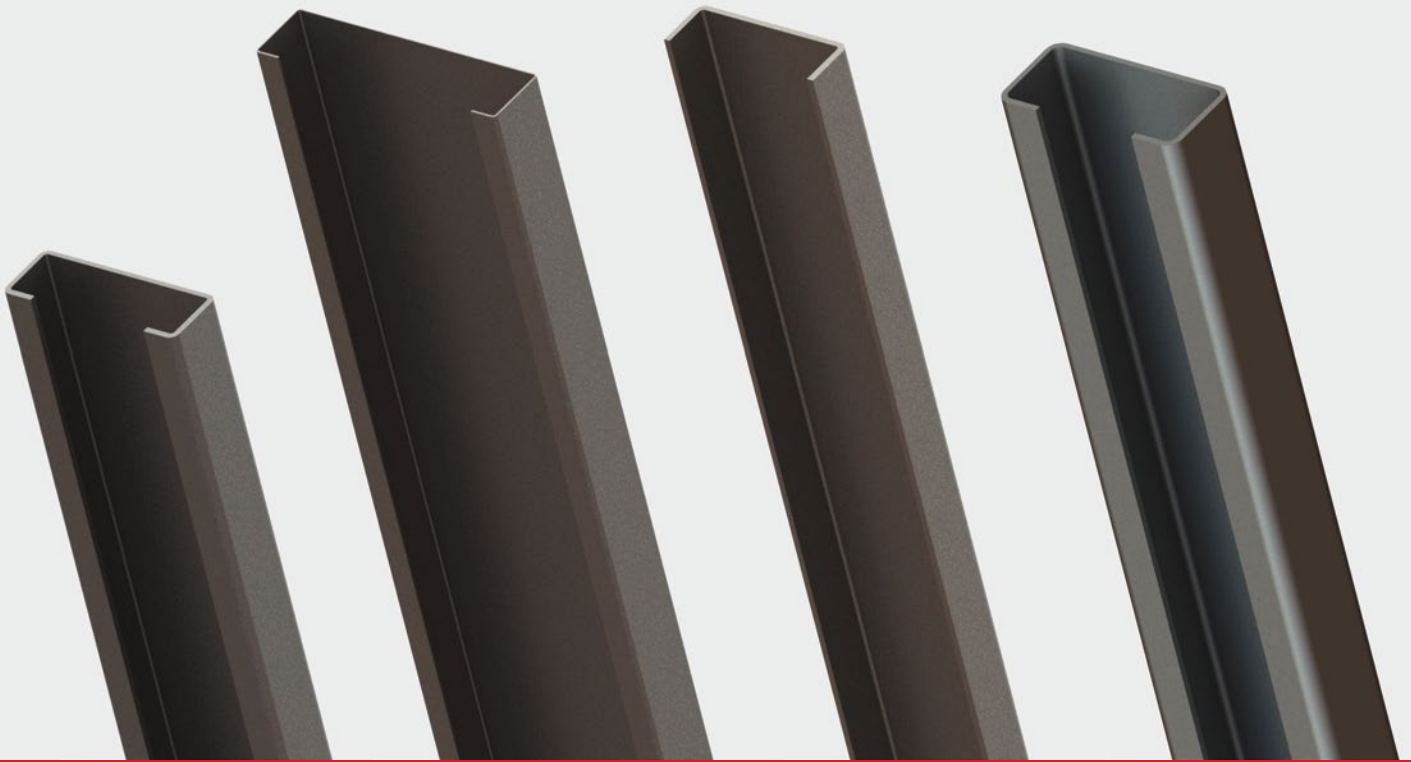


CARGOWALL

A ROLL FORM COMPANY



ROLL-FORMED STRUCTURAL C-SECTIONS AND CHANNELS

Load Tables and Section Properties



CARGOWALL LTD.

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Bowmanville, Ontario

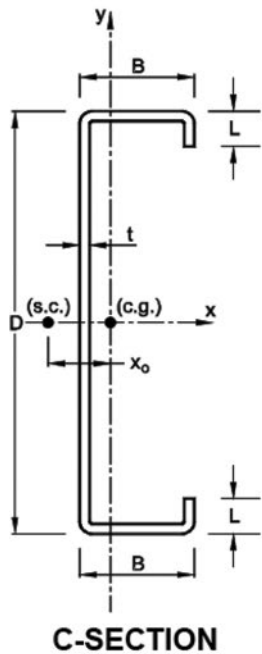
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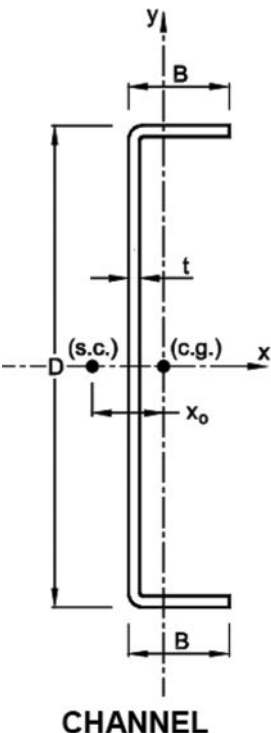
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PREFACE

The information contained herein is intended as a general guide to the design Professional. Anyone making use of the information contained in this catalogue assumes any and all liability from such use.



C-SECTION



CHANNEL

THE COMPANY

Cargowall Ltd. has been in the business of custom roll forming for almost 40 years, providing simple to highly complex and unique profiles for many industries.

In addition to these customized products, Cargowall Ltd. is now offering cold formed steel structural C-and Channel sections.

THE PRODUCT

The cold formed steel products presented in this catalogue can be used in various combinations to provide efficient, versatile and sound structural framing systems. They may be used as girts and purlins in Pre-engineered buildings, in storage mezzanine systems, to support in-plant office floors, as support equipment (HVAC, Conveyors..), in the elevator industry, in light truck frames, just to mention a few possible applications. Both C-section and channel profiles are offered in steel thicknesses ranging from 3.05 to 6.35 mm (0.120 to 0.25 in.).

One of the great advantages of such cold formed steel profiles is that cold work of forming can be applied whenever applicable.

STEEL

Conforms to ASTM A1011M/A1011 (Grade 340) [Grade 50], ($F_y = 345 \text{ MPa}$), [$F_y = 50 \text{ ksi}$]. This is an uncoated steel.

DESIGN CONSIDERATIONS

The load tables are based on limit states design principles (LSD), considering flexure and shear. Web crippling must be checked and will require a small additional calculation as shown in the example. As well, deflection must also be checked.

LIMIT STATES DESIGN

STRENGTH

LSD design principles were used in accordance with the National Building Code of Canada, 2005 and CSA S136-07, North American Specification for the Design of Cold Formed Steel Structural Members. The factored resistance under consideration, ΦR , must be $\geq$ than the effect of the factored loads, i.e., $\Phi R \geq \text{FACTORED LOADS}$. Hence, the factored resistance load table values must be equal to or greater than the factored loads.

SERVICEABILITY

The effective moment of inertia for deflection determination has been calculated based on an assumed specified live load stress of $0.626F_y$.

VARIFICATION

The load tables and technical information contained in this catalogue were prepared by Dr. R.M. Schuster, P. Eng. and Professor Emeritus at the University of Waterloo.



C-SECTION EXAMPLE

(Imperial units)

1. Given

C-sections 22 ft in length and spaced 4 ft o.c.

2. Specified loads

DL = 20 psf

LL = 60 psf

$w_D = 20(4) = 80 \text{ lb/ft}$

$w_L = 60(4) = 240 \text{ lb/ft}$

3. Factored loads

$w_f = 1.25(80) + 1.5(240) = 460 \text{ lb/ft}$

$W_f = 460(22)/1000 = 9.20 \text{ kips}$

4. Consider strength

a) Flexure and shear (see Table)

Try a 10 x 3.50 x 0.135

$W_r = 10.3 \text{ kips}$

Since $W_r > W_f \therefore \text{OK}$

b) Check web crippling (assume $n = 6 \text{ in.}$)

$P_r = P_{e1} + P_{e2} \sqrt{n/t}$

$= 1.75 + 0.614 \sqrt{6/0.135} = 5.84 \text{ kips}$

$W_r = 2P_r = 2(5.84) = 11.7 \text{ kips}$

Since $W_r > W_f \therefore \text{OK}$

5. Consider deflection

Assume $k = 180$

$W_d = D_c(10)^3/k/L^2 = 571(10)^3/180/(22)^2 = 6.55 \text{ kips}$

$w_d = 6.55(1000)/22 = 298 \text{ lb/ft}$

Since $w_d > w_L \therefore \text{OK}$

DESIGN DATA NOTATIONS

SYMBOL **DEFINITION**

L_u	Maximum unbraced length of compression flange based on lateral torsional buckling
L_{cr}	Distance between discrete restraints that restrict distortional buckling
M_r	Factored moment resistance based on local buckling and the unbraced length $\leq L_u$
M_{rd}	Factored moment resistance based on distortional buckling and the unbraced length $\leq L_u$
V_r	Factored shear resistance
D_c	Deflection coefficient
P_{e1}	End web crippling coefficient
P_{e2}	End web crippling coefficient
P_{i1}	Interior web crippling coefficient
P_{i2}	Interior web crippling coefficient
F_{ya}	Average yield stress due to cold work of forming

C-SECTION EXAMPLE

(Metric units)

1. Given

C-sections 6 m in length and spaced 1.2 m o.c.

