	1.625	0.381	0.031	0.063	0.283	0.331	0.137	0.168	0.600
C1200	1.70	1.375	1.625	0.500	0.121	0.155	0.492	0.595	0.205	0.252	0.640
D1200	1.44	1.000	1.625	0.424	0.053	0.092	0.356	0.403	0.159	0.196	0.616
E1200	2.47	2.438	1.625	0.726	0.529	0.399	0.853	1.112	0.335	0.413	0.679
H1200	3.05	3.250	1.625	0.897	1.100	0.635	1.107	1.507	0.436	0.536	0.697
A1400	1.40	1.625	1.625	0.401	0.134	0.146	0.577	0.707	0.184	0.226	0.677
B1400	0.97	0.813	1.625	0.280	0.024	0.051	0.295	0.338	0.103	0.127	0.607
Double channel											
A1202	3.80	3.250	1.625	1.114	0.948	0.583	0.992	1.625	0.474	0.584	0.652
B1202	2.56	1.626	1.625	0.762	0.147	0.181	0.439	0.813	0.274	0.337	0.600
C1202	3.40	2.750	1.625	1.000	0.595	0.433	0.772	1.375	0.409	0.504	0.640
D1202	2.88	2.000	1.625	0.847	0.257	0.257	0.552	1.090	0.319	0.393	0.616
E1202	4.94	4.876	1.625	1.450	2.854	1.171	1.402	2.438	0.672	0.827	0.680
H1202	6.10	6.500	1.625	1.794	6.273	1.930	1.870	3.250	0.871	1.072	0.697
A1402	2.80	3.250	1.625	0.801	0.668	0.411	0.913	1.625	0.367	0.452	0.677
B1402	1.94	1.626	1.625	0.560	0.112	0.138	0.447	0.813	0.206	0.254	0.607

Table 2

Maximum pullout and slip loads for steel channel and channel nuts

Channel nuts size/thread	Channel all series	Pull out strength lb	Pull out strength kN	Slip resistance lb	Slip resistance kN	Torque Ft-lb	Torque Nm
¼ – 20	A1200 B1200 C1200 D1200 E1200 H1200	600	2.7	300	1.3	6	8
5/16 – 18		800	3.6	500	2.2	11	15
⅜ – 16		1,000	4.4	800	3.6	19	25
½ – 13		2,000	8.9	1,500	6.7	50	70
⅝ – 11		2,500	11.1	1,500	6.7	100	135
¾ – 10		2,500	11.1	1,700	7.6	125	170
¼ – 20	A1400	600	2.7	300	1.3	6	8
5/16 – 18		800	3.6	400	1.8	11	15
⅜ – 16	B1400	1,000	4.4	750	3.3	19	25
½ – 13		1,400	6.2	1,000	4.4	50	70

For aluminum channel the pull out load is calculated by multiplying the appropriate data by 50%. For slip resistance multiply by 75%.

Maximum pullout and slip loads for fiber glass channel and channel nuts

Channel nuts size/thread	Channel all series	Pull out strength lb	Pull out strength kN	Slip resistance lb	Slip resistance kN	Torque Ft-lb	Torque Nm
¼ – 20	–	–	–	–	–	–	–
5/16 – 18	–	–	–	–	–	–	–
⅜ – 16	A1200	300	1.3	150	0.6	200	22.6
½ – 13	D1200	300	1.3	150	0.6	200	22.6

Engineering data and specifications

Design data – metal framing channel

Table 3

Design loads for channel used as beam or column

Beam loads

Table 3 contains simple beam, uniformly distributed loads calculated at 25,000 psi material stress. Beam loads are based on channel being loaded across the X-X axis. Loads are also listed at reduced deflections for long spans.

Maximum loads at 25,000 psi stress

Maximum allowable deflections and maximum uniform loads for all spans at 25,000 psi material stress.

Reduced load for all 1/180 span deflection

For moderate deflections on the longer spans, reduced loads are listed which will produce a deflection equal to 1/180 of the span. When maximum loads do not induce deflections exceeding 1/180 x the span length, reduced loads are not required.

Reduced load for 1/360 span deflection

For very slight deflections on the longer spans, reduced loads are listed which will produce a deflection equal to 1/360 of the span. When maximum loads do not induce deflections exceeding 1/360 x the span length, reduced loads are not required.

Concentrated loads

To obtain values for concentrated loads from Table 3, multiply uniform load by 0.5 and deflection by 1.25.

Slotted, punched or KO channel

Reduce load rating by 5%.

Long span deep beams

Support in a manner to prevent rotation at supports and tie between supports to prevent twist.

Column loads

Allowable column loads given are for uniform axial loading with pinned ends. For eccentric loading or other end conditions reduce allowable loads according to standard engineering practice.

Dynamic loads

Allowable dynamic loads may be calculated by dividing the static loads shown in Table 3, by 2.08. Maximum beam and column loading for special materials is multiplied with the following factors:

Channel type	Beam type	Column load
Stainless steel	1	1
Aluminum	0.33	0.33

Warning

Load tables, charts and design criteria provided in this section are intended as guides only. Selection of proper product, installation intervals, erection and placement are the responsibility of the user.

ABB reserves the right to change material and finish specifications without notice, to improve its products.

Engineering data and specifications

Design data – metal framing channel

Table 3 (cont'd)

Single channel

Cat. no.	Depth (in.)	Ga.	Maximum uniform Load	Maximum uniform Defl.	1/180 Span Load	1/180 Span Defl.	1/360 Span Load	1/360 Span Defl.	Col. load
12 in. beam or column									
A1200	1 5/8	12	3,534	0.014	–	0.067	–	0.033	10,533
B1200	13/16	12	1,050	0.026	–	0.067	–	0.033	6,683
C1200	1 3/8	12	2,584	0.016	–	0.067	–	0.033	9,345
D1200	1	12	1,538	0.022	–	0.067	–	0.033	8,670
E1200	2 7/16	12	6,650	0.010	–	0.067	–	0.033	13,830
H1200	3 1/4	12	10,583	0.008	–	0.067	–	0.033	17,106
A1400	1 5/8	14	2,434	0.015	–	0.067	–	0.033	7,575
B1400	13/16	14	850	0.028	–	0.067	–	0.033	4,950
18 in. beam or column									
A1200	1 5/8	12	2,355	0.033	–	0.100	–	0.050	10,210
B1200	13/16	12	700	0.059	–	0.100	–	0.050	6,058
C1200	1 3/8	12	1,723	0.038	–	0.100	–	0.050	8,970
D1200	1	12	1,025	0.052	–	0.100	–	0.050	7,930
E1200	2 7/16	12	4,434	0.023	–	0.100	–	0.050	13,482
H1200	3 1/4	12	7,055	0.016	–	0.100	–	0.050	16,693
A1400	1 5/8	14	1,623	0.031	–	0.100	–	0.050	7,334
B1400	13/16	14	566	0.063	–	0.100	453	0.050	4,150
24 in. beam or column									
A1200	1 5/8	12	1,766	0.058	–	0.133	–	0.067	9,842
B1200	13/16	12	525	0.105	–	0.133	333	0.067	5,315
C1200	1 3/8	12	1,291	0.066	–	0.133	–	0.067	8,545
D1200	1	12	769	0.087	–	0.133	490	0.067	7,050
E1200	2 7/16	12	3,325	0.039	–	0.133	–	0.067	13,082
H1200	3 1/4	12	5,291	0.030	–	0.133	–	0.067	16,277
A1400	1 5/8	14	1,216	0.056	–	0.133	–	0.067	7,058
B1400	13/16	14	425	0.110	–	0.133	258	0.067	4,000
30 in. beam or column									
A1200	1 5/8	12	1,414	0.089	–	0.167	–	0.083	9,419
B1200	13/16	12	420	0.164	–	0.167	266	0.083	4,465
C1200	1 3/8	12	1,034	0.104	–	0.167	1,040	0.083	8,060
D1200	1	12	0.615	0.129	–	0.167	389	0.083	6,650
E1200	2 7/16	12	2,660	0.063	–	0.167	–	0.083	12,640
H1200	3 1/4	12	4,234	0.046	–	0.167	–	0.083	15,698
A1400	1 5/8	14	974	0.088	–	0.167	–	0.083	6,753
B1400	13/16	14	340	0.172	–	0.167	165	0.083	3,420

