

SECTION DIMENSIONS & PROPERTIES

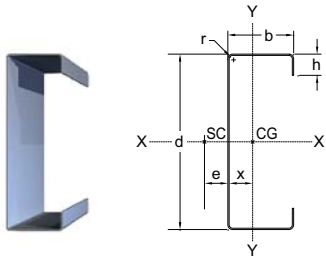
IMPERIAL

| SECTION | DIMENSIONS | | | | | PROPERTIES | | | | | | | | | |
|---------|------------------|--------------|---------------|--------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|-----------------------------------|-----------------------------------|------------------------------|----------------------|-----------------|-----------------------------|-----------------------------------|
| | Depth of Section | Flange Width | Length of Lip | Thickness of Steel | Area of Section | Gross Moment of Inertia About X-X | Elastic Section Modulus About X-X | Radius of Gyration About X-X | Gross Moment of Inertia About Y-Y | Elastic Section Modulus About Y-Y | Radius of Gyration About Y-Y | Center of Gravity CG | Shear Center SC | St. Venant Torsion Constant | Warping Constant |
| | d (in) | b (in) | h (in) | t (in) | A (in ²) | I _x (in ⁴) | S _x (in ³) | r _x (in) | I _y (in ⁴) | S _y (in ³) | r _y (in) | x (in) | e (in) | J (in ⁴) | C _w (in ⁶) |
| 45C16 | 4.5 | 2.25 | 0.75 | 0.060 | 0.59 | 1.92 | 0.85 | 1.80 | 0.43 | 0.55 | 0.86 | 0.79 | 1.10 | 7.05E-04 | 2.0 |
| 45C14 | 4.5 | 2.25 | 0.75 | 0.075 | 0.73 | 2.36 | 1.05 | 1.79 | 0.53 | 0.67 | 0.85 | 0.79 | 1.09 | 1.36E-03 | 2.5 |
| 45C13 | 4.5 | 2.25 | 0.75 | 0.090 | 0.87 | 2.79 | 1.24 | 1.79 | 0.62 | 0.78 | 0.84 | 0.79 | 1.07 | 2.34E-03 | 2.9 |
| 06C16 | 6 | 2.26 | 0.94 | 0.060 | 0.70 | 3.86 | 1.29 | 2.34 | 0.54 | 0.72 | 0.87 | 0.75 | 1.10 | 8.40E-04 | 4.5 |
| 06C14 | 6 | 2.26 | 0.94 | 0.075 | 0.88 | 4.76 | 1.59 | 2.33 | 0.65 | 0.88 | 0.86 | 0.75 | 1.08 | 1.63E-03 | 5.4 |
| 06C13 | 6 | 2.26 | 0.94 | 0.090 | 1.04 | 5.65 | 1.88 | 2.33 | 0.77 | 1.03 | 0.86 | 0.75 | 1.06 | 2.80E-03 | 6.3 |
| 06C12 | 6 | 2.26 | 0.94 | 0.105 | 1.21 | 6.50 | 2.17 | 2.32 | 0.88 | 1.17 | 0.85 | 0.75 | 1.05 | 4.41E-03 | 7.1 |
| 06C11 | 6 | 2.26 | 0.94 | 0.120 | 1.38 | 7.34 | 2.45 | 2.31 | 0.98 | 1.31 | 0.84 | 0.75 | 1.03 | 6.56E-03 | 7.9 |
| 06C10 | 6 | 2.26 | 0.94 | 0.135 | 1.54 | 8.14 | 2.71 | 2.30 | 1.08 | 1.44 | 0.84 | 0.75 | 1.01 | 9.27E-03 | 8.6 |
| 08C16 | 8 | 2.94 | 0.94 | 0.060 | 0.91 | 8.92 | 2.23 | 3.14 | 1.09 | 1.23 | 1.10 | 0.89 | 1.33 | 1.08E-03 | 14.6 |
| 08C14 | 8 | 2.94 | 0.94 | 0.075 | 1.13 | 11.03 | 2.76 | 3.13 | 1.34 | 1.51 | 1.09 | 0.89 | 1.31 | 2.10E-03 | 17.8 |
| 08C13 | 8 | 2.94 | 0.94 | 0.090 | 1.35 | 13.12 | 3.28 | 3.12 | 1.58 | 1.78 | 1.08 | 0.89 | 1.29 | 3.61E-03 | 20.9 |
| 08C12 | 8 | 2.94 | 0.94 | 0.105 | 1.56 | 15.15 | 3.79 | 3.11 | 1.81 | 2.04 | 1.08 | 0.89 | 1.28 | 5.70E-03 | 23.8 |
| 08C11 | 8 | 2.94 | 0.94 | 0.120 | 1.78 | 17.15 | 4.29 | 3.11 | 2.04 | 2.29 | 1.07 | 0.89 | 1.26 | 8.47E-03 | 26.6 |
| 08C10 | 8 | 2.94 | 0.94 | 0.135 | 1.99 | 19.09 | 4.77 | 3.10 | 2.25 | 2.53 | 1.06 | 0.89 | 1.24 | 1.20E-02 | 29.1 |
| 09C16 | 9 | 3.08 | 0.94 | 0.060 | 0.98 | 12.09 | 2.69 | 3.51 | 1.27 | 1.43 | 1.14 | 0.89 | 1.35 | 1.17E-03 | 20.9 |
| 09C14 | 9 | 3.08 | 0.94 | 0.075 | 1.22 | 14.97 | 3.33 | 3.50 | 1.56 | 1.76 | 1.13 | 0.89 | 1.33 | 2.27E-03 | 25.5 |
| 09C13 | 9 | 3.08 | 0.94 | 0.090 | 1.46 | 17.81 | 3.96 | 3.49 | 1.84 | 2.07 | 1.12 | 0.89 | 1.31 | 3.92E-03 | 29.9 |
| 09C12 | 9 | 3.08 | 0.94 | 0.105 | 1.70 | 20.58 | 4.57 | 3.48 | 2.11 | 2.38 | 1.11 | 0.89 | 1.30 | 6.18E-03 | 34.1 |
| 09C11 | 9 | 3.08 | 0.94 | 0.120 | 1.93 | 23.31 | 5.18 | 3.48 | 2.37 | 2.67 | 1.11 | 0.89 | 1.28 | 9.20E-03 | 38.1 |
| 09C10 | 9 | 3.08 | 0.94 | 0.135 | 2.16 | 25.97 | 5.77 | 3.47 | 2.62 | 2.95 | 1.10 | 0.89 | 1.26 | 1.30E-02 | 41.9 |
| 10C16 | 10 | 3.26 | 0.94 | 0.060 | 1.06 | 16.02 | 3.20 | 3.88 | 1.50 | 1.67 | 1.19 | 0.90 | 1.39 | 1.27E-03 | 29.9 |
| 10C14 | 10 | 3.26 | 0.94 | 0.075 | 1.32 | 19.84 | 3.97 | 3.87 | 1.84 | 2.05 | 1.18 | 0.90 | 1.37 | 2.46E-03 | 36.6 |
| 10C13 | 10 | 3.26 | 0.94 | 0.090 | 1.58 | 23.63 | 4.73 | 3.86 | 2.18 | 2.42 | 1.17 | 0.90 | 1.35 | 4.24E-03 | 43.0 |
| 10C12 | 10 | 3.26 | 0.94 | 0.105 | 1.84 | 27.32 | 5.46 | 3.86 | 2.50 | 2.77 | 1.17 | 0.90 | 1.34 | 6.70E-03 | 49.1 |
| 10C11 | 10 | 3.26 | 0.94 | 0.120 | 2.09 | 30.97 | 6.19 | 3.85 | 2.81 | 3.12 | 1.16 | 0.90 | 1.32 | 9.98E-03 | 54.9 |
| 10C10 | 10 | 3.26 | 0.94 | 0.135 | 2.34 | 34.53 | 6.91 | 3.84 | 3.11 | 3.45 | 1.15 | 0.90 | 1.30 | 1.41E-02 | 60.4 |