2. Specified loads

DL = 1.0 kPa

LL = 3.0 kPa

$w_D = 1.0(1.2) = 1.2 \text{ kN/m}$

$w_L = 3.0(1.2) = 3.6 \text{ kN/m}$

3. Factored loads

$w_f = 1.25(1.2) + 1.5(3.6) = 6.9 \text{ kN/m}$

$W_f = 6.9(6) = 41.4 \text{ kN}$

4. Consider strength

a) Flexure and shear (see Table)

Try a 254 x 89 x 3.05

$W_r = 43.8 \text{ kN}$

Since $W_r > W_f \therefore \text{OK}$

b) Check web crippling (assume $n = 150 \text{ mm}$)

$P_r = P_{e1} + P_{e2} \sqrt{n/t}$

$= 5.98 + 2.09 \sqrt{150/3.05} = 20.6 \text{ kN}$

$W_r = 2P_r = 2(20.6) = 41.4 \text{ kips}$

Since $W_r = W_f \therefore \text{OK}$

5. Consider deflection

Assume $k = 180$

$W_d = D_c(10)^3/k/L^2 = 212(10)^3/180/(6)^2 = 32.7 \text{ kN}$

$w_d = 32.7/6 = 5.45 \text{ kN/m}$

Since $w_d > w_L \therefore \text{OK}$

PROPERTIES NOTATIONS

SYMBOL **DEFINITION**

A	Cross-sectional area of section
S_x	Full section modulus about x-axis
r_x	Radius of gyration about x-axis
I_y	Full moment of inertia about y-axis
r_y	Radius of gyration about y-axis
J	St. Venant torsion constant
C_w	Torsional warping constant
j	Flexural-torsional buckling parameter
x_o	Distance from shear center to centroid along principle x-axis
r_o	Polar radius of gyration about shear center
S_{xe}	Effective section modulus about x-axis
I_{xd}	Deflection moment of inertia at $0.626F_y$



TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



C-SECTIONS (IMPERIAL UNITS)

16 x 3.50 x 1.25							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		9.91	11.1	12.3	13.4	15.3	20.1
Span (ft)	15	21.8	25.8	29.9	33.0	38.4	60.1
	16	20.4	24.2	28.0	31.0	36.4	56.3
	17	19.2	22.8	26.4	29.1	33.8	53.0
	18	18.2	21.5	24.9	27.5	32.0	50.0
	19	17.2	20.4	23.6	26.1	30.3	47.4
	20	16.3	19.4	22.4	24.8	28.8	45.0
	21	15.6	18.5	21.3	23.6	27.4	42.9
	22	14.9	17.6	20.4	22.5	26.2	40.9
	23	14.2	16.9	19.5	21.5	25.0	39.2
	24	13.6	16.2	18.7	20.6	24.0	37.5
	25	13.1	15.5	17.9	19.8	23.0	36.0
	26	12.6	14.9	17.2	19.0	22.1	34.6
	27	12.1	14.4	16.6	18.3	21.3	33.4
	28	11.7	13.8	16.0	17.7	20.6	32.2
	29	11.3	13.4	15.4	17.1	19.8	31.1
	30	10.9	12.9	14.9	16.5	19.2	30.0
	31	10.5	12.5	14.5	16.0.	18.6	29.1
	32	10.2	12.1	14.0	15.5	18.0	28.1
	33	9.91	11.7	13.6	15.0	17.4	27.3
	34	9.62	11.4	13.2	14.6	16.9	26.5
	35	9.34	11.1	12.8	14.2	16.4	25.7
	36	9.08	10.8	12.4	13.8	16.0	25.0
	37	8.84	10.5	12.1	13.4	15.6	24.3
	38	8.60	10.2	11.8	13.0	15.1	23.7
	39	8.38	9.94	11.5	12.7	14.8	23.1
	40	8.17	9.69	11.2	12.4	14.4	22.5

14 x 3.50 x 1.25							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		9.09	10.2	11.3	12.3	14.0	18.4
Span (ft)	15	18.9	22.3	25.9	29.4	35.5	49.4
	16	17.7	21.0	24.3	27.5	33.2	46.3
	17	16.7	19.7	22.9	25.9	31.3	43.6
	18	15.8	18.6	21.6	24.5	29.6	41.2
	19	14.9	17.6	20.5	23.2	28.0	39.0
	20	14.2	16.8	19.4	22.0	26.6	37.1
	21	13.5	16.0	18.5	21.0	25.3	35.3
	22	12.9	15.2	17.7	20.0	24.2	33.7
	23	12.3	14.6	16.9	19.2	23.1	32.2
	24	11.8	14.0	16.2	18.4	22.2	30.9
	25	11.3	13.4	15.6	17.6	21.3	29.6
	26	10.9	12.9	15.0	16.9	20.5	28.5
	27	10.5	12.4	14.4	16.2	19.7	27.4
	28	10.1	12.0	13.9	15.7	19.0	26.5
	29	9.78	11.6	13.4	15.2	18.3	25.6
	30	9.45	11.2	13.0	14.7	17.7	24.7
	31	9.15	10.8	12.5	14.2	17.2	23.9
	32	8.86	10.5	12.2	13.8	16.6	23.2
	33	8.59	10.2	11.8	13.3	16.1	22.5
	34	8.34	9.86	11.4	13.0	15.6	21.8
	35	8.10	9.58	11.1	12.6	15.2	21.2
	36	7.88	9.31	10.8	12.2	14.8	20.6
	37	7.67	9.06	10.5	11.9	14.4	20.0
	38	7.46	8.82	10.2	11.6	14.0	19.5
	39	7.27	8.60	10.0	11.3	13.6	19.0
	40	7.09	8.38	9.72	11.0	13.3	18.5

DESIGN DATA						
L_v (in.)	72.0	71.7	71.5	71.2	70.8	63.4
L_{cr} (in.)	34.7	32.5	30.7	29.2	27.1	23.0
M_r (kip-in)	520	596	672	743	863	1351
M_{rd} (kip-in)	490	582	677	769	933	1351
V_r (kip)	13.1	18.7	25.7	33.6	47.6	84.1
D_c (lb-ft ²)	1555	1757	1955	2125	2411	3121
P_{e1} (kip)	1.26	1.65	2.10	2.57	3.50	6.57
P_{e2} (kip)	0.442	0.579	0.736	0.901	1.22	2.30
P_{η} (kip)	3.95	5.23	6.70	8.25	11.3	21.6
P_{iz} (kip)	0.553	0.732	0.938	1.16	1.58	21.6
F_{ya} (ksi)	50.0	50.0	50.0	50.0	50.0	60.4

DESIGN DATA						
L_v (in.)	70.5	68.6	68.0	67.4	66.6	64.5
L_{cr} (in.)	33.5	31.4	29.7	28.2	26.1	22.2
M_r (kip-in)	503	589	657	721	830	1112
M_{rd} (kip-in)	425	503	583	661	798	1112
V_r (kip)	15.1	21.5	29.6	36.2	47.6	76.5
D_c (lb-ft ²)	1145	1280	1412	1534	1739	2246
P_{e1} (kip)	1.26	1.68	2.14	2.62	3.55	6.66
P_{e2} (kip)	0.450	0.590	0.749	0.915	1.24	2.33
P_{η} (kip)	3.98	5.27	6.75	8.31	11.4	21.7
P_{iz} (kip)	0.557	0.738	0.945	1.16	1.59	3.04
F_{ya} (ksi)	50.0	50.0	50.0	50.0	50.0	60.4

NOTE: The inside bend radius was taken as 0.375 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



C-SECTIONS (IMPERIAL UNITS)

12 x 3.50 x 1.25							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		8.28	9.28	10.3	11.2	12.8	16.7
Span (ft)	15	15.9	18.8	21.7	242.5	29.4	39.6
	16	14.9	17.6	20.3	23.0	27.6	37.1
	17	14.1	16.6	19.1	21.6	26.0	34.9
	18	13.3	15.6	18.1	20.4	24.5	33.0
	19	12.6	14.8	17.1	19.3	23.2	31.2
	20	11.9	14.1	16.3	18.4	22.1	29.7
	21	11.4	13.4	15.5	17.5	21.0	28.3
	22	10.9	12.8	14.8	16.7	20.1	27.0
	23	10.4	12.2	14.1	16.0	19.2	25.8
	24	10.0	11.7	13.6	15.3	18.4	24.7
	25	9.55	11.3	13.0	14.7	17.7	23.7
	26	9.19	10.8	12.5	14.1	17.0	22.8
	27	8.85	10.4	12.0	13.6	16.4	22.0
	28	8.53	10.0	11.6	13.1	15.8	21.2
	29	8.24	9.70	11.2	12.7	15.2	20.5
	30	7.96	9.38	10.8	12.2	14.7	19.8
	31	7.71	9.08	10.5	11.9	14.2	19.1
	32	7.46	8.79	10.2	11.5	13.8	18.5
	33	7.24	8.53	9.86	11.1	13.4	18.0
	34	7.03	8.28	9.57	10.8	13.0	17.5
	35	6.82	8.04	9.29	10.5	12.6	17.0
	36	6.64	7.82	9.04	10.2	12.3	16.5
	37	6.46	7.60	8.79	9.93	11.9	16.0
	38	6.29	7.40	8.56	9.67	11.6	15.6
	39	6.12	7.21	8.34	9.42	11.3	15.2
	40	5.97	7.03	8.13	9.19	11.0	14.8

DESIGN DATA						
L_v (in.)	71.5	69.6	69.0	68.5	67.7	65.8
L_{cr} (in.)	32.2	30.2	28.5	27.1	25.1	21.3
M_r (kip-in)	405	474	529	579	666	890
M_{rd} (kip-in)	358	422	488	551	662	890
V_r (kip)	17.8	24.5	30.3	36.2	47.6	64.5
D_c (lb-ft ²)	791	883	973	1057	1197	1542
P_{e1} (kip)	1.31	1.72	2.18	2.66	3.61	6.75
P_{e2} (kip)	0.460	0.601	0.763	0.931	1.26	2.36
P_{η} (kip)	4.02	5.32	6.81	8.38	11.5	21.8
P_{iz} (kip)	0.563	0.744	0.953	1.17	1.61	3.05
F_{ya} (ksi)	53.6	56.3	56.8	57.4	58.3	60.4

10 x 3.50 x 1.25							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		7.46	8.36	9.25	10.1	11.5	15.0
Span (ft)	15	12.9	15.2	17.5	19.7	22.9	30.5
	16	12.1	14.2	16.4	18.4	21.5	28.6
	17	11.4	13.4	15.4	17.3	20.2	27.0
	18	10.8	12.6	14.5	16.4	19.1	25.5
	19	10.2	12.0	13.8	15.5	18.1	24.1
	20	9.68	11.4	13.1	14.7	17.2	22.9
	21	9.22	10.8	12.5	14.0	16.4	21.8
	22	8.80	10.3	11.9	13.4	15.6	20.8
	23	8.42	9.88	11.4	12.8	15.0	19.9
	24	8.07	9.47	10.9	12.3	14.3	19.1
	25	7.75	9.09	10.5	11.8	13.8	18.3
	26	7.45	8.74	10.1	11.3	13.2	17.6
	27	7.17	8.42	9.70	10.9	12.7	17.0
	28	6.92	8.12	9.35	10.5	12.3	16.4
	29	6.68	7.84	9.03	10.2	11.9	15.8
	30	6.46	7.58	8.73	9.83	11.5	15.3
	31	6.25	7.33	8.45	9.51	11.1	14.8
	32	6.05	7.10	8.18	9.21	10.8	14.3
	33	5.87	6.89	7.94	8.93	10.4	13.9
	34	5.70	6.69	7.70	8.67	10.1	13.5
	35	5.53	6.49	7.48	8.42	9.83	13.1
	36	5.38	6.31	7.27	8.19	9.56	12.7
	37	5.23	6.14	7.08	7.97	9.30	12.4
	38	5.10	5.98	6.89	7.76	9.05	12.1
	39	4.97	5.83	6.71	7.56	8.82	11.7
	40	4.84	5.68	6.55	7.37	8.60	11.5