Double channel

Cat. no.	Depth (in.)	Ga.	Maximum Uniform Load	Maximum Uniform Defl.	1/180 Span Load	1/180 Span Defl.	1/360 Span Load	1/360 Span Defl.	Col. load
12 in. beam or column									
A1202	3 1/4	12	–	0.008	–	0.067	–	0.033	21,177
B1202	1 5/8	12	3,016	0.016	–	0.067	–	0.033	14,110
C1202	2 3/4	12	–	0.010	–	0.067	–	0.033	18,990
D1202	2	12	–	0.012	–	0.067	–	0.033	18,312
E1202	4 7/8	12	–	0.005	–	0.067	–	0.033	27,623
H1202	6 1/2	12	–	0.004	–	0.067	–	0.033	34,210
A1402	3 1/4	14	–	0.008	–	0.067	–	0.033	15,250
B1402	1 5/8	14	2,300	0.016	–	0.067	–	0.033	10,390
18 in. beam or column									
A1202	3 1/4	12	–	0.018	–	0.100	–	0.050	20,609
B1202	1 5/8	12	2,011	0.036	–	0.100	–	0.050	13,440
C1202	2 3/4	12	4,811	0.021	–	0.100	–	0.050	18,470
D1202	2	12	–	0.028	–	0.100	–	0.050	17,942
E1202	4 7/8	12	–	0.013	–	0.100	–	0.050	16,926
H1202	6 1/2	12	–	0.009	–	0.100	–	0.050	33,390
A1402	3 1/4	14	–	0.018	–	0.100	–	0.050	14,867
B1402	1 5/8	14	1,534	0.036	–	0.100	–	0.050	9,910
24 in. beam or column									
A1202	3 1/4	12	4,858	0.031	–	0.133	–	0.067	19,974
B1202	1 5/8	12	1,509	0.064	–	0.133	–	0.067	12,670
C1202	2 3/4	12	3,609	0.038	–	0.133	–	0.067	17,890
D1202	2	12	2,680	0.042	–	0.133	–	0.067	17,160
E1202	4 7/8	12	–	0.021	–	0.133	–	0.067	26,143
H1202	6 1/2	12	–	0.016	–	0.133	–	0.067	32,435
A1402	3 1/4	14	3,425	0.033	–	0.133	–	0.067	14,426
B1402	1 5/8	14	1,150	0.064	–	0.133	–	0.067	9,350
30 in. beam or column									
A1202	3 1/4	12	3,886	0.049	–	0.167	–	0.083	19,261
B1202	1 5/8	12	1,206	0.100	–	0.167	–	0.083	11,803
C1202	2 3/4	12	2,886	0.059	–	0.167	–	0.083	17,230
D1202	2	12	2,128	0.084	–	0.167	–	0.083	16,480
E1202	4 7/8	12	7,806	0.034	–	0.167	–	0.083	25,259
H1202	6 1/2	12	–	0.025	–	0.167	–	0.083	31,395
A1402	3 1/4	14	2,740	0.050	–	0.167	–	0.083	13,937
B1402	1 5/8	14	920	0.100	–	0.167	–	0.083	8,730

When no numbers are shown, use the maximum uniform load.
Deflections are given in inches; loads in lb

Engineering data and specifications

Design data – metal framing channel

Table 3 (cont'd)

Single channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
36 in. beam or column									
A1200	1⅝	12	1,178	0.129	–	0.200	917	0.100	8,962
B1200	13/16	12	350	0.236	–	0.200	148	0.100	3,498
C1200	1⅜	12	861	0.149	–	0.200	578	0.100	7,525
D1200	1	12	513	0.198	–	0.200	217	0.100	4,335
E1200	2 7/16	12	2,216	0.088	–	0.200	–	0.100	12,160
H1200	3¼	12	3,528	0.068	–	0.200	–	0.100	15,132
A1400	1⅝	14	811	0.126	–	0.200	640	0.100	6,416
B1400	13/16	14	284	0.248	–	0.200	115	0.100	2,755
42 in. beam or column									
A1200	1⅝	12	1,010	0.175	–	0.233	674	0.117	8,466
B1200	13/16	12	300	0.323	217	0.233	109	0.117	2,579
C1200	1⅜	12	738	0.203	–	0.233	425	0.117	6,945
D1200	1	12	440	0.264	319	0.233	160	0.117	3,280
E1200	2 7/16	12	1,900	0.120	–	0.233	–	0.117	11,698
H1200	3¼	12	3,024	0.091	–	0.233	–	0.117	14,514
A1400	1⅝	14	695	0.160	–	0.233	470	0.117	6,051
B1400	13/16	14	243	0.336	168	0.233	84	0.117	2,060
48 in. beam or column									
A1200	1⅝	12	884	0.228	–	0.267	516	0.133	7,943
B1200	13/16	12	263	0.420	167	0.267	83	0.133	1,981
C1200	1⅜	12	646	0.265	–	0.267	325	0.133	6,325
D1200	1	12	384	0.352	244	0.267	122	0.133	2,439
E1200	2 7/16	12	1,663	0.156	–	0.267	–	0.133	11,092
H1200	3¼	12	2,646	0.120	–	0.267	–	0.133	13,850
A1400	1⅝	14	609	0.120	–	0.267	360	0.133	5,658
B1400	13/16	14	213	0.440	129	0.267	64	0.133	1,580
54 in. beam or column									
A1200	1⅝	12	785	0.289	–	0.300	408	0.150	7,369
B1200	13/16	12	234	0.533	132	0.300	66	0.150	1,555
C1200	1⅜	12	574	0.335	–	0.300	257	0.150	5,650
D1200	1	12	341	0.466	193	0.300	96	0.150	2,012
E1200	2 7/16	12	1,478	0.198	–	0.300	1,123	0.150	10,505
H1200	3¼	12	2,351	0.151	–	0.300	–	0.150	13,150
A1400	1⅝	14	541	0.286	–	0.300	284	0.150	5,241
B1400	13/16	14	189	0.556	102	0.300	51	0.150	1,250

Double channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
36 in. beam or column									
A1202	3¼	12	3,239	0.071	–	0.200	–	0.100	18,470
B1202	1⅝	12	1,005	0.144	–	0.200	702	0.100	10,840
C1202	2¾	12	2,400	0.085	–	0.200	–	0.100	16,500
D1202	2	12	`1,428	0.114	–	0.200	1,248	0.100	15,057
E1202	4⅞	12	6,505	0.048	–	0.200	–	0.100	24,316
H1202	6½	12	–	0.036	–	0.200	–	0.100	30,265
A1402	3¼	14	2,284	0.071	–	0.200	–	0.100	13,416
B1402	1⅝	14	766	0.144	–	0.200	535	0.100	8,050
42 in. beam or column									
A1202	3¼	12	2,776	0.098	–	0.233	–	0.117	17,635
B1202	1⅝	12	863	0.195	–	0.233	516	0.117	9,790
C1202	2¾	12	2,063	0.115	–	0.233	–	0.117	15,730
D1202	2	12	1,224	0.166	–	0.233	1,069	0.117	13,042
E1202	4⅞	12	5,576	0.065	–	0.233	–	0.117	23,272
H1202	6½	12	–	0.049	–	0.233	–	0.117	29,025
A1402	3¼	14	1,958	0.225	–	0.233	–	0.117	12,832
B1402	1⅝	14	658	0.195	–	0.233	393	0.117	7,300
48 in. beam or column									
A1202	3¼	12	2,429	0.128	–	0.267	–	0.133	16,730
B1202	1⅝	12	754	0.255	–	0.267	395	0.133	8,640
C1202	2¾	12	1,804	0.151	–	0.267	–	0.133	14,890
D1202	2	12	1,071	0.203	–	0.267	702	0.133	11,387
E1202	4⅞	12	4,879	0.085	–	0.267	–	0.133	22,170
H1202	6½	12	–	0.064	–	0.267	–	0.133	27,700
A1402	3¼	14	1,713	0.128	–	0.267	–	0.133	12,223
B1402	1⅝	14	575	0.255	–	0.267	301	0.133	6,480
54 in. beam or column									
A1202	3¼	12	2,159	0.161	–	0.300	–	0.150	15,763
B1202	1⅝	12	670	0.323	–	0.300	312	0.150	7,405
C1202	2¾	12	1,604	0.190	–	0.300	1,263	0.150	13,990
D1202	2	12	952	0.266	–	0.300	624	0.150	10,391
E1202	4⅞	12	4,338	0.108	–	0.300	–	0.150	20,980
H1202	6½	12	7,149	0.081	–	0.300	–	0.150	16,280
A1402	3¼	14	1,523	0.161	–	0.300	–	0.150	11,566
B1402	1⅝	14	511	0.323	–	0.300	238	0.150	5,580