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 4 1/2 to 16 inches deep with flange widths from 2 to 3 1/2 inches and thicknesses from 16 ga. (0.06 in) to 10 ga. (0.135 in). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.





SECTION RESISTANCE TABLE

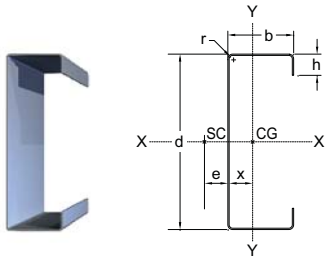
IMPERIAL

| SECTION | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | | | | | | | | |
|---------|--|-----------------------|-------------------------|--------------------------|--------------------------|---------------------|---|-----------------|------|------|------|------|-----|-----|-----|
| | M _r ' (kip-ft) (FACTORED EFFECTIVE MOMENT RESISTANCE) | | | | | | | | | | | | | | |
| | Mass (lb/ft) | V _r (kips) | C _r ' (kips) | P _r 4" (kips) | P _r 8" (kips) | L _u (ft) | M _r <L _u (kip-ft) | UNBRACED LENGTH | | | | | | | |
| | | | | | | | | 6' | 8' | 10' | 12' | 14' | 16' | 18' | 20' |
| 45C16 | 2.01 | 5.1 | 18.7 | 1.34 | 1.75 | 3.83 | 3.2 | 2.8 | 2.3 | 1.6 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 |
| 45C14 | 2.49 | 7.8 | 26.9 | 2.03 | 2.64 | 3.83 | 4.2 | 3.7 | 2.9 | 2.0 | 1.4 | 1.1 | 0.9 | 0.8 | 0.6 |
| 45C13 | 2.97 | 9.3 | 35.0 | 2.86 | 3.69 | 3.83 | 5.1 | 4.3 | 3.4 | 2.4 | 1.8 | 1.4 | 1.2 | 1.0 | 0.8 |
| 06C16 | 2.40 | 4.4 | 21.3 | 1.29 | 1.69 | 3.94 | 5.1 | 4.5 | 3.6 | 2.5 | 1.7 | 1.3 | 1.0 | 0.8 | 0.7 |
| 06C14 | 2.98 | 7.9 | 29.9 | 1.97 | 2.56 | 3.94 | 6.5 | 5.7 | 4.5 | 3.1 | 2.2 | 1.7 | 1.3 | 1.1 | 0.9 |
| 06C13 | 3.55 | 11.4 | 37.6 | 2.78 | 3.59 | 3.94 | 7.8 | 6.7 | 5.3 | 3.7 | 2.7 | 2.1 | 1.7 | 1.4 | 1.2 |
| 06C12 | 4.11 | 15.0 | 45.6 | 3.71 | 4.76 | 3.94 | 8.9 | 7.7 | 6.2 | 4.4 | 3.2 | 2.5 | 2.0 | 1.7 | 1.5 |
| 06C11 | 4.68 | 17.0 | 53.9 | 4.76 | 6.08 | 3.94 | 10.1 | 8.7 | 7.0 | 5.1 | 3.8 | 3.0 | 2.4 | 2.1 | 1.8 |
| 06C10 | 5.22 | 19.0 | 62.4 | 5.91 | 7.52 | 3.94 | 11.2 | 9.7 | 7.9 | 5.8 | 4.4 | 3.5 | 2.9 | 2.4 | 2.1 |
| 08C16 | 3.08 | 3.2 | 22.3 | 1.24 | 1.62 | 4.80 | 8.0 | 7.7 | 6.9 | 5.7 | 4.3 | 3.2 | 2.5 | 2.0 | 1.6 |
| 08C14 | 3.83 | 6.4 | 29.9 | 1.91 | 2.47 | 4.80 | 10.1 | 9.7 | 8.6 | 7.4 | 5.4 | 4.0 | 3.1 | 2.5 | 2.1 |
| 08C13 | 4.58 | 11.0 | 39.6 | 2.70 | 3.48 | 4.80 | 12.6 | 12.1 | 10.8 | 8.8 | 6.5 | 4.9 | 3.8 | 3.1 | 2.6 |
| 08C12 | 5.31 | 15.5 | 50.6 | 3.60 | 4.62 | 4.80 | 15.2 | 14.4 | 12.7 | 10.3 | 7.6 | 5.7 | 4.5 | 3.7 | 3.1 |