DESIGN DATA						
L_v (in.)	72.8	70.9	70.3	69.9	69.1	67.4
L_{cr} (in.)	30.8	28.9	27.2	25.9	24	20.4
M_r (kip-in)	315	369	410	449	516	687
M_{rd} (kip-in)	291	341	393	442	516	687
V_r (kip)	19.4	24.5	30.3	35.1	40.0	52.5
D_c (lb-ft ²)	512	571	630	683	773	992
P_{e1} (kip)	1.34	1.75	2.22	2.71	3.67	6.85
P_{e2} (kip)	0.470	0.614	0.778	0.949	1.28	2.40
P_{η} (kip)	4.06	5.37	6.87	8.45	11.6	22.0
P_{iz} (kip)	0.568	0.751	0.962	1.18	1.62	3.08
F_{ya} (ksi)	53.6	56.3	56.8	57.4	58.3	60.4

NOTE: The inside bend radius was taken as 0.375 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



C-SECTIONS (IMPERIAL UNITS)

8 x 2.75 x 1.25							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		5.92	6.62	7.32	7.97	9.06	11.8
Span (ft)	10	13.5	15.7	17.5	19.2	22.0	29.2
	11	12.2	14.3	15.9	17.5	20.0	26.6
	12	11.2	13.1	14.6	16.0	18.3	24.4
	13	10.4	12.1	13.5	14.8	16.9	22.5
	14	9.6	11.2	12.5	13.7	15.7	20.9
	15	8.98	10.5	11.7	12.8	14.7	19.5
	16	8.42	9.83	11.0	12.0	13.8	18.3
	17	7.92	9.25	10.3	11.3	13.0	17.2
	18	7.48	8.74	9.75	10.7	12.2	16.2
	19	7.09	8.28	9.23	10.1	11.6	15.4
	20	6.73	7.87	8.77	9.60	11.0	14.6
	21	6.41	7.49	8.35	9.14	10.5	13.9
	22	6.12	7.15	7.97	8.73	10.0	13.3
	23	5.86	6.84	7.63	8.35	9.57	12.7
	24	5.61	6.55	7.31	8.00	9.17	12.2
	25	5.39	6.29	7.02	7.68	8.81	11.7
	26	5.18	6.05	6.75	7.38	8.47	11.2
	27	4.99	5.83	6.50	7.11	8.16	10.8
	28	4.81	5.62	6.27	6.86	7.86	10.4
	29	4.64	5.42	6.05	6.62	7.59	10.1
	30	4.49	5.24	5.85	6.40	7.34	9.75

DESIGN DATA						
L_v (in.)	55.3	54.8	54.3	53.9	53.3	51.9
L_{cr} (in.)	21.5	20.2	19	18.1	16.7	14.1
M_r (kip-in)	210	237	263	288	330	439
M_{rd} (kip-in)	202	236	263	288	330	439
V_r (kip)	19.4	23.4	25.9	28.2	32.1	42.0
D_c (lb-ft ²)	258	287	315	341	385	489
P_{e1} (kip)	1.46	1.89	2.38	2.90	3.90	7.21
P_{e2} (kip)	0.509	0.661	0.834	1.01	1.36	2.52
P_{η} (kip)	4.61	6.03	7.66	9.35	12.7	23.7
P_{iz} (kip)	0.646	0.845	1.07	1.31	1.77	3.32
F_{ya} (ksi)	56.9	57.6	58.2	58.9	59.9	62.5

6 x 2.75 x 1.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		5.10	5.70	6.30	6.85	7.78	10.1
Span (ft)	5	18.9	21.3	23.6	25.8	29.5	38.9
	6	15.8	17.7	19.7	21.5	24.6	32.4
	7	13.5	15.2	16.9	18.4	21.1	27.8
	8	11.8	13.3	14.8	16.1	18.4	24.3
	9	10.5	11.8	13.1	14.3	16.4	21.6
	10	9.45	10.6	11.8	12.9	14.7	19.4
	11	8.59	9.67	10.7	11.7	13.4	17.7
	12	7.88	8.86	9.84	10.7	12.3	16.2
	13	7.27	8.18	9.08	9.92	11.3	14.9
	14	6.75	7.59	8.43	9.21	10.5	13.9
	15	6.30	7.09	7.87	8.60	9.83	13.0
	16	5.91	6.64	7.38	8.06	9.22	12.1
	17	5.56	6.25	6.94	7.59	8.67	11.4
	18	5.25	5.91	6.56	7.16	8.19	10.8
	19	4.97	5.60	6.21	6.79	7.76	10.2
	20	4.73	5.32	5.90	6.45	7.37	9.71
	21	4.50	5.06	5.62	6.14	7.02	9.25
	22	4.30	4.83	5.37	5.86	6.70	8.83
	23	4.11	4.62	5.13	5.61	6.41	8.45
	24	3.94	4.43	4.92	5.37	6.14	8.09
	25	3.78	4.25	4.72	5.16	5.90	7.77

DESIGN DATA						
L_v (in.)	57.1	56.7	56.4	56.1	55.6	54.8
L_{cr} (in.)	20.0	18.8	17.7	16.8	15.5	13.1
M_r (kip-in)	142	160	177	193	221	291
M_{rd} (kip-in)	142	160	177	193	221	291
V_r (kip)	15.1	16.9	18.7	20.4	23.1	30.0
D_c (lb-ft ²)	131	145	159	172	193	244
P_{e1} (kip)	1.50	1.94	2.44	2.96	3.98	7.34
P_{e2} (kip)	0.523	0.678	0.854	1.04	1.39	2.57
P_{η} (kip)	4.67	6.11	7.74	9.45	12.8	23.9
P_{iz} (kip)	0.654	0.855	1.08	1.32	1.79	3.35
F_{ya} (ksi)	56.9	57.6	58.2	58.9	59.9	62.5

NOTE: The inside bend radius was taken as 0.25 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



C-SECTION PROPERTIES (IMPERIAL UNITS)

	Gross												Effective	
	t	Weight	A	S _x	r _x	I _y	r _y	J	c _w	j	X _o	r _o	S _{xe}	I _{xd}
D x B x L	(in.)	(lb/ft)	(in ²)	(in ³)	(in.)	(in ⁴)	(in.)	(in ⁴)	(in ⁶)	(in.)	(in.)	(in.)	(in ³)	(in ⁴)
16 x 3.50 x 1.25	0.120	9.91	2.91	12.6	5.88	4.18	0.120	0.0140	231	10.0	2.13	6.37	11.6	99.0
	0.135	11.1	3.27	14.1	5.88	4.63	1.13	0.0199	255	10.0	2.11	6.36	13.2	112
	0.150	12.3	3.62	15.6	5.87	5.07	1.18	0.0271	279	10.1	2.10	6.34	14.9	124
	0.164	13.4	3.95	16.9	5.86	5.46	1.13	0.0354	301	10.1	2.08	6.33	16.5	135
	0.188	15.3	4.50	19.2	5.84	6.11	1.16	0.0530	336	10.2	2.06	6.30	19.2	154
	0.250	20.1	5.91	24.8	5.80	7.60	1.13	0.123	419	10.4	2.00	6.24	24.8	199
14 x 3.50 x 1.25	0.120	9.09	2.67	10.4	5.22	4.03	1.23	0.0128	172	8.25	2.27	5.83	10.4	72.9
	0.135	10.2	3.00	11.6	5.21	4.47	1.22	0.0182	191	8.27	2.25	5.81	11.6	81.5
	0.150	11.3	3.32	12.9	5.21	4.89	1.21	0.0249	208	8.29	2.24	5.79	12.9	89.9
	0.164	12.3	3.62	14.0	5.20	5.27	1.21	0.0324	224	8.31	2.22	5.78	14.0	97.7
	0.188	14.0	4.13	15.8	5.18	5.89	1.20	0.0486	250	8.35	2.20	5.75	15.8	111
	0.250	18.4	5.41	20.4	5.14	7.34	1.16	0.113	311	8.46	2.13	5.69	20.4	143
12 x 3.50 x 1.25	0.120	8.28	2.43	8.39	4.55	3.86	0.126	0.0117	123	6.77	2.43	5.31	8.39	50.3
	0.135	9.28	2.73	9.37	4.54	4.27	1.25	0.0116	136	6.78	2.41	5.29	9.37	56.2
	0.150	10.3	3.02	10.3	4.53	4.68	1.24	0.0226	149	6.79	2.40	5.27	10.3	62.0
	0.164	11.2	3.29	11.2	4.52	5.04	1.24	0.0295	160	6.81	2.38	5.26	11.2	67.3
	0.188	12.8	3.75	12.7	4.51	5.64	1.23	0.0442	179	6.82	2.36	5.23	12.7	76.2
	0.250	16.7	4.91	16.4	4.47	7.02	1.20	0.102	222	6.88	2.29	5.16	16.4	98.2
10 x 3.50 x 1.25	0.120	7.46	2.19	6.52	3.86	3.64	1.29	0.0105	84.0	5.59	2.62	4.84	6.52	32.6
	0.135	8.36	2.46	7.28	3.85	4.04	1.28	0.0149	92.8	5.59	2.60	4.82	7.28	36.4
	0.150	9.25	2.72	8.02	3.84	4.42	1.27	0.0204	101	5.59	2.59	4.80	8.02	40.1
	0.164	10.1	2.96	8.70	3.83	4.76	1.27	0.0266	109	5.59	2.57	4.79	8.70	43.5
	0.188	11.5	3.37	9.84	3.82	5.32	1.26	0.0397	121	5.59	2.54	4.76	9.84	49.2
	0.250	15.0	4.41	12.6	3.78	6.63	1.23	0.0919	150	5.61	2.47	4.69	12.6	63.2
8 x 2.75 x 1.0	0.120	5.92	1.74	4.10	3.07	1.76	1.00	0.008	25.5	4.41	2.03	3.82	4.10	16.4
	0.135	6.62	1.95	4.57	3.06	1.94	1.00	0.0118	28.0	4.41	2.01	3.80	4.57	18.3
	0.150	7.32	2.15	5.02	3.06	2.11	0.990	0.0161	3.04	4.41	2.00	3.78	5.02	20.1
	0.164	7.97	2.34	5.44	3.05	2.26	0.980	0.0210	32.6	4.42	1.98	3.77	5.44	21.8
	0.188	9.06	2.66	6.13	30.03	2.51	0.970	0.0314	36.0	4.42	1.95	3.74	6.13	24.5
	0.250	11.8	3.46	7.79	3.00	3.07	0.940	0.0722	43.5	4.44	1.89	3.67	7.79	31.2
6 x 2.75 x 1.0	0.120	5.10	1.50	2.77	2.35	1.59	1.03	0.007	14.3	3.54	2.26	3.42	2.77	8.31
	0.135	5.70	1.68	3.08	2.35	1.75	1.02	0.0102	15.7	3.54	2.24	3.40	3.08	9.24
	0.150	6.30	1.85	3.38	2.34	1.91	1.02	0.0139	17.0	3.53	2.22	3.38	3.38	10.1
	0.164	6.85	2.01	3.65	2.33	2.05	1.01	0.0181	18.1	3.52	2.21	3.37	3.65	11.0
	0.188	7.78	2.29	4.10	2.32	2.28	1.00	0.0269	20.0	3.51	2.18	3.34	4.10	12.3
	0.250	10.1	2.96	5.18	2.29	2.78	0.970	0.0618	23.9	3.48	2.11	3.26	5.18	15.5