When no numbers are shown, use the maximum uniform load.
Deflections are given in inches; loads in lb

Engineering data and specifications

Design data – metal framing channel

Table 3 (cont'd)

Single channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
60 in. beam or column									
A1200	1⅝	12	706	0.358	–	0.333	330	0.167	6,762
B1200	13/16	12	210	0.658	107	0.333	53	0.167	–
C1200	1⅜	12	516	0.414	–	0.333	208	0.167	4,920
D1200	1	12	308	0.550	157	0.333	78	0.167	1,561
E1200	2 7/16	12	1,330	0.244	–	0.333	909	0.167	9,874
H1200	3¼	12	2,116	0.186	–	0.333	–	0.167	12,406
A1400	1⅝	14	486	0.353	–	0.333	231	0.167	4,792
B1400	13/16	14	170	0.687	82	0.333	41	0.167	–
66 in. beam or column									
200	1⅝	12	643	0.432	–	0.367	273	0.183	6,127
B1200	13/16	12	191	0.795	88	0.367	44	0.183	–
C1200	1⅜	12	470	0.501	344	0.367	172	0.183	4,145
D1200	1	12	280	0.675	129	0.367	65	0.183	1,280
E1200	2 7/16	12	1,210	0.295	–	0.367	753	0.183	9,211
H1200	3¼	12	1,924	0.226	–	0.367	–	0.183	11,616
A1400	1⅝	14	443	0.426	–	0.367	190	0.183	4,311
B1400	13/16	14	155	0.831	68	0.367	35	0.183	–
72 in. beam or column									
A1200	1⅝	12	589	0.514	459	0.400	299	0.200	5,436
B1200	13/16	12	175	0.946	74	0.400	37	0.200	–
C1200	1⅜	12	430	0.595	289	0.400	144	0.200	3,485
D1200	1	12	256	0.792	108	0.400	54	0.200	1,084
E1200	2 7/16	12	1,108	0.351	–	0.400	632	0.200	8,509
H1200	3¼	12	1,839	0.269	–	0.400	1,313	0.200	10,782
A1400	1⅝	14	405	0.506	320	0.400	160	0.200	3,809
B1400	13/16	14	141	0.989	57	0.400	29	0.200	–
84 in. beam or column									
A1200	1⅝	12	505	0.700	337	0.467	168	0.233	4,061
B1200	13/16	12	–	–	54	0.467	27	0.233	–
C1200	1⅜	12	369	0.811	212	0.467	106	0.233	2,565
D1200	1	12	220	1.079	92	0.467	58	0.233	796
E1200	2 7/16	12	950	0.479	–	0.467	464	0.233	6,991
H1200	3¼	12	1,513	0.366	–	0.467	965	0.233	8,988
A1400	1⅝	14	348	0.691	235	0.467	118	0.233	2,827
B1400	13/16	14	–	–	42	0.467	21	0.233	–

Double channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
60 in. beam or column									
A1202	3¼	12	1,944	0.199	–	0.333	–	0.167	14,738
B1202	1⅝	12	604	0.398	–	0.333	253	0.167	6,100
C1202	2¾	12	1,444	0.235	–	0.333	1,023	0.167	13,050
D1202	2	12	257	0.318	–	0.333	449	0.167	7,531
E1202	4⅞	12	3,904	0.133	–	0.333	–	0.167	19,734
H1202	6½	12	6,434	0.100	–	0.333	–	0.167	24,810
A1402	3¼	14	1,370	0.199	–	0.333	–	0.167	10,878
B1402	1⅝	14	460	0.399	–	0.333	193	0.167	4,640
66 in. beam or column									
A1202	3¼	12	1,766	0.240	–	0.367	1,347	0.183	13,646
B1202	1⅝	12	549	0.481	418	0.367	209	0.183	5,055
C1202	2¾	12	1,313	0.285	–	0.367	846	0.183	12,030
D1202	2	12	779	0.377	593	0.367	360	0.183	6,581
E1202	4⅞	12	3,549	0.180	–	0.367	–	0.183	18,415
H1202	6½	12	5,849	0.120	–	0.367	–	0.183	23,230
A1402	3¼	14	1,245	0.241		0.367	949	0.183	10,133
B1402	1⅝	14	419	0.483	318	0.367	159	0.183	3,840
72 in. beam or column									
A1202	3¼	12	1,620	0.286	v	0.400	1,132	0.200	12,500
B1202	1⅝	12	503	0.574	351	0.400	176	0.200	4,230
C1202	2¾	12	1,203	0.339	–	0.400	710	0.200	10,980
D1202	2	12	714	0.457	468	0.400	312	0.200	5,230
E1202	4⅞	12	3,253	0.191	–	0.400	–	0.200	17,023
H1202	6½	12	5,361	0.143	–	0.400	–	0.200	21,560
A1402	3¼	14	1,141	0.286		0.400	798	0.200	9,340
B1402	1⅝	14	384	0.574	267	0.400	134	0.200	3,220
84 in. beam or column									
A1202	3¼	12	1,388	0.390	–	0.467	832	0.233	9,992
B1202	1⅝	12	431	0.780	258	0.467	129	0.233	3100
C1202	2¾	12	1,031	0.461	–	0.467	522	0.233	8,670
D1202	2	12	612	0.623	344	0.467	229	0.233	3,842
E1202	4⅞	12	2,788	0.260	–	0.467	–	0.233	13,993
H1202	6½	12	4,595	0.195	–	0.467	–	0.233	17,975
A1402	3¼	14	979	0.390	–	0.467	586	0.233	7,682
B1402	1⅝	14	329	0.781	197	0.467	98	0.233	2,370

When no numbers are shown, use the maximum uniform load.
Deflections are given in inches; loads in lb

Engineering data and specifications

Design data – metal framing channel

Table 3 (cont'd)

Single channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
96 in. beam or column									
A1200	1 5/8	12	441	0.914	258	0.533	129	0.267	3,108
B1200	13/16	12	–	–	42	0.533	21	0.267	–
C1200	1 3/8	12	323	1.059	163	0.533	81	0.267	1,960
D1200	1	12	192	1.400	998	0.533	49	0.267	–
E1200	2 7/16	12	831	0.730	–	0.533	355	0.267	5,423
H1200	3 1/4	12	1,323	0.478	–	0.533	739	0.267	7,059
A1400	1 5/8	14	304	0.903	180	0.533	90	0.267	2,615
B1400	13/16	14	–	–	32	0.533	16	0.267	–
108 in. beam or column									
A1200	1 5/8	12	393	1.156	204	0.600	102	0.300	2,456
B1200	13/16	12	–	–	33	0.600	16	0.300	–
C1200	1 3/8	12	288	1.350	128	0.600	64	0.300	–
D1200	1	12	171	1.783	76	0.600	38	0.300	–
E1200	2 7/16	12	739	0.790	561	0.600	281	0.300	4,291
H1200	3 1/4	12	1,176	0.605	–	0.600	584	0.300	5,579
A1400	1 5/8	14	270	1.141	142	0.600	71	0.300	1,708
B1400	13/16	14	–	–	25	0.600	13	0.300	–
120 in. beam or column									
A1200	1 5/8	12	354	1.425	165	0.667	83	0.333	–
B1200	13/16	12	–	–	27	0.667	13	0.333	–
C1200	1 3/8	12	259	1.663	104	0.667	52	0.333	–
D1200	1	12	154	2.202	62	0.667	31	0.333	–
E1200	2 7/16	12	665	0.976	455	0.667	227	0.333	3,478
H1200	3 1/4	12	1,059	0.746	–	0.667	473	0.333	4,521
A1400	1 5/8	14	244	1.413	114	0.667	57	0.333	–
B1400	13/16	14	–	–	21	0.667	10	0.333	–
144 in. beam or column									
A1200	1 5/8	12	–	–	115	0.800	57	0.400	–
–	–	–	–	–	–	–	–	–	–
C1200	1 3/8	12	–	–	72	0.800	36	0.400	–
E1200	2 7/16	12	554	1.400	315	0.800	158	0.400	–
H1200	3 1/4	12	883	1.075	657	0.800	328	0.400	–
A1400	1 5/8	14	–	–	80	0.800	40	0.400	–