| 08C11 | 6.04 | 20.2 | 61.9 | 4.63 | 5.91 | 4.80 | 17.6 | 16.6 | 14.4 | 11.7 | 8.7 | 6.6 | 5.3 | 4.3 | 3.6 |
| 08C10 | 6.76 | 25.6 | 72.8 | 5.76 | 7.33 | 4.80 | 19.7 | 18.5 | 16.1 | 13.1 | 9.8 | 7.5 | 6.0 | 5.0 | 4.3 |
| 09C16 | 3.34 | 2.9 | 22.4 | 1.22 | 1.59 | 4.95 | 9.0 | 8.8 | 8.1 | 7.0 | 5.4 | 4.1 | 3.2 | 2.5 | 2.1 |
| 09C14 | 4.15 | 5.6 | 30.2 | 1.87 | 2.43 | 4.95 | 12.1 | 11.6 | 10.4 | 8.9 | 6.9 | 5.1 | 4.0 | 3.2 | 2.6 |
| 09C13 | 4.97 | 9.7 | 39.5 | 2.66 | 3.43 | 4.95 | 14.8 | 14.3 | 13.0 | 11.0 | 8.2 | 6.1 | 4.8 | 3.9 | 3.2 |
| 09C12 | 5.76 | 15.5 | 51.3 | 3.56 | 4.56 | 4.95 | 18.1 | 17.3 | 15.4 | 12.8 | 9.6 | 7.2 | 5.6 | 4.6 | 3.8 |
| 09C11 | 6.56 | 20.2 | 62.2 | 4.57 | 5.84 | 4.95 | 20.8 | 19.9 | 17.7 | 14.6 | 10.9 | 8.3 | 6.5 | 5.3 | 4.5 |
| 09C10 | 7.35 | 25.6 | 74.4 | 5.70 | 7.25 | 4.95 | 23.7 | 22.6 | 19.8 | 16.3 | 12.3 | 9.4 | 7.5 | 6.1 | 5.2 |
| 10C16 | 3.62 | 2.6 | 22.5 | 1.20 | 1.56 | 5.17 | 10.0 | 9.8 | 9.2 | 8.3 | 6.8 | 5.2 | 4.1 | 3.3 | 2.7 |
| 10C14 | 4.50 | 5.0 | 30.5 | 1.85 | 2.39 | 5.17 | 13.9 | 13.6 | 12.4 | 10.7 | 8.7 | 6.6 | 5.1 | 4.1 | 3.3 |
| 10C13 | 5.38 | 8.7 | 39.6 | 2.62 | 3.38 | 5.17 | 17.2 | 16.7 | 15.3 | 13.4 | 10.6 | 7.9 | 6.1 | 4.9 | 4.1 |
| 10C12 | 6.25 | 13.8 | 51.2 | 3.51 | 4.50 | 5.17 | 21.0 | 20.4 | 18.5 | 15.8 | 12.3 | 9.2 | 7.2 | 5.8 | 4.8 |
| 10C11 | 7.12 | 20.2 | 63.1 | 4.52 | 5.77 | 5.17 | 24.5 | 23.7 | 21.3 | 18.2 | 14.0 | 10.5 | 8.3 | 6.7 | 5.6 |
| 10C10 | 7.97 | 25.6 | 74.8 | 5.64 | 7.17 | 5.17 | 27.7 | 26.8 | 24.2 | 20.3 | 15.7 | 11.9 | 9.4 | 7.7 | 6.4 |

1. Loads are based on steel conforming to G40.21 or ASTM A1011/A1011M.
2. Member resistances are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.
3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

F_y = 55 ksi = minimum specified yield strength
L_u^y = calculated maximum unbraced length to achieve fully braced member capacities
M_r' = factored effective moment resistance for unbraced length less than or equal to L_u^y
M_r' = factored effective moment resistance based on unsupported length
C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance
K_x' = K_y' = K_z' = 1.0
C_v' = 1.0
P_r 4" = 4" bearing web crippling resistance
P_r 8" = 8" bearing web crippling resistance
R = Average bend radius (all values calculated based on 3/16" bend radius)