NOTE: The inside bend radius was taken as 0.375 in. for the 3.50 in. flanges and 0.25 in. for the 2.75 in. flanges.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



C-SECTIONS (METRIC UNITS)

406 x 89 x 31.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		14.8	16.6	18.3	20.4	22.8	29.9
Span (m)	3.0	131	175	203	224	260	408
	3.5	127	150	174	192	223	350
	4.0	111	132	152	168	195	306
	4.5	98.6	117	135	149	174	272
	5.0	88.8	105	122	134	156	245
	5.5	80.7	95.7	111	122	142	223
	6.0	74.0	87.7	101	112	130	204
	6.5	68.3	81.0	93.5	103	120	188
	7.0	63.4	75.2	86.8	96.0	112	175
	7.5	59.2	70.2	81.0	89.6	104	163
	8.0	55.5	65.8	76.0	84.0	97.6	153
	8.5	52.2	61.9	71.5	79.1	91.9	144
	9.0	49.3	58.5	67.5	74.7	86.8	136
	9.5	46.7	55.4	64.0	70.7	82.2	129
	10.0	44.4	52.6	60.8	67.2	78.1	122
	10.5	42.3	50.1	57.9	64.0	74.4	117
	11.0	40.4	47.9	55.3	61.1	71.0	111
	11.5	38.6	45.8	52.9	58.4	67.9	106
	12.0	37.0	43.9	50.7	56.0	65.1	102
	12.5	35.5	42.1	48.6	53.8	62.5	98.0
	13.0	34.1	40.5	46.8	51.7	60.1	94.2
	13.5	32.9	39.0	45.0	49.8	57.8	90.7
	14.0	31.7	37.6	43.4	48.0	55.8	87.5

DESIGN DATA						
L_u (mm)	1828	1821	1814	1808	1798	1608
L_{cr} (mm)	881	826	779	742	687	585
M_r (kN-m)	58.8	67.4	76.0	84.0	97.6	153
M_{rd} (kN-m)	55.5	65.8	76.6	87.0	106	153
V_r (kN)	58.2	83.1	114	150	212	374
D_e (kN-m ²)	642	726	808	878	996	1290
P_{e1} (kN)	5.62	7.36	9.36	11.5	15.6	29.3
P_{e2} (kN)	1.97	2.58	3.28	4.01	5.45	10.2
P_{η} (kN)	17.6	23.3	29.8	36.7	50.3	95.9
P_{Ω} (kN)	2.46	3.26	4.18	5.14	7.05	13.4
F_{ya} (MPa)	345	345	345	345	345	418

356 x 89 x 31.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		13.5	15.2	16.8	18.3	20.9	27.4
Span(m)	3.0	128	152	176	199	241	336
	3.5	110	130	151	171	206	288
	4.0	96.3	114	132	150	181	252
	4.5	85.6	101	117	133	161	224
	5.0	77.0	91.0	106	120	144	201
	5.5	70.0	82.8	96.0	109	131	183
	6.0	64.2	75.9	88.0	100	120	168
	6.5	59.2	70.0	81.2	92.0	111	155
	7.0	55.0	65.0	75.4	85.5	103	144
	7.5	51.3	60.7	70.4	79.8	96.3	134
	8.0	48.1	56.9	66.0	74.8	90.3	126
	8.5	45.3	53.5	62.1	70.4	85.0	119
	9.0	42.8	50.6	58.7	66.5	80.3	112
	9.5	40.5	47.9	55.6	63.0	76.0	106
	10.0	38.5	45.5	52.8	59.8	72.2	101
	10.5	36.7	43.3	50.3	57.0	68.8	96.0
	11.0	35.0	41.4	48.0	54.4	65.7	91.6
	11.5	33.5	39.6	45.9	52.0	62.8	87.8
	12.0	32.1	37.9	44.0	49.8	60.2	84.0
	12.5	30.8	36.4	42.4	47.9	57.8	80.6
	13.0	29.6	35.0	40.6	46.0	55.6	775
	13.5	28.5	33.7	39.1	44.3	53.5	74.6
	14.0	27.5	32.5	37.7	42.7	51.6	72.0

DESIGN DATA						
L_u (mm)	1781	1739	1724	1711	1689	1636
L_{cr} (mm)	852	798	753	717	664	565
M_r (kN-m)	57.4	66.7	74.4	81.6	94.0	126
M_{rd} (kN-m)	48.1	56.9	66.0	74.8	90.3	126
V_r (kN)	67.2	95.9	132	161	212	341
D_e (kN-m ²)	473	529	584	634	719	928
P_{e1} (kN)	5.73	7.50	9.52	11.6	15.8	29.6
P_{e2} (kN)	2.01	2.63	3.33	4.08	5.53	10.4
P_{η} (kN)	17.7	23.5	30.1	37.0	50.7	96.5
P_{Ω} (kN)	2.48	3.29	4.21	5.18	7.09	13.5
F_{ya} (MPa)	373	389	393	397	403	418

NOTE: The inside bend radius was taken as 9.52 mm

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



C-SECTIONS (METRIC UNITS)

305 x 89 x 31.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		12.3	13.8	15.3	16.7	19.0	24.9
Span (m)	3.0	108	127	147	166	200	269
	3.5	92.7	109	126	143	171	231
	4.0	81.1	95.5	110	125	150	202
	4.5	72.1	84.9	98.2	111	133	179
	5.0	64.9	76.4	88.4	100	120	161
	5.5	59.0	69.5	80.3	90.7	109	147
	6.0	54.1	63.7	73.6	83.2	100	134
	6.5	49.9	58.8	68.0	76.8	92.3	124
	7.0	46.3	54.6	63.1	71.3	85.7	115
	7.5	43.2	50.9	58.9	66.5	80.0	108
	8.0	40.5	47.8	55.2	62.4	75.0	101
	8.5	38.2	44.9	52.0	58.7	70.5	94.9
	9.0	36.0	42.5	49.1	55.4	66.6	89.7
	9.5	34.1	40.2	46.5	52.5	63.1	84.9
	10.0	32.4	38.2	44.2	49.9	60,0	80.7
	10.5	30.9	36.4	42.1	47.5	57.1	76.8
	11.0	29.5	34.7	40.2	45.4	54.5	73.4
	11.5	28.2	33.2	38.4	43.4	52.1	70.2
	12.0	27.0	31.8	36.8	41.6	50.0	67.2
	12.5	25.9	30.6	35.3	39.9	48.0	64.6
	13.0	24.9	29.4	34.0	38.4	46.1	62.1
	13.5	24.0	28.3	32.7	37.0	44.4	59.8
	14.0	23.2	27.3	31.6	35.6	42.8	57.6

DESIGN DATA						
L_u (mm)	1808	1766	1752	1739	1718	1669
L_{cr} (mm)	819	768	724	689	638	542
M_r (kN-m)	46.2	53.7	59.9	65.6	75.5	101
M_{rd} (kN-m)	40.5	47.8	55.2	62.4	75.0	101
V_r (kN)	79.4	109	135	161	212	287
D_e (kN-m ²)	327	365	402	437	495	637
P_{e1} (kN)	5.85	7.65	9.70	11.9	16.1	30
P_{e2} (kN)	2.05	2.68	3.39	4.15	5.62	10.5
P_{η} (kN)	17.9	23.7	30.3	37.3	51.0	97.1
P_{Ω} (kN)	2.50	3.31	4.24	5.22	7.15	13.6
F_{ya} (MPa)	389	393	393	397	403	418

254 x 89 x 31.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		11.1	12.4	13.8	15.0	17.1	22.3
Span(m)	3.0	87.6	103	119	133	156	208
	3.5	75.1	88.2	102	114	134	178
	4.0	65.7	77.2	88.9	100	117	156
	4.5	58.4	68.6	79.0	89.0	104	138
	5.0	52.6	61.7	71.1	80.1	93.5	125
	5.5	47.8	56.1	64.7	72.8	85.0	113
	6.0	43.8	51.4	59.3	66.7	77.9	104
	6.5	40.5	47.5	54.7	61.6	71.9	95.8
	7.0	37.6	44.1	50.8	57.2	66.8	89.0
	7.5	35.1	41.2	47.4	53.4	62.3	83.1
	8.0	32.9	38.6	44.5	50.0	58.5	77.9
	8.5	30.9	36.3	41.8	47.1	55.0	73.3
	9.0	29.2	34.3	39.5	44.5	52.0	69.2
	9.5	27.7	32.5	37.4	42.1	49.2	65.6
	10.0	26.3	30.9	35.6	40.0	46.8	63.3
	10.5	25.0	29.4	33.9	38.1	44.5	59.3
	11.0	23.9	28.1	32.3	36.4	42.5	56.6
	11.5	22.9	26.8	30.9	34.8	40.7	54.2
	12.0	21.9	25.7	29.6	33.4	39.0	51.9
	12.5	21.0	24.7	28.4	32.0	37.4	49.8
	13.0	20.2	23.7	27.4	30.8	36.0	47.9
	13.5	19.5	22.9	26.3	29.7	34.6	46.1
	14.0	18.8	22.0	25.4	28.6	33.4	44.5

DESIGN DATA						
L_u (mm)	1839	1798	1784	1772	1753	1710
L_{cr} (mm)	782	733	692	658	609	517
M_r (kN-m)	35.9	41.7	46.5	50.9	58.7	77.9
M_{rd} (kN-m)	32.9	38.6	44.5	50.0	58.5	77.9
V_r (kN)	86.2	109	135	156	178	234
D_e (kN-m ²)	212	236	260	282	319	410
P_{e1} (kN)	5.98	7.81	9.89	12.1	16.3	30.5
P_{e2} (kN)	2.09	2.73	3.46	4.22	5.72	10.7
P_{η} (kN)	18.1	23.9	30.6	37.6	51.4	97.8
P_{Ω} (kN)	2.53	3.35	4.28	5.27	7.20	13.7
F_{ya} (MPa)	373	389	393	397	403	418

NOTE: The inside bend radius was taken as 9.52 mm

[illegible]