When no numbers are shown, use the maximum uniform load.
Deflections are given in inches; loads in lb

Double channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
96 in. beam or column									
A1202	3 1/4	12	1,215	0.509	–	0.533	637	0.267	7,675
B1202	1 5/8	12	378	1.019	197	0.533	99	0.267	–
C1202	2 3/4	12	903	0.603	–	0.533	400	0.267	6,640
D1202	2	12	535	0.813	263	0.533	176	0.267	2,942
E1202	4 7/8	12	2,440	0.340	–	0.533	1,917	0.267	10,875
H1202	6 1/2	12	4,021	0.255	–	0.533	–	0.267	14,120
A1402	3 1/4	14	856	0.509	–	0.533	449	0.267	5,951
B1402	1 5/8	14	288	1.020	150	0.533	75	0.267	–
108 in. beam or column									
A1202	3 1/4	12	1,080	0.644	–	0.600	503	0.300	6,071
B1202	1 5/8	12	355	1.290	156	0.600	78	0.300	–
C1202	2 3/4	12	801	0.763	632	0.600	316	0.300	5,250
D1202	2	12	476	1.029	208	0.600	139	0.300	2,324
E1202	4 7/8	12	2,169	0.430	–	0.600	1,515	0.300	8,599
H1202	6 1/2	12	3,574	0.323	–	0.600	–	0.300	11,160
A1402	3 1/4	14	761	0.644	–	0.600	355	0.300	4,702
B1402	1 5/8	14	255	1.290	119	0.600	59	0.300	–
120 in. beam or column									
A1202	3 1/4	12	971	0.795	–	0.667	408	0.333	–
B1202	1 5/8	12	301	1.588	126	0.667	63	0.333	–
C1202	2 3/4	12	721	0.941	512	0.667	256	0.333	4,250
D1202	2	12	428	1.271	168	0.667	112	0.333	1,883
E1202	4 7/8	12	1,951	0.531	–	0.667	1,227	0.333	6,946
H1202	6 1/2	12	3,216	0.398	–	0.667	–	0.333	9,040
A1402	3 1/4	14	685	0.796	–	0.667	287	0.333	3,805
B1402	1 5/8	14	230	1.600	96	0.667	48	0.333	–
144 in. beam or column									
A1202	3 1/4	12	810	1.145	566	0.800	283	0.400	–
B1202	1 5/8	12	–	–	88	0.800	44	0.400	–
C1202	2 3/4	12	601	1.350	355	0.800	178	0.400	–
E1202	4 7/8	12	1,626	0.764	–	0.800	852	0.400	–
H1202	6 1/2	12	2,680	0.573	–	0.800	1,873	0.400	–
A1402	3 1/4	14	571	1.146	399	0.800	199	0.400	–
B1402	1 5/8	14	–	–	67	0.800	33	0.400	–

Engineering data and specifications

Design data – metal framing channel

Table 3 (cont'd)

Single channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
168 in. beam or column									
A1200	1⅝	12	–	–	84	0.933	42	0.467	–
–	–	–	–	–	–	–	–	–	–
C1200	1⅜	12	–	–	53	0.933	27	0.467	–
E1200	2 7/16	12	475	1.912	233	0.933	116	0.467	–
H1200	3¼	12	756	1.463	482	0.933	241	0.467	–
A1400	1⅝	14	–	–	60	0.933	30	0.467	–
192 in. beam or column									
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
E1200	2 7/16	12	–	–	178	1.07	89	0.533	–
H1200	3¼	12	661	1.91	369	1.07	185	0.533	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
216 in. beam or column									
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
E1200	2 7/16	12	–	–	140	1.20	70	0.600	–
H1200	3¼	12	–	–	292	1.20	146	0.600	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
240 in. beam or column									
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–
E1200	2 7/16	12	–	–	114	0.334	57	0.667	–
H1200	3¼	12	–	–	236	0.334	118	0.667	–
–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–

When no numbers are shown, use the maximum uniform load.
Deflections are given in inches; loads in lb

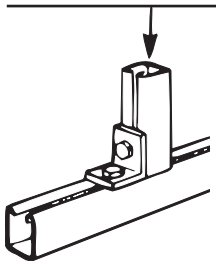
Double channel									
			Maximum uniform		1/180 Span		1/360 Span		
Cat. no.	Depth (in.)	Ga.	Load	Defl.	Load	Defl.	Load	Defl.	Col. load
168 in. beam or column									
A1202	3¼	12	694	1.563	916	0.933	208	0.467	–
B1202	1⅝	12	–	–	64	0.933	32	0.467	–
C1202	2¾	12	515	1.850	261	0.933	130	0.467	–
E1202	4⅞	12	1,394	1.040	1,255	0.933	626	0.467	–
H1202	6½	12	2,298	0.780	–	0.933	1,326	0.467	–
A1402	3¼	14	489	1.563	293	0.933	147	0.467	–
B1402	1⅝	14	–	–	49	0.933	25	0.467	–
192 in. beam or column									
A1202	3¼	12	–	–	318	1.07	159	0.533	–
–	–	–	–	–	–	–	–	–	–
C1202	2¾	12	–	–	200	1.07	100	0.533	–
E1202	4⅞	12	1,220	1.363	958	1.07	479	0.533	–
H1202	6½	12	2,010	1.019	–	1.07	1,053	0.533	–
A1402	3¼	14			224	1.07	112	0.533	–
–	–	–	–	–	–	–	–	–	–
216 in. beam or column									
A1202	3¼	12			252	1.20	126	0.600	–
–	–	–	–	–	–	–	–	–	
C1202	2¾	12	–	–	158	1.20	79	0.600	–
E1202	4⅞	12	1,084	1.725	757	1.20	379	0.600	–
H1202	6½	12	1,788	1.288	–	1.20	832	0.600	–
A1402	3¼	14	–	–	177	1.20	89	0.600	–
–	–	–	–	–	–	–	–	–	–
240 in. beam or column									
A1202	3¼	12	–	–	204	1.33	102	0.667	–
–	–	–	–	–	–	–	–	–	–
C1202	2¾	12	–	–	128	1.33	64	0.667	–
E1202	4⅞	12	–	–	613	1.33	307	0.667	–
H1202	6½	12	1,609	1.588	–	1.33	674	0.667	–
A1402	3¼	14	–	–	144	1.33	72	.667	–
–	–	–	–	–	–	–	–	–	–

Engineering data and specifications

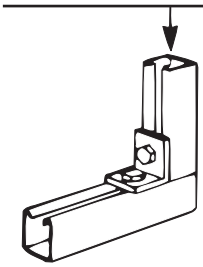
Design data – metal framing channel

Table 4

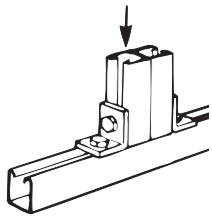
Safe bearing loads for 1⅝ in. channel and combinations.
Safety factor of 2½



Section	Recommended load in lb
A1200	5,000
A1400	3,500
B1200	6,000
B1400	3,400
C1200	5,000
E1200	5,000
H1200	4,000



Section	Recommended load in lb
A1200	3,500
A1400	2,500
B1200	4,000
B1400	2,600
C1200	3,500
E1200	3,500
H1200	2,000

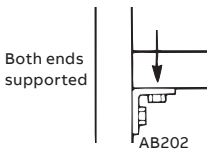


Section	Recommended load in lb
A1200	8,000
A1400	5,500
B1200	9,000
B1400	4,800
C1200	8,000
E1200	8,000
H1200	5,500

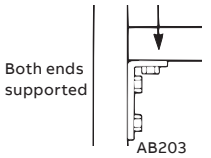
Table 5

Design load table for typical channel connections.
Safety factor of 2½ based on ultimate strength of the connection.
Load diagrams indicate up to three design loads, for 12 gauge and 14 gauge channel applications.