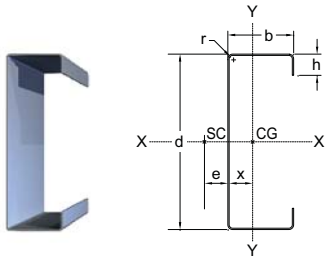
SECTION DIMENSIONS & PROPERTIES

IMPERIAL

| SECTION | DIMENSIONS | | | | | PROPERTIES | | | | | | | | | |
|---------|------------------|--------------|---------------|--------------------|----------------------|-----------------------------------|-----------------------------------|------------------------------|-----------------------------------|-----------------------------------|------------------------------|----------------------|-----------------|-----------------------------|-----------------------------------|
| | Depth of Section | Flange Width | Length of Lip | Thickness of Steel | Area of Section | Gross Moment of Inertia About X-X | Elastic Section Modulus About X-X | Radius of Gyration About X-X | Gross Moment of Inertia About Y-Y | Elastic Section Modulus About Y-Y | Radius of Gyration About Y-Y | Center of Gravity CG | Shear Center SC | St. Venant Torsion Constant | Warping Constant |
| | d (in) | b (in) | h (in) | t (in) | A (in ²) | I _x (in ⁴) | S _x (in ³) | r _x (in) | I _y (in ⁴) | S _y (in ³) | r _y (in) | x (in) | e (in) | J (in ⁴) | C _w (in ⁶) |
| 12C14 | 12 | 3.38 | 0.94 | 0.075 | 1.49 | 31.18 | 5.20 | 4.57 | 2.12 | 2.49 | 1.19 | 0.85 | 1.34 | 2.77E-03 | 59.4 |
| 12C13 | 12 | 3.38 | 0.94 | 0.090 | 1.78 | 37.16 | 6.19 | 4.56 | 2.51 | 2.94 | 1.19 | 0.85 | 1.32 | 4.78E-03 | 69.9 |
| 12C12 | 12 | 3.38 | 0.94 | 0.105 | 2.07 | 43.01 | 7.17 | 4.56 | 2.88 | 3.37 | 1.18 | 0.85 | 1.31 | 7.56E-03 | 79.9 |
| 12C11 | 12 | 3.38 | 0.94 | 0.120 | 2.36 | 48.81 | 8.13 | 4.55 | 3.24 | 3.79 | 1.17 | 0.85 | 1.29 | 1.13E-02 | 89.6 |
| 12C10 | 12 | 3.38 | 0.94 | 0.135 | 2.64 | 54.47 | 9.08 | 4.54 | 3.59 | 4.19 | 1.16 | 0.85 | 1.27 | 1.59E-02 | 98.7 |
| 14C13 | 14 | 3.50 | 0.94 | 0.090 | 1.98 | 54.78 | 7.83 | 5.25 | 2.85 | 3.49 | 1.20 | 0.82 | 1.30 | 5.32E-03 | 107.1 |
| 14C12 | 14 | 3.50 | 0.94 | 0.105 | 2.31 | 63.45 | 9.06 | 5.24 | 3.27 | 4.00 | 1.19 | 0.82 | 1.28 | 8.41E-03 | 122.6 |
| 14C11 | 14 | 3.50 | 0.94 | 0.120 | 2.63 | 72.04 | 10.29 | 5.24 | 3.68 | 4.50 | 1.18 | 0.82 | 1.27 | 1.25E-02 | 137.6 |
| 14C10 | 14 | 3.50 | 0.94 | 0.135 | 2.95 | 80.46 | 11.50 | 5.23 | 4.08 | 4.98 | 1.18 | 0.82 | 1.25 | 1.78E-02 | 151.8 |
| 16C13 | 16 | 3.50 | 0.94 | 0.090 | 2.16 | 75.60 | 9.45 | 5.91 | 2.95 | 3.92 | 1.17 | 0.75 | 1.23 | 5.80E-03 | 144.8 |
| 16C12 | 16 | 3.50 | 0.94 | 0.105 | 2.52 | 87.60 | 10.95 | 5.90 | 3.38 | 4.49 | 1.16 | 0.75 | 1.22 | 9.18E-03 | 165.8 |
| 16C11 | 16 | 3.50 | 0.94 | 0.120 | 2.87 | 99.53 | 12.44 | 5.89 | 3.81 | 5.05 | 1.15 | 0.75 | 1.20 | 1.37E-02 | 186.1 |
| 16C10 | 16 | 3.50 | 0.94 | 0.135 | 3.22 | 111.21 | 13.90 | 5.88 | 4.22 | 5.58 | 1.15 | 0.76 | 1.18 | 1.94E-02 | 205.5 |

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 4 1/2 to 16 inches deep with flange widths from 2 to 3 1/2 inches and thicknesses from 16 ga. (0.06 in) to 10 ga. (0.135 in). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.