DESIGN DATA						
L_u (mm)	1449	1439	1430	1422	1411	1390
L_{cr} (mm)	509	477	449	427	394	333
M_r (kN-m)	16.1	18.1	20.1	21.9	25.1	33.0
M_{rd} (kN-m)	16.1	18.1	20.1	21.9	25.1	33.0
V_r (kN)	67.4	75.4	83.3	90.6	103	134
D_{ϵ} (kN-m ²)	53.9	59.9	65.8	71.1	79.9	101
P_{e1} (kN)	6.66	8.82	10.9	13.2	17.72	32.7
P_{e2} (kN)	2.33	3.02	3.80	4.62	6.20	11.4
P_{η} (kN)	20.8	27.2	34.5	42.1	57.0	106
P_{i2} (kN)	2.91	3.81	4.82	5.89	7.98	14.9
F_{cm} (MPa)	393	398	402	407	414	432

NOTE: The inside bend radius was taken as 6.35 mm

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



C-SECTION PROPERTIES (METRIC UNITS)

	Gross												Effective	
	t	Mass	A	S _x x 10 ³	r _x	I _y x 10 ⁶	r _y	J x 10 ³	C _w x 10 ⁹	j	x _o	r _o	S _{xe} x 10 ³	I _{xe} x 10 ⁶
D x B x L	(mm)	(kg/m)	(mm ²)	(mm ³)	(mm)	(mm ⁴)	(mm)	(mm ⁴)	(mm ⁶)	(mm)	(mm)	(mm)	(mm ³)	(mm ⁴)
406 x 89 x 31.8	3.05	14.8	1879	207	150	1.74	30.4	5.82	61.9	254	54.0	162	189	41.2
	3.43	16.6	2108	231	149	1.93	1.13	8.26	68.6	255	53.7	161	217	46.5
	3.81	18.3	2335	255	149	2.11	1.13	11.3	75.0	256	53.3	161	245	51.8
	4.17	20.0	2546	277	149	2.27	1.13	14.7	80.3	257	52.9	161	271	56.3
	4.78	22.8	2904	315	148	2.54	1.13	22.1	90.3	259	52.3	160	314	63.9
	6.35	29.9	3813	407	147	3.17	28.8	51.3	112	263	50.8	158	407	82.7
356 x 89 x 31.8	3.05	13.5	1724	171	133	1.68	31.2	5.34	46.2	210	57.6	148	171	30.4
	3.43	15.2	1934	191	132	1.86	31.0	7.58	51.1	210	57.2	148	191	33.9
	3.81	16.8	2141	211	132	2.04	30.8	10.4	55.9	211	56.8	147	211	37.4
	4.17	18.3	2334	229	132	2.19	30.7	13.5	60.2	211	56.4	147	229	40.7
	4.78	20.9	2661	259	132	2.45	30.4	20.2	67.3	212	55.8	146	259	46.1
	6.35	27.4	3491	335	131	3.05	29.6	46.9	83.5	215	54.2	145	335	59.5
305 x 89 x 31.8	3.05	12.3	1570	138	116	1.61	32.0	4.86	33.1	172	61.7	135	138	21.0
	3.43	13.8	1759	154	115	1.78	31.8	6.90	36.6	172	61.3	134	154	23.4
	3.81	15,3	1948	169	115	1.95	31.6	9.42	40.0	173	60.9	134	169	25.8
	4.17	16.7	2122	184	115	2.10	31.4	12.3	43.1	173	60.5	134	184	28.0
	4.78	19.0	2419	208	115	2.35	31.1	18.4	48.1	173	59.8	133	208	31.7
	6.35	24.9	3168	268	114	2.92	30.4	42.6	59.6	175	58.1	131	268	40.9
254 x 89 x 31.8	3.05	11.1	1415	107	98.0	1.52	32.7	4.38	22.6	142	66.5	123	107	13.6
	3.43	12.4	1585	119	97.8	1.68	32.6	6.21	24.9	142	66.1	122	119	15.2
	3.81	13.8	1754	131	97.5	1.84	32.4	8.49	27.2	142	65.7	122	131	16.7
	4.17	15.0	1911	143	97.3	1.98	32.2	11.1	29.3	142	65.3	122	143	18.1
	4.78	17.1	2176	161	97.0	2.22	31.9	16.5	32.6	142	64.6	121	161	20.5
	6.35	22.3	2845	207	96.1	2.76	31.1	38.2	40.3	142	62.9	119	207	26.3
203 x 70 x 25.4	3.05	8.80	1122	67.2	78.0	0.730	25.5	3.47	6.84	112	51.5	96.9	67.2	6.83
	3.43	9.86	1255	74.8	77.8	0.806	25.3	4.92	7.53	112	51.1	96.5	74.8	7.60
	3.81	10.9	1388	82.3	77.6	0.878	25.2	6.72	8.18	112	50.7	96.0	82.3	8.36
	4.17	11.9	1510	89.1	77.4	0.942	25.0	8.74	8.75	112	50.3	95.6	89.1	9.05
	4.78	13.5	1717	100	77.1	1.05	24.7	13.1	9.67	112	49.6	94.9	100	10.2
	6.35	17.5	2235	128	76.2	1.28	23.9	30.0	11.7	113	47.9	93.1	128	13.0
152 x 70 x 25.4	3.05	7.59	967	45.4	59.8	0.662	26.2	2.99	3.83	90.0	57.4	86.9	45.4	3.46
	3.43	8.49	1081	50.5	59.6	0.730	26.0	4.24	4.21	89.8	56.9	86.4	50.5	3.84
	3.81	9.38	1194	55.4	59.4	0.735	25.8	5.78	4.56	89.6	56.5	86.0	55.4	4.22
	4.17	10.2	1299	59.8	59.3	0.853	25.6	7.51	4.87	89.4	56.1	85.5	59.8	4.56
	4.78	11.6	1475	67.2	58.9	0.947	25.3	11.2	5.37	89.1	55.4	84.8	67.2	5.12
	6.35	15.0	1912	84.8	58.1	1.16	24.6	25.7	6.43	88.4	53.6	82.8	84.8	6.47

NOTE: The inside bend radius was taken as 9.52 mm for the 89mm flanges and 6.35mm for the 70mm flanges

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



CHANNEL SECTIONS (IMPERIAL UNITS)

16 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		7.96	8.94	9.91	10.8	12.4	16.3
Span (ft)	15	13.8	16.5	19.3	21.7	25.6	42.8
	16	12.9	15.5	18.1	20.4	24.0	40.2
	17	12.2	14.6	17.0	19.2	22.6	37.8
	18	11.5	13.5	16.1	18.1	21.4	35.7
	19	10.9	13.0	15.2	17.2	20.2	33.8
	20	10.3	12.4	14.5	16.3	19.2	32.1
	21	9.84	11.8	13.8	15.5	18.3	30.6
	22	9.39	11.3	13.2	14.8	17.5	29.2
	23	8.99	10.8	12.6	14.2	16.7	27.9
	24	8.61	10.3	12.1	13.6	16.0	26.8
	25	8.27	9.91	11.6	13.0	15.4	25.7
	26	7.95	9.53	11.1	12.5	14.8	24.7
	27	7.65	9.18	10.7	12.1	14.2	23.8
	28	7.38	8.85	10.3	11.6	13.7	22.9
	29	7.13	8.54	9.99	11.2	13.3	22.2
	30	6.89	8.26	9.65	10.9	12.8	21.4
	31	6.67	7.99	9.34	10.5	12.4	20.7
	32	6.46	7.74	9.05	10.2	12.0	20.1
	33	6.26	7.51	8.78	9.88	11.7	19.5
	34	6.08	7.29	8.52	9.59	11.3	18.9
	35	5.90	7.08	8.27	9.32	11.0	18.4
	36	5.74	6.88	8.04	9.06	10.7	17.8
	37	5.59	6.70	7.83	8.81	10.4	17.4
	38	5.44	6.52	7.62	8.58	10.1	16.9
	39	5.30	6.35	7.43	8.36	9.86	16.5
	40	5.17	6.19	7.24	8.15	9.62	16.1

DESIGN DATA						
L_v (in.)	29.7	29.7	29.6	29.5	29.4	25.8
M_r (kip-in.)	310	372	434	489	577	964
V_r (kip)	12.9	18.4	25.2	33.1	47.6	84.1
D_c (lb-ft ²)	1016	1164	1306	1425	1621	2112
P_{e1} (kip)	1.33	1.74	2.21	2.70	3.65	6.81
P_{e2} (kip)	0.467	0.610	0.773	0.943	1.28	2.39
P_n (kip)	4.44	5.82	7.40	9.05	12.3	23.1
P_{12} (kip)	0.621	0.815	1.04	1.27	1.72	3.23
F_{ya} (ksi)	50.0	50.0	50.0	50.0	50.0	63.7

14 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		7.14	8.02	8.89	9.7	11.1	14.6
Span (ft)	15	11.7	14.0	16.2	18.2	25.4	34.4
	16	11.0	13.1	15.2	17.1	23.8	32.3
	17	10.3	12.3	14.3	16.1	22.4	30.4
	18	9.77	11.6	13.5	15.2	21.2	28.7
	19	9.25	11.0	12.8	14.4	20.0	27.2
	20	8.79	10.5	12.2	13.6	19.0	25.8
	21	8.37	9.98	11.6	13.0	18.1	24.6
	22	7.99	9.53	11.1	12.4	17.3	23.5
	23	7.64	9.11	10.6	11.9	16.6	22.5
	24	7.32	8.73	10.2	11.4	15.9	21.5
	25	7.03	8.39	9.75	10.9	15.2	20.7
	26	6.76	8.06	9.37	10.5	14.6	19.9
	27	6.51	7.76	9.03	10.1	14.1	19.1
	28	6.28	7.49	8.70	9.75	13.6	18.4
	29	6.06	7.23	8.40	9.41	13.1	17.8
	30	5.86	6.99	8.12	9.10	12.7	17.2
	31	5.67	6.76	7.86	8.81	12.3	16.7
	32	5.49	6.55	7.62	8.53	11.9	16.1
	33	5.33	6.35	7.39	8.27	11.5	15.7
	34	5.17	6.17	7.17	8.03	11.2	15.2
	35	5.02	5.99	6.96	7.80	10.9	14.8
	36	4.88	5.82	6.77	7.58	10.6	14.3
	37	4.75	5.67	6.59	7.38	10.3	14.0
	38	4.63	5.52	6.41	7.18	10.0	13.6
	39	4.51	5.38	6.25	7.00	9.77	13.2
	40	4.39	5.24	6.09	6.82	9.52	12.9

DESIGN DATA						
L_v (in.)	30.5	30.5	30.4	30.4	27.3	26.6
M_r (kip-in.)	264	315	366	410	571	775
V_r (kip)	14.8	21.1	29.1	36.2	47.6	78.0
D_c (lb-ft ²)	735	836	924	1006	1143	1486
P_{e1} (kip)	1.36	1.77	2.25	2.74	3.70	6.90
P_{e2} (kip)	0.476	0.621	0.786	0.959	1.30	2.42
P_n (kip)	4.48	5.87	7.45	9.12	12.4	23.2
P_{12} (kip)	0.627	0.821	1.04	1.28	1.73	3.25
F_{ya} (ksi)	50.0	50.0	50.0	50.0	61.1	63.7