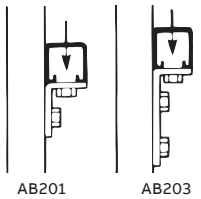
90˚ Fittings (when used in position shown)



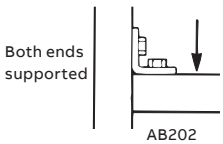
Cat. no.	Section	Recommended load in lb
AB202	A1200	1,500
	A1400	1,000



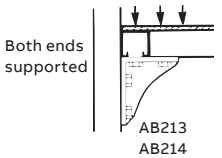
Cat. no.	Section	Recommended load in lb
AB203	A1200	2,000
	A1400	1,500



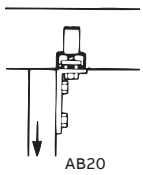
Cat. no.	Recommended load in lb
AB201	700
AB203	700



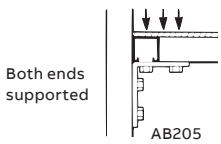
Cat. no.	Section	Recommended load in lb
AB202	A1200	1,000
	A1400	650



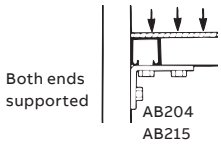
Cat. no.	Section	Recommended load in lb
AB213	A1200	3,000
AB214	A1400	2,000



Cat. no.	Recommended load in lb
AB20	1,500



Cat. no.	Section	Recommended load in lb
AB205	A1200	2,000
AB216	A1400	2,000



Cat. no.	Section	Recommended load in lb
AB204	A1200	1,500
AB215	A1400	1,000

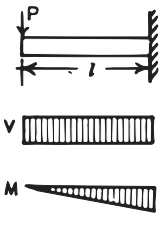
Flat plate fittings

Cat. no.	Section	Recommended load in lb
AB206	A1200	1,000
	A1400	800

Engineering data and specifications

Design applications

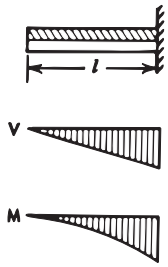
Cantilever beams



$V_{max.} = P$

$M_{max.} = Pl$

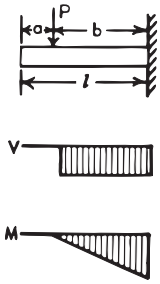
$\Delta_{max.} = \frac{Pl^3}{3EI}$



$V_{max.} = W$

$M_{max.} = \frac{Wl}{2}$

$\Delta_{max.} = \frac{Wl^3}{8EI}$

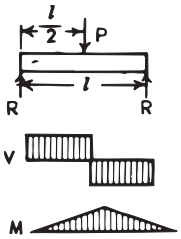


$V_{max.} = P$

$M_{max.} = Pb$

$\Delta_{max.} = \frac{Pb^2(3l-b)}{6EI}$

Simple beams

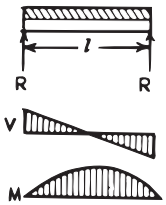


$R = \frac{P}{2}$

$V_{max.} = \frac{P}{2}$

$M_{max.} = \frac{Pl}{4}$

$\Delta_{max.} = \frac{Pl^3}{48EI}$

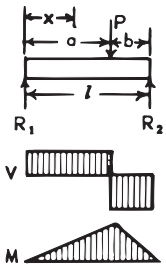


$R = \frac{W}{2}$

$V_{max.} = \frac{W}{2}$

$M_{max.} = \frac{Wl}{8}$

$\Delta_{max.} = \frac{5Wl^3}{384EI}$



$R_1 = \frac{Pb}{l}$

$R_2 = \frac{Pa}{l}$

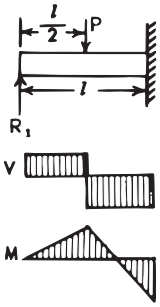
$V_{max.} = \frac{Pa}{l}$

$M_{max.} = \frac{Pab}{l}$

$\Delta_{max.}$ at $x = \sqrt{\frac{a(a+2b)}{3}}$

$\Delta_{max.} = \frac{Pab(a+2b)\sqrt{3a(a+2b)}}{27EIl}$

Beams fixed on one end, supported at the other end



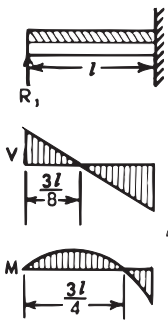
$R_1 = \frac{5P}{16}$

$V_{max.} = \frac{11P}{16}$

$M_{max.} = \frac{3Pl}{16}$

$\Delta_{max.}$ at $x = 0.447l$

$\Delta_{max.} = 0.009317\frac{Pl^3}{EI}$



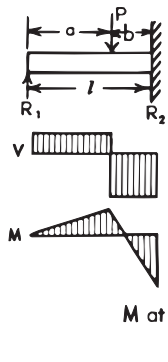
$R_1 = \frac{3W}{8}$

$V_{max.} = \frac{5W}{8}$

$M_{max.} = \frac{Wl}{8}$

$\Delta_{max.}$ at $x = 0.4215l$

$\Delta_{max.} = \frac{Wl^3}{185EI}$



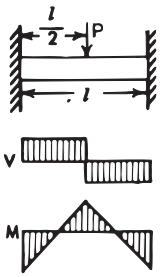
$R_1 = \frac{Pb^2}{2l^3}(a+2l)$

$R_2 = \frac{Pa}{2l^3}(3l^2-a^2)$

M at point of load $= R_1 a$

M at fixed end $= \frac{Pab}{2l^2}(a+l)$

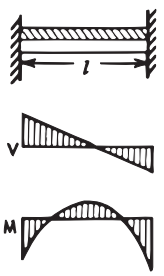
Beams fixed at both ends



$V_{max.} = \frac{P}{2}$

$M_{max.} = \frac{Pl}{8}$

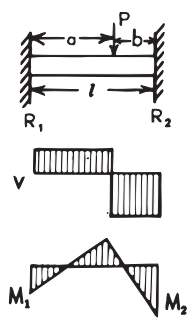
$\Delta_{max.} = \frac{Pl^3}{192EI}$



$V_{max.} = \frac{W}{2}$

$M_{max.} = \frac{Wl}{12}$

$\Delta_{max.} = \frac{Wl^3}{384EI}$



$R_1 = \frac{Pb^2}{l^3}(3a+b)$

$R_2 = \frac{Pa^2}{l^3}(a+3b)$

$M_1 = \frac{Pab^2}{l^2}$

$M_2 = \frac{Pa^2b}{l^2}$

R – Reaction
M – Moment
P – Concentrated load

W – Total uniform load
V – Shear

Δ – Deflection
E – Modulus of Elasticity
I – Moment of Inertia

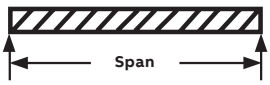
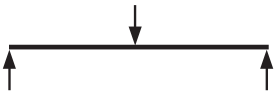
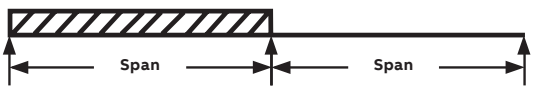
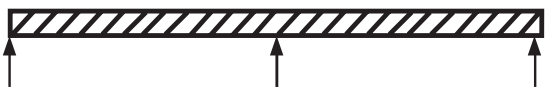
Engineering data and specifications

Design applications

Table 6

Conversion factors for beams with various static loading conditions

Load tables on pages A68 through A72 for A, B, C, E, and H series channel are for single span beams supported at the ends. These can be used in the majority of cases. There are times when it is necessary to know what happens with other loading and support conditions. Some common arrangements are shown in Table 6. Simply multiply the loads from the design load tables times the factors given in Table 6.

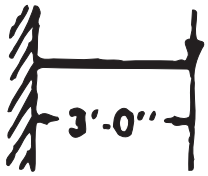
	Load and support condition	Load factor	Deflection factor
	1. Simple beam – Uniform load	1.00	1.00
	2. Simple beam – Concentrated load at center	0.50	1.25
	3. Simple beam – Two equal concentrated loads at ¼ points	1.00	1.10
	4. Beam fixed at both ends – Uniform load	1.50	0.30
	5. Beam fixed at both ends – Concentrated load at center	1.00	0.40
	6. Cantilever beam – Uniform load	0.25	2.40
	7. Cantilever beam – Concentrated load at end	0.12	3.20
	8. Continuous beam – Two equal spans – Uniform load on one span	1.30	0.92
	9. Continuous beam – Two equal spans – Uniform load on both ends	1.00	0.42
	10. Continuous beam – Two equal spans – Concentrated load at center of one span	0.62	0.71
	11. Continuous beam – Two Equal Spans – Concentrated load at center of both spans	0.67	0.48

Engineering data and specifications

Design applications

Example I
Problem:
Determine the load and deflection of an A1200 beam continuous over one support and loaded uniformly on one span.
Solution:
A. From load table 3 for A1200 the load for a 5 ft. 0 in. span is 706 lb and deflection is 0.358 in.
B. Multiply by factors from Table 6.
Load = 706 lb x 1.30 = 917.8 lb
Deflection = 0.358 in. x 0.92 = 0.329 in.