SECTION RESISTANCE TABLE

IMPERIAL

| SECTION | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | |
|---------|---|--------------|---------------|-----------------|-----------------|------------|----------------------|--|------|------|------|------|------|------|------|
| | | | | | | | | M_r' (kip-ft) (FACTORED EFFECTIVE MOMENT RESISTANCE) | | | | | | | |
| | Mass (lb/ft) | V_r (kips) | C_r' (kips) | P_r 4" (kips) | P_r 8" (kips) | L_u (ft) | $M_r < L_u$ (kip-ft) | UNBRACED LENGTH | | | | | | | |
| | | | | | | | | 6' | 8' | 10' | 12' | 14' | 16' | 18' | 20' |
| 12C14 | 5.07 | 4.1 | 30.8 | 1.79 | 2.32 | 5.27 | 16.5 | 16.2 | 15.2 | 13.8 | 11.5 | 8.9 | 6.9 | 5.5 | 4.5 |
| 12C13 | 6.06 | 7.2 | 40.1 | 2.55 | 3.29 | 5.27 | 22.1 | 21.7 | 19.9 | 17.5 | 14.2 | 10.6 | 8.2 | 6.6 | 5.4 |
| 12C12 | 7.05 | 11.4 | 51.4 | 3.43 | 4.40 | 5.27 | 27.1 | 26.4 | 24.2 | 20.8 | 16.6 | 12.3 | 9.6 | 7.7 | 6.3 |
| 12C11 | 8.03 | 17.1 | 64.4 | 4.42 | 5.65 | 5.27 | 32.0 | 31.1 | 27.9 | 24.0 | 18.8 | 14.1 | 11.0 | 8.8 | 7.3 |
| 12C10 | 8.99 | 24.4 | 76.1 | 5.52 | 7.02 | 5.27 | 36.0 | 35.0 | 31.6 | 27.1 | 21.1 | 15.8 | 12.4 | 10.0 | 8.3 |
| 14C13 | 6.75 | 6.1 | 40.5 | 2.49 | 3.21 | 5.38 | 25.5 | 25.2 | 23.7 | 21.9 | 18.2 | 13.9 | 10.7 | 8.5 | 7.0 |
| 14C12 | 7.84 | 9.7 | 51.6 | 3.35 | 4.30 | 5.38 | 33.4 | 33.0 | 30.4 | 26.6 | 21.4 | 16.1 | 12.4 | 9.9 | 8.2 |
| 14C11 | 8.94 | 14.6 | 64.8 | 4.33 | 5.53 | 5.38 | 40.0 | 39.2 | 35.4 | 30.5 | 24.5 | 18.3 | 14.2 | 11.4 | 9.4 |
| 14C10 | 10.02 | 20.8 | 77.4 | 5.42 | 6.89 | 5.38 | 45.4 | 44.3 | 39.9 | 34.6 | 27.4 | 20.4 | 15.9 | 12.8 | 10.6 |
| 16C13 | 7.36 | 5.3 | 40.6 | 2.43 | 3.14 | 5.31 | 27.3 | 26.8 | 24.8 | 22.4 | 19.1 | 15.0 | 11.9 | 9.7 | 8.1 |
| 16C12 | 8.55 | 8.5 | 51.8 | 3.28 | 4.21 | 5.31 | 34.3 | 33.8 | 31.5 | 28.2 | 23.4 | 18.0 | 14.3 | 11.6 | 9.5 |
| 16C11 | 9.75 | 12.7 | 65.1 | 4.25 | 5.43 | 5.31 | 42.5 | 41.8 | 38.2 | 33.5 | 27.4 | 21.0 | 16.6 | 13.3 | 10.9 |
| 16C10 | 10.93 | 18.1 | 77.9 | 5.32 | 6.76 | 5.31 | 49.9 | 48.7 | 44.5 | 39.3 | 31.3 | 23.9 | 18.6 | 14.9 | 12.3 |

1. Loads are based on steel conforming to G40.21 or ASTM A1011/A1011M.
2. Member resistances are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.
3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

$F_y = 55$ ksi = minimum specified yield strength

L_u = calculated maximum unbraced length to achieve fully braced member capacities

M_r = factored effective moment resistance for unbraced length less than or equal to L_u

M_r' = factored effective moment resistance based on unsupported length

C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance

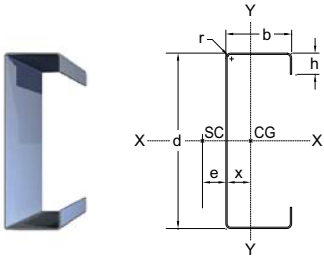
$K_x = K_y = K_t = 1.0$

$C_t = 1.0$

P_r 4" = 4" bearing web crippling resistance

P_r 8" = 8" bearing web crippling resistance

R = Average bend radius (all values calculated based on 3/16" bend radius)