NOTE: The inside bend radius was taken as 0.25 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



CHANNEL SECTIONS (IMPERIAL UNITS)

12 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		6.33	7.10	7.87	8.59	9.81	12.9
Span (ft)	15	9.67	11.4	13.1	15.8	19.9	26.9
	16	9.06	10.7	12.3	14.8	18.6	25.2
	17	8.53	10.1	11.6	13.9	17.5	23.7
	18	8.06	9.54	10.9	13.1	16.6	22.4
	19	7.63	9.04	10.3	12.5	15.7	21.2
	20	7.25	8.59	9.82	11.8	14.9	20.2
	21	6.90	8.18	9.35	11.3	14.2	19.2
	22	6.59	7.81	8.93	10.8	13.6	18.3
	23	6.30	7.47	8.54	10.3	13.0	17.5
	24	6.04	7.15	8.18	9.86	12.4	16.8
	25	5.80	6.87	7.86	9.46	11.9	16.1
	26	5.58	6.60	7.55	9.10	11.5	15.5
	27	5.37	6.36	7.27	8.76	11.0	14.9
	28	5.18	6.13	7.01	8.45	10.7	14.4
	29	5.00	5.92	6.77	8.16	10.3	13.9
	30	4.83	5.72	6.55	7.89	9.94	13.4
	31	4.68	5.54	6.33	7.63	9.62	13.0
	32	4.53	5.37	6.14	7.39	9.32	12.6
	33	4.39	5.20	5.95	7.17	9.04	12.2
	34	4.26	5.05	5.78	6.96	8.77	11.9
	35	4.14	4.91	5.61	6.76	8.52	11.5
	36	4.03	4.77	5.45	6.57	8.28	11.2
	37	3.92	4.64	5.31	6.39	8.06	10.9
	38	3.82	4.52	5.17	6.23	7.85	10.6
	39	3.72	4.40	5.04	6.07	7.65	10.3
	40	3.62	4.29	4.91	5.91	7.46	10.1

DESIGN DATA						
L_v (in.)	31.3	31.3	31.3	29.8	28.2	27.5
M_r (kip-in.)	218	258	295	355	447	605
V_r (kip)	17.4	24.5	30.3	36.2	47.6	66.0
D_c (lb-ft ²)	500	563	622	676	767	994
P_{e1} (kip)	1.39	1.81	2.29	2.79	3.76	6.99
P_{e2} (kip)	0.486	0.633	0.801	0.975	1.32	2.45
P_n (kip)	4.52	5.92	7.52	9.19	12.5	23.4
P_{12} (kip)	0.632	0.828	1.05	1.29	1.75	3.27
F_{ya} (ksi)	50.0	50.0	50.0	55.0	61.1	63.7

10 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		5.51	6.18	6.85	7.47	8.53	11.2
Span (ft)	15	7.63	8.75	9.88	11.9	14.7	20.2
	16	7.15	8.21	9.26	11.2	13.8	18.9
	17	6.73	7.72	8.72	10.5	13.0	17.8
	18	6.36	7.29	8.23	9.92	12.3	16.8
	19	6.02	6.91	7.80	9.40	11.6	15.9
	20	5.72	6.57	7.41	8.93	11.1	15.1
	21	5.45	6.25	7.06	8.50	10.5	14.4
	22	5.20	5.97	6.74	8.12	10.1	13.8
	23	4.97	5.71	6.44	7.76	9.61	13.2
	24	4.77	5.47	6.18	7.44	9.21	12.6
	25	4.58	5.25	5.93	7.14	8.85	12.1
	26	4.40	5.05	5.70	6.87	8.51	11.7
	27	4.24	4.86	5.49	6.61	8.19	11.2
	28	4.09	4.69	5.29	6.38	7.90	10.8
	29	3.94	4.53	5.11	6.16	7.63	10.4
	30	3.81	4.38	4.94	5.95	7.37	10.1
	31	3.69	4.24	4.78	5.76	7.13	9.77
	32	3.57	4.10	4.63	5.58	6.91	9.47
	33	3.47	3.98	4.49	5.41	6.70	9.18
	34	3.36	3.86	4.36	5.25	6.50	8.91
	35	3.27	3.75	4.24	5.10	6.32	8.66
	36	3.18	3.65	4.12	4.96	6.14	8.41
	37	3.09	3.55	4.01	4.83	5.98	8.19
	38	3.01	3.46	3.90	4.70	5.82	7.97
	39	2.93	3.37	3.80	4.58	5.67	7.77
	40	2.86	3.28	3.71	4.46	5.53	5.57

DESIGN DATA						
L_v (in.)	32.2	32.2	32.2	30.7	29.3	28.5
M_r (kip-in.)	172	197	222	268	332	454
V_r (kip)	19.4	24.5	30.3	36.1	41.2	54.0
D_c (lb-ft ²)	315	355	391	425	482	622
P_{e1} (kip)	1.42	1.85	2.33	2.84	3.83	7.10
P_{e2} (kip)	0.497	0.646	0.816	0.993	1.34	2.48
P_n (kip)	4.56	5.97	7.58	9.27	12.6	23.5
P_{12} (kip)	0.639	0.836	1.06	1.30	1.76	3.29
F_{ya} (ksi)	50.0	50.0	50.0	55.0	60.1	63.7

NOTE: The inside bend radius was taken as 0.25 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



CHANNEL SECTIONS (IMPERIAL UNITS)

8 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		4.69	5.26	5.83	6.35	7.25	9.51
Span (ft)	10	8.15	9.38	10.6	12.8	16.1	21.5
	11	7.41	8.53	9.64	11.6	14.6	19.6
	12	6.79	7.82	8.84	10.7	13.4	17.9
	13	6.27	7.22	8.16	9.83	12.4	16.6
	14	5.82	6.70	7.58	9.13	11.5	15.4
	15	5.44	6.25	7.07	8.52	10.7	14.4
	16	5.10	5.86	6.63	7.99	10.0	13.5
	17	4.80	5.52	6.24	7.52	9.45	12.7
	18	4.53	5.21	5.89	7.10	8.92	12.0
	19	4.29	4.94	5.58	6.73	8.45	11.3
	20	4.08	4.69	5.30	6.39	8.03	10.8
	21	3.88	4.47	5.05	6.09	7.65	10.3
	22	3.71	4.26	4.82	5.81	7.30	9.78
	23	3.54	4.08	4.61	5.56	6.98	9.36
	24	3.40	3.91	4.42	5.33	6.69	8.97
	25	3.26	3.75	4.24	5.11	6.42	8.61
	26	3.14	3.61	4.08	4.92	6.18	8.28
	27	3.02	3.47	3.93	4.73	5.95	7.97
	28	2.91	3.35	3.79	4.56	5.73	7.69
	29	2.81	3.23	3.66	4.41	5.54	7.42
	30	2.72	3.13	3.54	4.26	5.35	7.18

DESIGN DATA						
L_v (in.)	33.1	33.1	33.2	31.6	30.0	29.7
M_r (kip-in.)	122	141	159	192	241	323
V_r (kip)	19.4	23.4	25.9	28.2	32.1	42.0
D_c (lb-ft ²)	181	204	224	243	275	354
P_{e1} (kip)	1.46	1.89	2.38	2.90	3.90	7.21
P_{e2} (kip)	0.509	0.661	0.834	1.01	1.36	2.52
P_n (kip)	4.61	6.03	7.66	9.35	12.7	23.7
P_{i2} (kip)	0.646	0.845	1.07	1.31	1.77	3.32
F_{ya} (ksi)	50.0	50.0	50.0	55.0	61.1	63.7

6 x 2.00							
Thickness (in.)		0.120	0.135	0.150	0.164	0.188	0.250
Weight (lb/ft)		3.88	4.34	4.81	5.24	5.97	7.81
Span (ft)	5	10.7	12.3	14.0	16.8	12.1	28.1
	6	8.91	10.3	11.7	14.0	17.6	23.4
	7	7.64	8.82	10.0	12.0	15.1	20.1
	8	6.69	7.71	8.74	10.5	13.2	17.5
	9	5.94	6.86	7.77	9.36	11.7	15.6
	10	5.35	6.17	6.99	8.42	10.6	14.0
	11	4.86	5.61	6.36	7.66	9.59	12.8
	12	4.46	5.14	5.83	7.02	8.79	11.7
	13	4.11	4.75	5.38	6.48	8.12	10.8
	14	3.82	4.41	5.00	6.02	7.54	10.0
	15	3.57	4.11	4.66	5.62	7.04	9.36
	16	3.34	3.86	4.37	5.72	6.60	8.77
	17	3.15	3.63	4.11	4.96	6.21	8.26
	18	2.97	3.43	3.89	4.68	5.86	7.80
	19	2.81	3.25	3.68	4.43	5.55	7.39
	20	2.67	3.09	3.50	4.21	5.28	7.02
	21	2.55	2.94	3.33	4.01	5.03	6.68
	22	2.43	2.81	3.18	3.83	4.80	6.38
	23	2.33	2.68	3.04	3.66	4.59	6.10
	24	2.23	2.57	2.91	3.51	4.40	5.85
	25	2.14	2.47	2.80	3.37	4.22	5.61

DESIGN DATA						
L_v (in.)	33.9	34.1	34.3	32.7	31.2	31.4
M_r (kip-in.)	80.2	92.6	105	126	158	211
V_r (kip)	15.1	16.9	18.7	20.4	23.1	30.0
D_c (lb-ft ²)	89.9	101	111	120	136	173
P_{e1} (kip)	1.50	1.94	2.44	2.96	3.98	7.34
P_{e2} (kip)	0.523	0.678	0.854	1.04	1.39	2.57
P_n (kip)	4.67	6.11	7.74	9.45	12.8	23.9
P_{i2} (kip)	0.654	0.855	1.08	1.32	1.79	3.35
F_{ya} (ksi)	50.0	50.0	50.0	55.0	61.1	63.7

NOTE: The inside bend radius was taken as 0.25 in.