Example II
Problem:
Determine load and deflection of an E1200 cantilever beam with a concentrated load on the end.
Solution:
A. From load table 3 for E1200 the load for a 3 ft. 0 in. span is 2,216 lb and deflection is 0.088 in.
B. Multiply by factors from Table 6.
Load = 2,216 lb x 0.12 = 265.9 lb
Deflection = 0.088 in. x 3.20 = 0.282 in.



Column loading
The load bearing capacity of column or compression members is a function of the inherent configurational strength, the unbraced length and design of the end connections.

Values of axial column loading given in Table 3 were calculated using a rotationally free and translation fixed correction at each end (see Illustration I). This gives an end condition constant (K) of 1.

If other end conditions are used, axial loading should be calculated using procedures in the AISI specification for the design of cold formed steel structural members (SG671) and the engineering values for Superstrut channel given in Table 1.

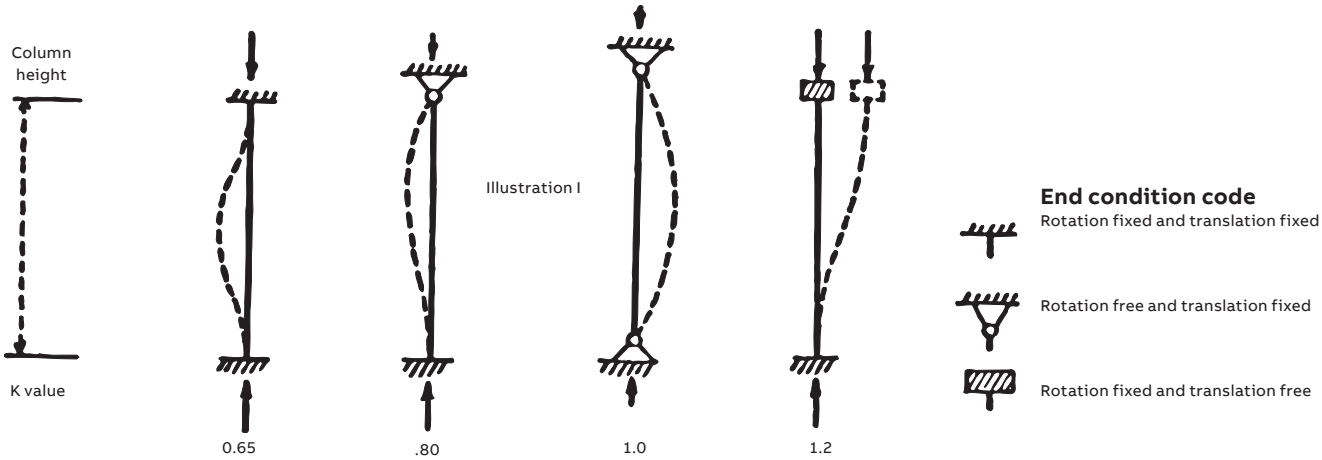


Illustration I

Table 7

Load carrying capacities of hot-rolled steel rod

Nominal rod dia. (in.)	Root area thread (in.)	Design load lb for serv. temperature 343 °C (650 °F)	399 °C (750 °F)
⅜	0.068	610	540
½	0.126	1,130	1,010
⅝	0.202	1,810	1,610
¾	0.302	2,710	2,420
⅞	0.419	3,770	3,360

Safety factor of 5.

Table 8

Rod size determined by pipe size for fire protection

Pipe size (in.)	Rod size (in.)
¾ to 2	⅜
2½ to 3½	½
4 to 5	⅝
6	¾
8 to 12	⅞

Engineering data and specifications

Design applications

Table 9

Maximum spacing between pipe supports

Steel pipe																			
Nom. pipe size (in.)	½	¾	1		1½	2	2½	3	3½	4	5	6	8	10	12	14	16	18	20
Max. spacing (ft.)	5	6	7		9	10	11	12	13	14	16	17	19	22	23	25	27	28	30
Copper pipe																			
Nom. pipe size (in.)	½	¾	1	1¼	1½	2	2½	3	3½	4									
Max. spacing (ft.)	5	6	6	7	8	9	10	10	11	12									

Table 10

Minimum spacing (inches) between centers of standard pipe when using Superstrut #702 pipe straps

Nom. pipe size (in.)	**½**	**¾**	**1**	**1¼**	**1½**	**2**	**2½**	**3**	**3½**	**4**	**5**	**6**	**8**
½	1 3/16	–	–	–	–	–	–	–	–	–	–	–	–
¾	1 5/16	1 7/16	–	–	–	–	–	–	–	–	–	–	–
1	1½	1⅝	1¾	–	–	–	–	–	–	–	–	–	–
1¼	1¾	1⅞	2	2¼	–	–	–	–	–	–	–	–	–
1½	1 15/16	2 1/16	2 3/16	2 7/16	2 9/16	–	–	–	–	–	–	–	–
2	2 3/16	2 5/16	2½	2¾	2⅞	3⅛	–	–	–	–	–	–	–
2½	2 7/16	2 9/16	2¾	3	3⅛	3⅜	3⅝	–	–	–	–	–	–
3	2 13/16	2 15/16	3 1/16	3 5/16	3 7/16	3¾	4	4 5/16	–	–	–	–	–
3½	3⅛	3¼	3⅜	3⅝	3¾	4 1/16	4 5/16	4⅝	4 15/16	–	–	–	–
4	3 7/16	3 9/16	3 15/16	4 1/16	4⅜	4⅝	4 15/16	5¼	5 9/16	–	–	–	–
6	4¾	4⅞	5	5¼	5⅜	5⅝	5⅞	6 3/16	6½	6 13/16	7 1/16	8⅛	–
8	5 7/16	6	6⅛	6⅜	6½	6¾	7	7 5/16	7⅝	8	8 9/16	9¼	10⅜

Engineering data and specifications

Design applications

Table 11

Standard dimensions and weights of piping materials and conduit

Mechanical (ANSI & API standard, Schedule 40)

Nominal std. pipe size (in.)	Pipe O.D. (in.)	Coupling O.D. (in.)	Weight of pipe lb/ft.	Weight of pipe filled w/water lb/ft.
½	.84	1.06	0.85	0.98
¾	1.05	1.31	1.13	1.36
1	1.32	1.58	1.68	2.05
1¼	1.66	1.90	2.27	2.92
1½	1.90	2.20	2.72	3.60
2	2.38	2.75	3.65	5.11
2½	2.88	3.25	5.79	7.87
3	3.50	4.00	7.58	10.78
3½	4.00	4.63	9.11	13.39
4	4.50	5.00	10.79	16.30
5	5.56	6.30	14.62	23.28
6	6.63	7.39	18.97	31.48
8	8.63	9.23	28.56	50.24
10	10.75	–	41.00	74.00
12	12.75	–	50.00	99.00
14	14.00	–	64.00	122.00
16	16.00	–	63.00	142.00
18	18.00	–	71.00	172.00
20	20.00	–	79.00	205.00
22	22.00	–	87.00	240.00
24	24.00	–	95.00	277.00
26	26.00	–	103.00	322.00
28	28.00	–	111.00	364.00
30	30.00	–	119.00	410.00

Electrical conduit

			Rigid steel		Thin wall (EMT)
Nominal conduit size (in.)	Conduit O.D. (in.)	Weight of conduit lb/ft.	Weight of conduit w/non-lead covered conductor lb/ft.	Conduit O.D. (in.)	Weight of conduit lb/ft.
½	0.84	0.85	1.04	0.71	0.29
¾	1.05	1.13	1.40	0.92	0.44
1	1.32	1.68	2.35	1.16	0.64
1¼	1.66	2.28	3.58	1.51	0.95
2	2.38	3.68	7.21	2.20	1.40
2½	2.88	5.82	10.22	2.88	2.30
3	3.50	7.62	14.51	3.50	2.70
4	4.50	10.89	21.48	4.50	4.00

Includes weight of heaviest conductor combination.