SECTION DIMENSIONS & PROPERTIES

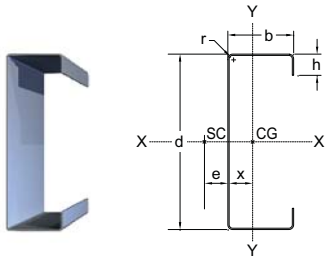
METRIC

| SECTION | DIMENSIONS | | | | | PROPERTIES | | | | | | | | | |
|---------|------------------|--------------|---------------|--------------------|----------------------|---|---|------------------------------|---|---|------------------------------|----------------------|-----------------|--------------------------------------|---|
| | Depth of Section | Flange Width | Length of Lip | Thickness of Steel | Area of Section | Gross Moment of Inertia About X-X | Elastic Section Modulus About X-X | Radius of Gyration About X-X | Gross Moment of Inertia About Y-Y | Elastic Section Modulus About Y-Y | Radius of Gyration About Y-Y | Center of Gravity CG | Shear Center SC | St. Venant Torsion Constant | Warping Constant |
| | d (mm) | b (mm) | h (mm) | t (mm) | A (mm ²) | I _x (10 ⁶ mm ⁴) | S _x (10 ³ mm ³) | r _x (mm) | I _y (10 ⁶ mm ⁴) | S _y (10 ³ mm ³) | r _y (mm) | x (mm) | e (mm) | J (10 ³ mm ⁴) | C _w (10 ⁹ mm ⁶) |
| 45C16 | 114 | 57.2 | 19.1 | 1.52 | 381 | 0.80 | 14.0 | 45.7 | 0.180 | 8.95 | 21.7 | 20.1 | 28.1 | 0.293 | 0.55 |
| 45C14 | 114 | 57.2 | 19.1 | 1.90 | 473 | 0.98 | 17.2 | 45.5 | 0.220 | 10.92 | 21.6 | 20.1 | 27.6 | 0.568 | 0.66 |
| 45C13 | 114 | 57.2 | 19.1 | 2.28 | 564 | 1.16 | 20.3 | 45.4 | 0.258 | 12.81 | 21.4 | 20.1 | 27.2 | 0.976 | 0.77 |
| 06C16 | 152 | 57.4 | 23.9 | 1.52 | 455 | 1.61 | 21.1 | 59.4 | 0.223 | 11.76 | 22.1 | 18.9 | 27.9 | 0.350 | 1.20 |
| 06C14 | 152 | 57.4 | 23.9 | 1.90 | 565 | 1.98 | 26.0 | 59.3 | 0.272 | 14.37 | 22.0 | 18.9 | 27.5 | 0.678 | 1.45 |
| 06C13 | 152 | 57.4 | 23.9 | 2.28 | 674 | 2.35 | 30.8 | 59.1 | 0.320 | 16.87 | 21.8 | 18.9 | 27.0 | 1.166 | 1.69 |
| 06C12 | 152 | 57.4 | 23.9 | 2.66 | 781 | 2.71 | 35.5 | 58.9 | 0.365 | 19.24 | 21.6 | 19.0 | 26.6 | 1.837 | 1.91 |
| 06C11 | 152 | 57.4 | 23.9 | 3.04 | 887 | 3.05 | 40.1 | 58.7 | 0.408 | 21.51 | 21.4 | 19.0 | 26.1 | 2.729 | 2.12 |
| 06C10 | 152 | 57.4 | 23.9 | 3.42 | 991 | 3.39 | 44.5 | 58.5 | 0.448 | 23.64 | 21.3 | 19.0 | 25.7 | 3.857 | 2.31 |
| 08C16 | 203 | 74.7 | 23.9 | 1.52 | 584 | 3.71 | 36.5 | 79.7 | 0.455 | 20.18 | 27.9 | 22.6 | 33.8 | 0.449 | 3.93 |
| 08C14 | 203 | 74.7 | 23.9 | 1.90 | 727 | 4.59 | 45.2 | 79.5 | 0.559 | 24.76 | 27.7 | 22.6 | 33.3 | 0.872 | 4.79 |
| 08C13 | 203 | 74.7 | 23.9 | 2.28 | 868 | 5.46 | 53.7 | 79.3 | 0.659 | 29.20 | 27.6 | 22.6 | 32.9 | 1.502 | 5.61 |
| 08C12 | 203 | 74.7 | 23.9 | 2.66 | 1008 | 6.30 | 62.0 | 79.1 | 0.755 | 33.44 | 27.4 | 22.6 | 32.4 | 2.370 | 6.39 |
| 08C11 | 203 | 74.7 | 23.9 | 3.04 | 1146 | 7.14 | 70.2 | 78.9 | 0.848 | 37.54 | 27.2 | 22.6 | 32.0 | 3.526 | 7.13 |
| 08C10 | 203 | 74.7 | 23.9 | 3.42 | 1283 | 7.95 | 78.2 | 78.7 | 0.937 | 41.45 | 27.0 | 22.6 | 31.6 | 4.991 | 7.82 |
| 09C16 | 229 | 78.2 | 23.9 | 1.52 | 634 | 5.03 | 44.0 | 89.1 | 0.528 | 23.47 | 28.9 | 22.5 | 34.2 | 0.487 | 5.61 |
| 09C14 | 229 | 78.2 | 23.9 | 1.90 | 788 | 6.23 | 54.5 | 88.9 | 0.648 | 28.81 | 28.7 | 22.5 | 33.8 | 0.946 | 6.85 |
| 09C13 | 229 | 78.2 | 23.9 | 2.28 | 942 | 7.41 | 64.8 | 88.7 | 0.765 | 34.00 | 28.5 | 22.5 | 33.4 | 1.630 | 8.04 |
| 09C12 | 229 | 78.2 | 23.9 | 2.66 | 1094 | 8.56 | 74.9 | 88.5 | 0.877 | 38.95 | 28.3 | 22.5 | 32.9 | 2.574 | 9.17 |
| 09C11 | 229 | 78.2 | 23.9 | 3.04 | 1245 | 9.70 | 84.9 | 88.3 | 0.986 | 43.76 | 28.1 | 22.5 | 32.5 | 3.830 | 10.24 |
| 09C10 | 229 | 78.2 | 23.9 | 3.42 | 1394 | 10.81 | 94.6 | 88.1 | 1.090 | 48.34 | 28.0 | 22.5 | 32.0 | 5.423 | 11.26 |
| 10C16 | 254 | 82.8 | 23.9 | 1.52 | 686 | 6.67 | 52.5 | 98.6 | 0.624 | 27.33 | 30.2 | 22.9 | 35.2 | 0.528 | 8.02 |
| 10C14 | 254 | 82.8 | 23.9 | 1.90 | 854 | 8.26 | 65.0 | 98.4 | 0.768 | 33.58 | 30.0 | 22.9 | 34.8 | 1.024 | 9.82 |
| 10C13 | 254 | 82.8 | 23.9 | 2.28 | 1021 | 9.83 | 77.4 | 98.1 | 0.907 | 39.65 | 29.8 | 22.9 | 34.4 | 1.766 | 11.54 |
| 10C12 | 254 | 82.8 | 23.9 | 2.66 | 1186 | 11.37 | 89.5 | 97.9 | 1.040 | 45.46 | 29.6 | 22.9 | 33.9 | 2.790 | 13.17 |
| 10C11 | 254 | 82.8 | 23.9 | 3.04 | 1350 | 12.89 | 101.5 | 97.7 | 1.170 | 51.10 | 29.4 | 22.9 | 33.5 | 4.153 | 14.74 |
| 10C10 | 254 | 82.8 | 23.9 | 3.42 | 1512 | 14.37 | 113.2 | 97.5 | 1.294 | 56.50 | 29.3 | 22.9 | 33.0 | 5.882 | 16.23 |