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kips)
(For Laterally Supported Single Span)



CHANNEL SECTIONS PROPERTIES (IMPERIAL UNITS)

	Gross												Effective	
D x B	t	Weight	A	S _x	r _x	I _y	r _y	J	C _w	j	x _o	r _o	S _{xe}	I _{xd}
	(in.)	(lb/ft)	(in ²)	(in ³)	(in.)	(in ⁴)	(in.)	(in ⁴)	(in ⁶)	(in.)	(in.)	(in.)	(in ³)	(in ⁴)
16 x 2.00	0.120	7.96	2.34	8.42	5.37	0.496	0.461	0.0112	25.1	16.3	0.600	5.42	6.89	64.7
	0.135	8.94	2.63	9.43	5.36	0.552	0.459	0.0160	27.9	16.3	0.600	5.41	8.26	74.2
	0.150	9.91	2.91	10.4	5.35	0.607	0.456	0.0219	30.6	16.3	0.600	5.40	9.65	83.2
	0.164	10.8	3.18	11.4	5.34	0.656	0.454	0.0285	33.1	16.4	0.590	5.40	10.9	90.8
	0.188	12.4	3.63	12.9	5.33	0.739	0.451	0.0428	37.2	16.4	0.590	5.38	12.8	103
	0.250	16.3	4.79	16.8	5.30	0.936	0.442	0.100	46.8	16.5	0.570	5.35	16.8	134
14 x 2.00	0.120	7.14	2.10	6.80	4.76	0.486	0.481	0.0101	18.5	12.6	0.660	4.83	5.86	46.8
	0.135	8.02	2.36	7.61	4.76	0.541	0.479	0.0143	20.6	12.7	0.650	4.82	6.99	53.3
	0.150	8.89	2.61	8.41	4.75	0.594	0.477	0.0196	22.5	12.7	0.650	4.82	8.12	58.9
	0.164	9.70	2.85	9.15	4.74	0.643	0.475	0.0256	24.4	12.7	0.650	4.81	9.10	64.0
	0.188	11.1	3.26	10.4	4.73	0.724	0.471	0.0384	27.3	12.7	0.640	4.79	10.4	72.8
	0.250	14.6	4.29	13.5	4.69	0.917	0.462	0.0895	34.4	12.7	0.630	4.76	13.5	94.6
12 x 2.00	0.120	6.33	1.86	5.34	4.15	0.474	0.505	0.0089	13.0	9.50	0.720	4.25	4.83	31.9
	0.135	7.10	2.09	5.98	4.14	0.527	0.503	0.0127	14.4	9.51	0.720	4.24	5.72	35.8
	0.150	7.87	2.31	6.60	4.14	0.579	0.500	0.0174	15.8	9.51	0.720	4.23	6.55	39.6
	0.164	8.59	2.52	7.17	4.13	0.626	0.498	0.0226	17.0	9.51	0.710	4.22	7.17	43.0
	0.188	9.81	2.88	8.14	4.12	0.705	0.495	0.0340	19.1	9.52	0.710	4.21	8.14	48.8
	0.250	12.9	3.79	10.6	4.09	0.893	0.485	0.0791	24.0	9.53	0.690	4.17	10.6	63.3
10 x 2.00	0.120	5.51	1.62	4.04	3.53	0.457	0.531	0.0078	8.47	6.89	0.800	3.66	2.81	20.1
	0.135	6.18	1.82	4.52	3.53	0.509	0.529	0.0110	9.40	6.89	0.800	3.65	4.38	22.6
	0.150	6.85	2.01	4.98	3.52	0.559	0.527	0.0151	10.3	6.89	0.800	3.65	4.94	24.9
	0.164	7.47	2.2	5.41	3.51	0.605	0.525	0.0197	11.1	6.89	0.790	3.64	5.41	27.1
	0.188	8.53	2.51	6.14	3.50	0.680	0.521	0.0295	12.5	6.88	0.790	3.62	6.14	30.7
	0.250	11.2	3.29	7.93	3.47	0.862	0.512	0.0686	15.6	6.87	0.770	3.59	7.93	39.6
8 x 2.00	0.120	4.69	1.38	2.90	2.90	0.435	0.562	0.0066	5.01	4.81	0.910	3.09	2.72	11.5
	0.135	5.26	1.55	3.24	2.89	0.484	0.559	0.0094	5.56	4.80	0.900	3.08	3.13	13.0
	0.150	5.83	1.71	3.57	2.89	0.532	0.557	0.0129	6.08	4.80	0.900	3.08	3.54	14.3
	0.164	6.35	1.87	3.87	2.88	0.575	0.555	0.0167	6.56	4.79	0.890	3.07	3.87	15.5
	0.188	7.25	2.13	4.38	2.87	0.647	0.551	0.0251	7.34	4.78	0.890	3.05	4.38	17.5
	0.250	9.51	2.79	5.63	2.84	0.820	0.542	0.0582	9.17	4.75	0.870	3.02	5.63	22.5
6 x 2.00	0.120	3.88	1.14	1.92	2.25	0.404	0.595	0.005	2.53	3.25	1.04	2.55	1.78	5.72
	0.135	4.34	1.28	2.14	2.24	0.449	0.593	0.0078	2.80	3.24	1.04	2.54	2.06	6.43
	0.150	4.81	1.41	2.36	2.24	0.493	0.591	0.0106	3.06	3.24	1.03	2.53	2.33	7.07
	0.164	5.24	1.54	2.55	2.23	0.533	0.589	0.0138	3.30	3.23	1.03	2.53	2.55	7.66
	0.188	5.97	1.75	2.88	2.22	0.600	0.585	0.0207	3.68	3.21	1.02	2.51	2.88	8.64
	0.250	7.81	2.29	3.67	2.19	0.759	0.575	0.0478	4.57	3.17	1.01	2.48	3.67	11.0

NOTE: The inside bend radius was taken as 0.25 in

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



CHANNEL SECTIONS (METRIC UNITS)

406 x 50.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		11.9	13.3	14.8	16.1	18.4	24.3
Span (m)	3.0	93.5	112	131	148	174	291
	3.5	80.2	96.1	112	126	149	250
	4.0	70.1	84.1	98.2	111	130	218
	4.5	62.3	74.7	87.3	98.4	116	194
	5.0	56.1	67.3	78.6	88.5	104	175
	5.5	51.0	61.1	71.5	80.5	94.4	159
	6.0	46.8	56.0	65.5	73.8	87.0	146
	6.5	43.2	51.7	60.5	68.1	80.3	134
	7.0	40.1	48.0	56.1	63.2	74.5	125
	7.5	37.4	44.8	52.4	59.0	69.6	116
	8.0	35.1	42.0	49.1	55.3	65.2	109
	8.5	33.0	39.6	46.2	52.1	61.4	103
	9.0	31.2	37.4	43.7	49.2	58.0	97.1
	9.5	29.5	35.4	41.4	46.6	54.9	92.0
	10.0	28.1	33.6	39.3	44.3	52.2	87.4
	10.5	26.7	32.0	37.4	42.2	49.7	83.2
	11.0	25.5	30.6	35.7	40.2	47.4	79.4
	11.5	24.4	29.2	34.2	38.5	45.4	76.0
	12.0	23.4	28.0	32.7	36.9	43.5	72.8
	12.5	22.4	26.9	31.4	35.4	41.7	69.9
	13.0	21.6	25.9	30.2	34.0	40.1	67.2
	13.5	20.8	24.9	29.1	32.8	38.7	64.7
	14.0	20.0	24.0	28.1	31.6	37.3	62.4

DESIGN DATA						
L_v (mm)	755	753	751	750	747	654
M_r (kN-m)	35.1	42.0	49.1	55.3	65.2	109
V_r (kN)	57.3	81.7	112	147	212	374
D_e (kN-m ²)	419	481	539	589	670	873
P_{e1} (kN)	5.94	7.76	9.83	12.0	16.2	30.3
P_{e2} (kN)	2.08	2.72	3.44	4.20	5.68	10.6
P_{r1} (kN)	19.8	25.9	32.9	40.3	54.7	103
P_{r2} (kN)	2.77	3.63	4.61	5.64	7.66	14.4
F_y (MPa)	345	345	345	345	345	441

356 x 50.8							
Thickness (mm)		3.05	3.43	3.81	4.17	4.78	6.35
Mass (kg/m)		10.6	11.9	13.2	14.4	16.5	21.8
Span(m)	3.0	79.5	94.8	110	123	173	234
	3.5	68.2	81.3	94.5	106	148	201
	4.0	59.7	71.1	82.7	92.6	129	176
	4.5	53.0	63.2	73.5	82.3	115	156
	5.0	47.7	56.9	66.1	74.1	104	140
	5.5	43.4	51.7	60.1	67.4	94.2	128
	6.0	39.8	47.4	55.1	61.7	86.3	117
	6.5	36.7	43.8	50.9	57.0	79.7	108
	7.0	34.1	40.6	47.2	52.9	74.0	100
	7.5	31.8	37.9	44.1	49.4	69.0	93.7
	8.0	29.8	35.6	41.3	46.3	64.7	87.8
	8.5	28.1	33.5	38.9	43.6	60.9	82.6
	9.0	26.5	31.6	36.7	41.2	57.5	78.1
	9.5	25.1	29.9	34.8	39.0	54.5	73.9
	10.0	23.9	28.5	33.1	37.0	51.8	70.2
	10.5	22.7	27.1	31.5	35.3	49.3	66.9
	11.0	21.7	25.9	30.1	33.7	47.1	63.9
	11.5	20.7	24.7	28.8	32.2	45.0	61.1
	12.0	19.9	23.7	27.6	30.9	43.2	58.5
	12.5	19.1	22.8	26.5	29.6	41.4	56.2
	13.0	18.4	21.9	25.4	28.5	39.8	54.0
	13.5	17.7	21.1	24.5	27.4	38.4	52.0
	14.0	17.0	20.3	23.6	26.5	37.0	50.2

DESIGN DATA						
L_v (mm)	775	773	772	771	693	674
M_r (kN-m)	29.8	35.6	41.3	46.3	64.7	87.8
V_r (kN)	65.9	94.0	129	161	212	347
D_e (kN-m ²)	303	346	382	416	472	614
P_{e1} (kN)	6.06	7.90	10.0	12.2	16.5	30.7
P_{e2} (kN)	2.12	2.77	3.50	4.27	5.77	10.8
P_{r1} (kN)	19.9	26.1	33.2	40.6	55.1	103
P_{r2} (kN)	2.79	3.66	4.65	5.68	7.71	14.5
F_y (MPa)	345	345	345	345	422	441

NOTE: The inside bend radius was taken as 6.35 mm

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



CHANNEL SECTIONS (METRIC UNITS)

305 x 50.8							
Thickness (mm)	3.05	3.43	3.81	4.17	4.78	6.35	
Mass (kg/m)	9.42	10.6	11.7	12.8	14.6	19.2	
Span (m)	3.0	65.6	77.7	88.8	108	135	183
	3.5	56.2	66.6	76.1	92.3	116	157
	4.0	49.2	58.3	66.6	80.7	101	137
	4.5	43.7	51.8	59.2	71.8	90.1	122
	5.0	39.4	46.6	53.3	64.6	81.1	110
	5.5	35.8	42.4	48.4	58.7	73.7	100
	6.0	32.8	38.8	44.4	53.8	67.6	91.4
	6.5	30.3	35.8	41.0	49.7	62.4	84.4
	7.0	28.1	33.3	38.1	46.1	57.9	78.4
	7.5	26.2	31.1	35.5	43.1	54.1	73.1
	8.0	24.6	29.1	33.3	40.4	50.7	68.6
	8.5	23.2	27.4	31.3	38.0	47.7	64.5
	9.0	21.9	25.9	29.6	35.9	45.1	61.0
	9.5	20.7	24.5	28.0	34.0	42.7	57.7
	10.0	19.7	23.3	26.6	32.3	40.6	54.9
	10.5	18.7	22.2	25.4	30.3	38.6	52.2
	11.0	17.9	21.2	24.2	29.4	36.9	49.9
	11.5	17.1	20.3	23.2	28.1	35.3	47.7
	12.0	16.4	19.4	22.2	26.9	33.8	45.7
	12.5	15.7	18.6	21.3	25.8	32.4	43.9
	13.0	15.10	17.9	20.5	24.8	31.2	42.2
	13.5	14.60	17.3	19.7	23.9	30.0	40.6
	14.0	14.1	16.6	19.0	23.1	29.0	39.2