Engineering data and specifications

Design applications

Table 12

Extra strong pipe (ANSI & API standard, Schedule 80)

A.S.A. B36.10 Schedule nos. and nominal wall thickness designations						
Nominal pipe size (in.)	**O.D. (in.)**	**Wall thickness (in.)**	**I.D. (in.)**	**Weight of pipe lb/ft.**	**Water weight per ft. of pipe lb**	**Weight of pipe filled w/Water lb/ft.**
Extra strong pipe and Schedule 80 pipe (through 8 in.)						
⅜	0.675	0.126	0.423	0.74	0.061	0.801
½	0.840	0.147	0.546	1.09	0.101	1.191
¾	1.050	0.154	0.742	1.47	0.188	1.668
1	1.315	0.179	0.957	2.17	0.311	2.481
1¼	1.660	0.191	1.278	3.00	0.555	3.555
1½	1.900	0.200	1.500	3.63	0.765	4.395
2	2.375	0.218	1.939	5.03	1.279	6.309
2½	2.875	0.276	2.323	7.66	1.834	9.497
3	3.500	0.300	2.900	10.30	2.860	13.16
3½	4.000	0.318	3.364	12.55	3.850	16.35
4	4.500	0.337	3.826	15.00	4.98	19.98
5	5.563	0.375	4.813	20.80	7.89	28.69
6	6.625	0.432	5.761	28.60	11.29	39.89
8	8.625	0.500	7.625	43.40	19.79	63.20
Extra strong pipe (10 in. through 24 in. OD)						
10	10.750	0.500	9.750	54.70	32.30	87.00
12	12.750	0.500	11.750	65.40	47.00	112.40
14 OD	14.000	0.500	13.000	72.10	57.50	129.60
16 OD	16.000	0.500	15.000	82.80	76.50	159.30
18 OD	18.000	0.500	17.000	93.50	98.40	191.90
20 OD	20.000	0.500	19.000	104.10	122.80	226.90
24 OD	24.000	0.500	23.000	125.50	180.10	305.60
Schedule 80 pipe (10 in. through 24 in. OD)						
10	10.750	0.593	9.564	64.300	31.10	95.40
12	12.750	0.687	11.376	88.50	44.00	132.50
14 OD	14.000	0.750	12.500	106.10	53.20	159.30
16 OD	16.000	0.842	14.314	136.50	69.70	206.20
18 OD	18.000	0.937	16.126	170.80	88.50	259.30
20 OD	20.000	1.031	17.938	208.90	109.40	318.30
24 OD	24.000	1.218	21.564	296.40	158.30	454.70

Engineering data and specifications

Design applications

Table 13

Pipe covering weights (thickness intended as guide, only)

Nominal pipe size (in.)	260°		360°		440°		525°		600°		700°		800°	
	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.	Thick. (in.)	lb/ft.
1	1	0.68	1	0.68	1	0.68	1	0.68	1½	1.19	1½	1.19	1½	1.19
1¼	1	0.75	1	0.75	1	0.75	1	0.75	1½	1.27	1½	1.27	2	1.82
1½	1	0.88	1	0.88	1	0.88	1	0.88	1½	1.45	1½	1.45	2	1.87
2	1	1.01	1	1.01	1	1.01	1½	1.53	1½	1.53	2	2.50	2	2.50
2½	1	1.15	1	1.15	1	1.15	1½	1.69	1½	1.69	2	2.50	2½	3.22
3	1	1.28	1	1.28	1	1.28	1½	2.09	1½	2.09	2	2.98	2½	3.98
3½	1	1.44	1	1.44	1½	2.29	1½	2.29	2	3.00	2	3.12	2½	4.30
4	1	1.60	1	1.60	1½	2.49	1½	2.49	2	3.49	2	3.49	2½	4.62
5	1	1.84	1	1.84	1½	2.84	1½	2.84	2	3.97	2	3.97	2½	5.92
6	1½	3.13	1½	3.13	1½	3.13	1½	3.13	2	4.54	2	4.54	2½	6.75
8	1½	4.06	1½	4.06	1½	4.06	1½	4.06	2	5.56	2	5.56	2½	7.61

Thickness and weight of calcium silicate covering.

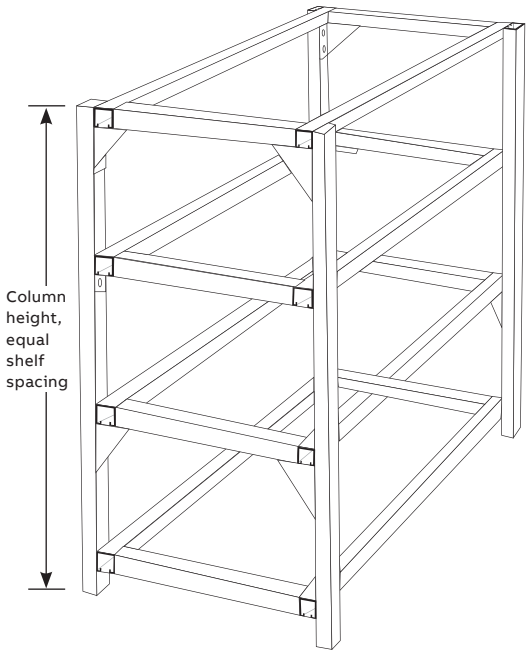
Engineering data and specifications

Design applications – mechanical support

Table 14

Column loading for rack construction

Typical general storage rack for use with plywood or other decking.



General storage racks
Pallet racks
Barrel racks
Bulk furniture racks
Cable racks
Bar stock racks
Display racks
Special purpose racks

For uniform loads on horizontal members, see Table 3

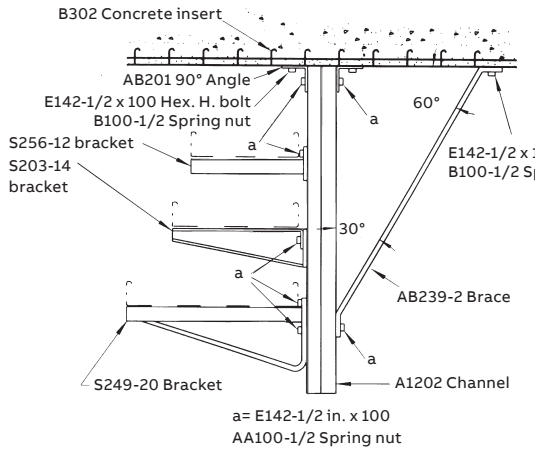
Allowable load in lb per upright

Column height	Cat. no.	Number of shelves per upright 2	3	4	5	6	7	8	9	10
6'	A1200	2,237	1,925	1,650	1,437	1,290	–	–	–	–
	A1202	4,170	3,580	3,100	2,730	2,450	–	–	–	–
	B1400	800	820	790	700	630	–	–	–	–
	B1402	1,930	1,700	1,500	1,300	1,190	–	–	–	–
7'	A1200	2,150	1,850	1,630	1,425	1,280	1,150	–	–	–
	A1202	4,000	3,525	3,000	2,700	2,430	2,200	–	–	–
	B1400	650	790	760	685	615	550	–	–	–
	B1402	1800	1,650	1,450	1,300	1,180	750	–	–	–
8'	A1200	2,000	1,820	1,600	1,400	1,250	1,150	1,050	–	–
	A1202	3,900	3,475	3,000	2,700	2,400	2,185	2,000	–	–
	B1400	580	750	730	660	610	540	510	–	–
	B1402	1,650	1,610	1,450	1,300	1,160	940	970	–	–
9'	A1200	1,950	1,780	1,575	1,400	1,250	1,130	1,030	950	–
	A1202	3,800	3,400	3,020	2,675	2,400	2,180	1,975	1,800	–
	B1400		600	665	600	580	540	500	475	–
	B1402	1,500	1,500	1,430	1,275	1,160	1,000	900	800	–
10'	A1200	1,870	1,700	1,500	1,300	1,200	1,100	1,000	900	800
	A1202	3,600	3,300	3,000	2,650	2,350	2,000	1,975	1,800	1,650
	B1400		550	650	625	580	535	490	450	425
	B1402	1,450	1,480	1,400	1,250	1,140	1,040	960	885	825

Engineering data and specifications

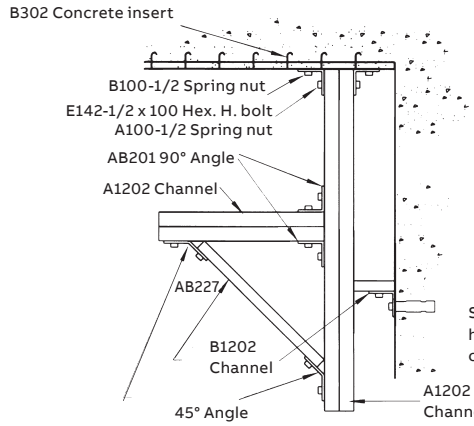
Design applications – mechanical support

Example 1



Suspended column, carrying brackets, braced to the ceiling.