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 114 to 406 mm inches deep with flange widths from 51 to 89 mm and thicknesses from 16 ga. (1.52mm) to 10 ga. (3.42mm). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.





SECTION RESISTANCE TABLE

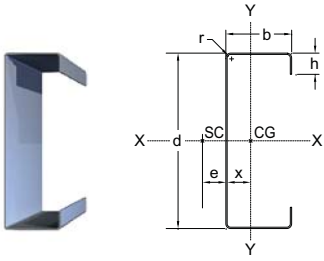
METRIC

| SECTION | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | |
|---------|---|------------|-------------|------------------|------------------|-----------|--------------------|--|-------|-------|-------|-------|-------|-------|------|
| | | | | | | | | M_r' (kN-m) (FACTORED EFFECTIVE MOMENT RESISTANCE) | | | | | | | |
| | Mass (kg/m) | V_r (kN) | C_r' (kN) | P_r 102mm (kN) | P_r 203mm (kN) | L_u (m) | $M_r < L_u$ (kN-m) | UNBRACED LENGTH | | | | | | | |
| | | | | | | | | 1.83m | 2.44m | 3.05m | 3.66m | 4.27m | 4.88m | 5.49m | 6.1m |
| 45C16 | 2.99 | 22.5 | 83 | 6.0 | 7.8 | 1.17 | 4.3 | 3.8 | 3.1 | 2.1 | 1.5 | 1.2 | 0.9 | 0.8 | 0.6 |
| 45C14 | 3.71 | 34.9 | 119 | 9.0 | 11.7 | 1.17 | 5.7 | 5.0 | 3.9 | 2.7 | 2.0 | 1.5 | 1.2 | 1.0 | 0.9 |
| 45C13 | 4.42 | 41.6 | 156 | 12.7 | 16.4 | 1.17 | 6.9 | 5.9 | 4.6 | 3.3 | 2.4 | 1.9 | 1.6 | 1.3 | 1.2 |
| 06C16 | 3.57 | 19.7 | 95 | 5.8 | 7.5 | 1.20 | 6.9 | 6.0 | 4.9 | 3.3 | 2.4 | 1.8 | 1.4 | 1.1 | 0.9 |
| 06C14 | 4.43 | 35.1 | 133 | 8.8 | 11.4 | 1.20 | 8.9 | 7.7 | 6.0 | 4.2 | 3.0 | 2.3 | 1.8 | 1.5 | 1.3 |
| 06C13 | 5.28 | 50.6 | 167 | 12.4 | 16.0 | 1.20 | 10.5 | 9.1 | 7.2 | 5.1 | 3.7 | 2.8 | 2.3 | 1.9 | 1.6 |
| 06C12 | 6.12 | 66.5 | 203 | 16.5 | 21.2 | 1.20 | 12.1 | 10.5 | 8.4 | 6.0 | 4.4 | 3.4 | 2.8 | 2.3 | 2.0 |
| 06C11 | 6.96 | 75.6 | 240 | 21.2 | 27.0 | 1.20 | 13.7 | 11.8 | 9.5 | 6.9 | 5.1 | 4.0 | 3.3 | 2.8 | 2.4 |
| 06C10 | 7.77 | 84.6 | 278 | 26.2 | 33.4 | 1.20 | 15.2 | 13.2 | 10.7 | 7.9 | 5.9 | 4.7 | 3.9 | 3.3 | 2.9 |
| 08C16 | 4.58 | 14.4 | 99 | 5.5 | 7.2 | 1.46 | 10.8 | 10.4 | 9.3 | 7.7 | 5.8 | 4.4 | 3.4 | 2.7 | 2.2 |
| 08C14 | 5.70 | 28.3 | 133 | 8.5 | 11.0 | 1.46 | 13.7 | 13.1 | 11.7 | 10.0 | 7.3 | 5.5 | 4.2 | 3.4 | 2.8 |
| 08C13 | 6.81 | 49.1 | 176 | 12.0 | 15.5 | 1.46 | 17.1 | 16.4 | 14.7 | 12.0 | 8.8 | 6.6 | 5.2 | 4.2 | 3.5 |
| 08C12 | 7.90 | 68.8 | 225 | 16.0 | 20.6 | 1.46 | 20.6 | 19.5 | 17.2 | 13.9 | 10.2 | 7.7 | 6.1 | 5.0 | 4.2 |
| 08C11 | 8.99 | 89.9 | 275 | 20.6 | 26.3 | 1.46 | 23.8 | 22.5 | 19.5 | 15.8 | 11.8 | 9.0 | 7.1 | 5.9 | 4.9 |
| 08C10 | 10.06 | 113.7 | 324 | 25.6 | 32.6 | 1.46 | 26.7 | 25.1 | 21.8 | 17.7 | 13.3 | 10.2 | 8.2 | 6.8 | 5.8 |
| 09C16 | 4.97 | 12.7 | 100 | 5.4 | 7.1 | 1.51 | 12.2 | 11.9 | 11.0 | 9.5 | 7.3 | 5.6 | 4.3 | 3.4 | 2.8 |
| 09C14 | 6.18 | 24.9 | 134 | 8.3 | 10.8 | 1.51 | 16.4 | 15.7 | 14.0 | 12.0 | 9.3 | 6.9 | 5.4 | 4.3 | 3.5 |