DESIGN DATA						
L_v (mm)	796	795	794	753	714	696
M_r (kN-m)	24.6	29.1	33.3	40.4	50.7	68.6
V_r (kN)	77.6	109	135	161	212	294
D_e (kN-m ²)	207	233	257	279	317	411
P_{e1} (kN)	6.19	8.05	10.2	12.4	16.8	31.1
P_{e2} (kN)	2.17	2.82	3.56	4.34	5.86	10.9
P_{f1} (kN)	20.1	26.3	33.5	40.9	55.5	104
P_{f2} (kN)	2.82	3.69	4.68	5.73	7.77	14.6
F_y (MPa)	345	345	345	382	422	441

254 x 50.8							
Thickness (mm)	3.05	3.43	3.81	4.17	4.78	6.35	
Mass (kg/m)	8.20	9.20	10.2	11.1	12.7	16.7	
Span (m)	3.0	51.7	59.4	67.0	81.3	102	137
	3.5	44.3	50.9	57.5	69.6	87.3	118
	4.0	38.8	44.5	50.3	60.9	76.4	103
	4.5	34.5	39.6	44.7	54.2	67.9	91.6
	5.0	31.0	35.6	40.2	48.8	61.1	82.4
	5.5	28.2	32.4	36.6	44.3	55.6	74.9
	6.0	25.9	29.7	33.5	40.6	50.9	68.7
	6.5	23.9	27.4	30.9	37.5	47.0	63.4
	7.0	22.2	25.5	28.7	34.8	43.7	58.9
	7.5	20.7	23.8	26.8	32.5	40.8	54.9
	8.0	19.4	22.3	25.1	30.5	38.2	51.5
	8.5	18.3	21.0	23.7	28.7	36.0	48.5
	9.0	17.2	19.8	22.3	27.1	34.0	45.8
	9.5	16.3	18.8	21.2	25.7	32.2	43.4
	10.0	15.5	17.8	20.1	24.4	30.6	41.2
	10.5	14.8	17.0	19.2	23.2	29.1	39.2
	11.0	14.1	16.2	18.3	22.2	27.8	37.5
	11.5	13.5	15.5	17.5	21.2	26.6	35.8
	12.0	12.9	14.8	16.8	20.3	25.5	34.3
	12.5	12.4	14.3	16.1	19.5	24.5	33.0
	13.0	11.9	13.7	15.5	18.8	23.5	31.7
	13.5	11.5	13.2	14.9	18.1	22.6	30.5
	14.0	11.1	12.7	14.4	17.4	21.8	29.4

DESIGN DATA						
L_v (mm)	818	817	817	776	737	722
M_r (kN-m)	19.4	22.3	25.1	30.5	38.2	51.5
V_r (kN)	86.2	109	135	161	183	240
D_e (kN-m ²)	130	147	162	176	199	257
P_{e1} (kN)	6.32	8.22	10.4	12.6	17.0	31.6
P_{e2} (kN)	2.21	2.88	3.63	4.42	5.96	11.1
P_{f1} (kN)	20.3	26.6	33.8	41.2	55.9	105
P_{f2} (kN)	2.84	3.72	4.73	5.77	7.83	14.7
F_y (MPa)	345	345	345	382	422	441

NOTE: The inside bend radius was taken as 6.35 mm

DESIGN DATA						
L_v (mm)	840	841	842	800	761	753
M_r (kN-m)	13.8	15.9	18.0	21.8	27.3	36.6
V_r (kN)	86.2	104	115	126	143	187
D_c (kN-m ²)	74.8	84.1	92.7	101	114	146
P_{e1} (kN)	6.48	8.41	10.6	12.9	17.4	32.1
P_{e2} (kN)	2.27	2.94	3.71	4.51	6.07	11.2
P_{i1} (kN)	20.5	26.9	34.1	41.6	56.4	106
P_{i2} (kN)	2.87	3.76	4.77	5.83	7.90	14.8
F_y (MPa)	345	345	345	382	422	441

DESIGN DATA						
L_v (mm)	862	865	870	828	791	796
M_r (kN-m)	9.07	10.5	11.9	14.4	17.9	23.9
V_r (kN)	67.4	75.4	83.3	90.6	103	134
D_e (kN-m ²)	37.1	41.7	45.9	49.7	56.1	71.5
P_{e1} (kN)	6.66	8.62	10.9	13.2	17.7	32.7
P_{e2} (kN)	2.33	3.02	3.80	4.62	6.20	11.4
P_{i1} (kN)	20.8	27.2	34.5	42.1	57.0	106
P_{i2} (kN)	2.91	3.81	4.82	5.89	7.98	14.9
F_y (MPa)	345	345	345	382	422	441

NOTE: The inside bend radius was taken as 6.35 mm

TOTAL UNIFORMLY DISTRIBUTED FACTORED LOAD TABLE (kN)
(For Laterally Supported Single Span)



CHANNEL SECTION PROPERTIES (METRIC UNITS)

	Gross												Effective	
D x B x L	t	Mass	A	S _x x 10 ³	r _x	I _y x 10 ⁶	r _y	J x 10 ³	C _w x 10 ⁹	j	x _o	r _o	S _{xe} x 10 ³	I _{xe} x 10 ⁶
(mm)	(mm)	(kg/m)	(mm ²)	(mm ³)	(mm)	(mm ⁴)	(mm)	(mm ⁴)	(mm ⁶)	(mm)	(mm)	(mm)	(mm ³)	(mm ⁴)
406 x 50.8	3.05	11.9	1509	138	136	0.207	11.7	4.67	6.75	414	15.3	138	113	26.9
	3.43	13.3	1695	155	136	0.230	11.6	6.64	7.50	414	15.3	138	135	30.9
	3.81	14.8	1879	171	136	0.253	11.6	9.09	8.23	415	15.2	137	158	34.6
	4.17	16.1	2051	186	136	0.273	11.5	11.9	8.89	415	15.1	137	178	37.8
	4.78	18.4	2344	212	135	0.307	11.5	17.8	9.98	416	15.0	137	210	43.0
	6.35	24.3	3093	276	135	0.390	11.2	41.6	12.6	419	14.6	136	275	56.0
356 x 50.8	3.05	10.6	1354	112	121	0.202	12.2	4.19	4.97	321	16.7	123	96.1	19.4
	3.43	11.9	1520	125	121	0.225	12.2	5.96	5.52	321	16.6	123	115	22.2
	3.81	13.2	1686	138	121	0.247	12.1	8.16	6.05	322	16.5	122	133	24.9
	4.17	14.4	1840	150	120	0.268	12.1	10.6	6.54	322	16.5	122	149	26.7
	4.78	16.5	2102	170	120	0.301	12.0	16.0	7.34	322	16.3	122	170	30.3
	6.35	21.8	2771	222	119	0.382	11.7	37.2	9.24	324	15.9	121	222	39.4
305 x 50.8	3.05	9.42	1200	87.6	106	0.197	12.8	3.71	3.48	241	18.4	108	79.2	13.3
	3.43	10.6	1346	97.7	105	0.219	12.8	5.28	3.86	242	18.3	108	93.8	14.9
	3.81	11.7	1492	108	105	0.241	12.7	7.22	4.24	242	18.2	107	107	16.5
	4.17	12.8	1628	118	105	0.261	12.7	9.42	4.57	242	18.1	107	118	17.9
	4.78	14.6	1859	113	105	0.293	12.6	14.1	5.13	242	18.0	107	133	20.3
	6.35	19.2	2443	173	104	0.372	12.3	32.9	6.45	242	17.6	106	173	26.4
254 x 50.8	3.05	8.20	1045	66.3	89.9	0.190	13.5	3.24	2.27	175	20.4	93.0	62.5	8.36
	3.43	9.20	1172	74.0	89.6	0.212	13.4	4.59	2.52	175	20.3	92.8	71.7	9.40
	3.81	10.2	1299	81.7	89.4	0.233	13.4	6.28	2.77	175	20.2	92.6	81.0	10.4
	4.17	11.1	1416	88.7	89.2	0.252	13.3	8.19	2.98	175	20.1	92.4	88.7	11.3
	4.78	12.7	1617	101	88.9	0.283	13.2	12.3	3.34	175	20.0	92.1	101	12.8
	6.35	16.7	2125	130	88.1	0.359	13.0	28.6	4.19	175	19.6	91.2	130	16.5
203 x 50.8	3.05	6.99	890	47.6	73.7	0.181	14.3	2.76	1.35	122	23.0	78.5	44.5	4.80
	3.43	7.83	998	53.1	73.5	0.202	14.2	3.91	1.49	122	22.9	78.3	51.2	5.39
	3.81	8.68	1105	58.5	73.3	0.221	14.2	5.35	1.63	122	22.8	78.1	57.9	5.94
	4.17	9.46	1205	63.5	73.2	0.239	14.1	6.97	1.76	122	22.7	77.9	63.5	6.45
	4.78	10.8	1374	71.8	72.9	0.269	14.0	10.4	1.97	121	22.6	77.6	71.8	7.30
	6.35	14.2	1803	92.3	72.1	0.341	13.8	24.2	2.46	121	22.1	76.7	92.3	9.38
152 x 50.8	3.05	5.77	735	31.5	57.2	0.168	15.1	2.28	0.680	82.7	26.5	64.8	29.2	2.38
	3.43	6.47	824	35.1	57.0	0.187	15.1	3.23	0.750	82.4	26.4	64.6	33.7	2.68
	3.81	7.16	912	38.6	56.8	0.205	15.0	4.41	0.820	82.2	26.3	64.4	38.2	2.94
	4.17	7.80	993	41.9	56.7	0.222	14.9	5.74	0.890	81.9	26.2	64.2	41.8	3.19
	4.78	8.88	1131	47.2	56.4	0.250	14.9	8.60	0.990	81.5	26.0	63.8	47.2	3.60
	6.35	11.6	1480	60.2	55.7	0.316	14.6	19.9	1.23	80.5	25.5	63.0	60.2	4.59

NOTE: The inside bend radius was taken as 6.35 mm