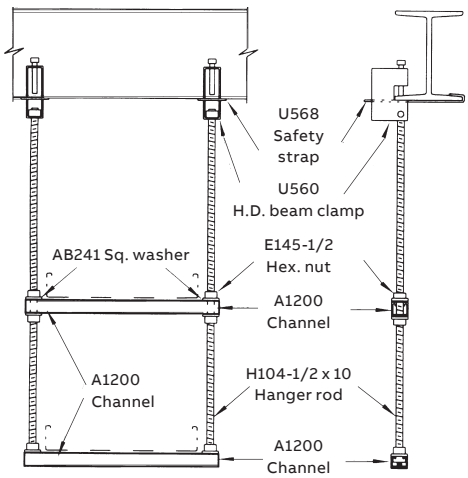
Example 2



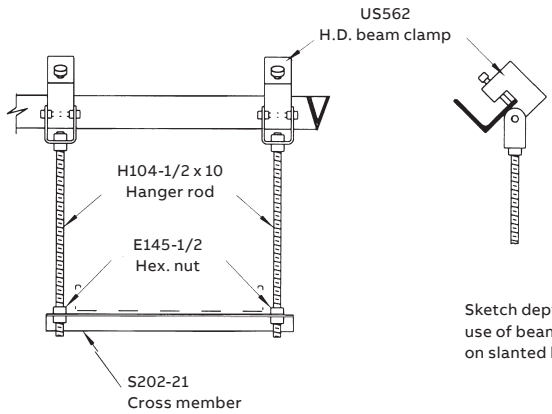
Suspended column, holding bracket and console braced to wall.

Example 3

Trapeze with channels as cross members using beam clamps and hanger rods.

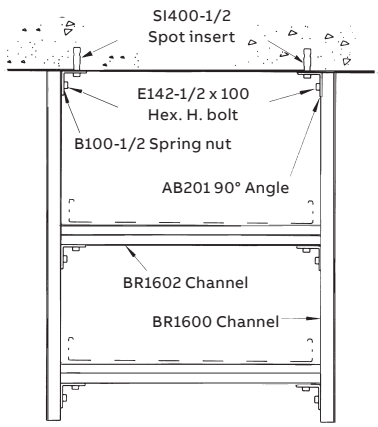


Example 4



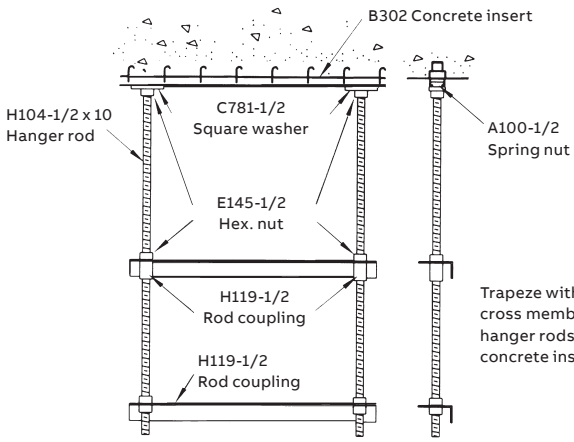
Sketch depicts the use of beam clamps on slanted beams.

Example 5



Trapeze, constructed from channels, fittings. The use of spot inserts is shown (SI400-1/2).

Example 6

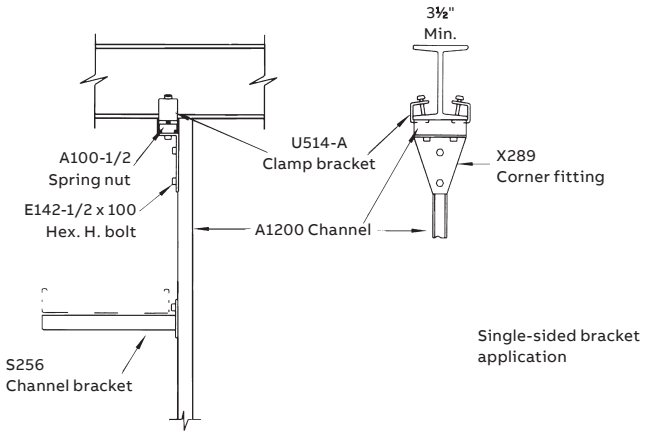


Trapeze with S202 cross members using hanger rods and concrete inserts.

Engineering data and specifications

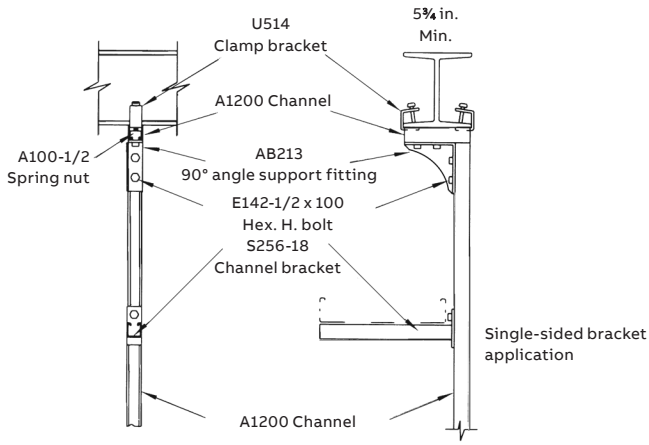
Design applications – mechanical support

Example 7

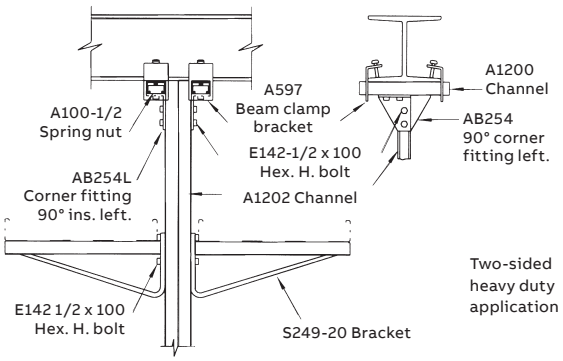


*Note: Brace should be used for lengths greater than 30 in.

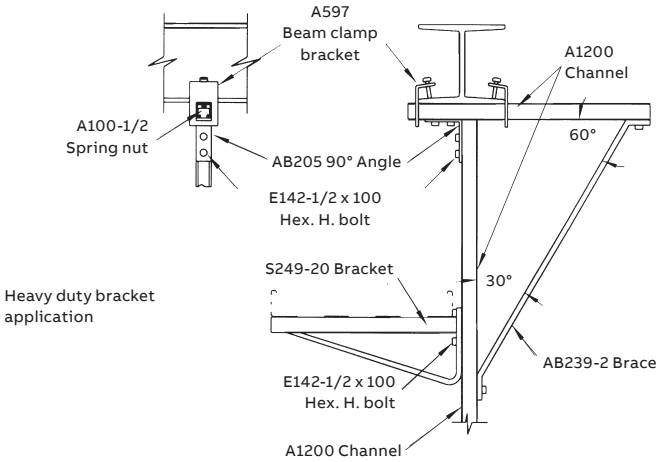
Example 8



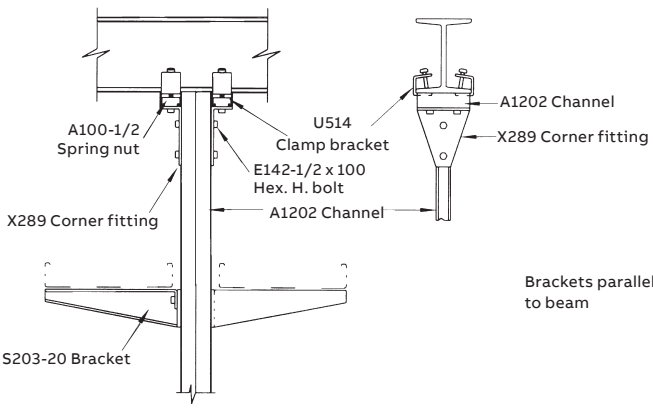
Example 9



Example 10



Example 11



Example 12