| 09C13 | 7.39 | 43.3 | 176 | 11.8 | 15.3 | 1.51 | 20.1 | 19.4 | 17.6 | 14.9 | 11.1 | 8.3 | 6.5 | 5.2 | 4.3 |
| 09C12 | 8.58 | 68.8 | 228 | 15.8 | 20.3 | 1.51 | 24.5 | 23.4 | 20.9 | 17.4 | 13.0 | 9.7 | 7.6 | 6.2 | 5.2 |
| 09C11 | 9.77 | 89.9 | 277 | 20.3 | 26.0 | 1.51 | 28.2 | 27.0 | 24.0 | 19.7 | 14.8 | 11.2 | 8.9 | 7.2 | 6.1 |
| 09C10 | 10.93 | 113.7 | 331 | 25.3 | 32.2 | 1.51 | 32.1 | 30.7 | 26.8 | 22.1 | 16.7 | 12.7 | 10.1 | 8.3 | 7.0 |
| 10C16 | 5.38 | 11.4 | 100 | 5.3 | 7.0 | 1.57 | 13.5 | 13.3 | 12.4 | 11.2 | 9.2 | 7.1 | 5.5 | 4.4 | 3.6 |
| 10C14 | 6.70 | 22.3 | 136 | 8.2 | 10.7 | 1.57 | 18.8 | 18.4 | 16.9 | 14.5 | 11.9 | 8.9 | 6.9 | 5.5 | 4.5 |
| 10C13 | 8.01 | 38.7 | 176 | 11.7 | 15.0 | 1.57 | 23.4 | 22.7 | 20.7 | 18.2 | 14.4 | 10.7 | 8.3 | 6.7 | 5.5 |
| 10C12 | 9.30 | 61.6 | 228 | 15.6 | 20.0 | 1.57 | 28.4 | 27.7 | 25.0 | 21.4 | 16.7 | 12.5 | 9.7 | 7.8 | 6.5 |
| 10C11 | 10.59 | 89.9 | 281 | 20.1 | 25.7 | 1.57 | 33.2 | 32.1 | 28.8 | 24.7 | 19.0 | 14.3 | 11.2 | 9.1 | 7.6 |
| 10C10 | 11.86 | 113.7 | 333 | 25.1 | 31.9 | 1.57 | 37.5 | 36.3 | 32.9 | 27.6 | 21.3 | 16.1 | 12.7 | 10.4 | 8.7 |

1. Loads are based on steel conforming to G40.21 or ASTM A1011/A1011M.
2. Member resistances are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.
3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

F_y = 379 MPa = minimum specified yield strength
 L_u^y = calculated maximum unbraced length to achieve fully braced member capacities
 M_r = factored effective moment resistance for unbraced length less than or equal to L_u
 M_r' = factored effective moment resistance based on unsupported length
 C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance
 $K_x = K_y = K_z = 1.0$
 $C_b = 1.0$
 P_r 102mm = 102mm bearing web crippling resistance
 P_r 203mm = 203mm bearing web crippling resistance
 R = Average bend radius (all values calculated based on 4.8mm bend radius)



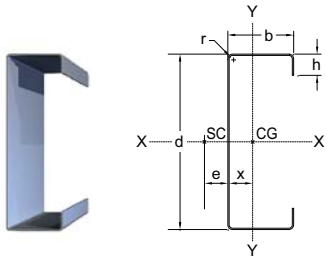
SECTION DIMENSIONS & PROPERTIES

METRIC

| SECTION | DIMENSIONS | | | | | PROPERTIES | | | | | | | | | |
|---------|------------------|--------------|---------------|--------------------|----------------------|---|---|------------------------------|---|---|------------------------------|----------------------|-----------------|--------------------------------------|---|
| | Depth of Section | Flange Width | Length of Lip | Thickness of Steel | Area of Section | Gross Moment of Inertia About X-X | Elastic Section Modulus About X-X | Radius of Gyration About X-X | Gross Moment of Inertia About Y-Y | Elastic Section Modulus About Y-Y | Radius of Gyration About Y-Y | Center of Gravity CG | Shear Center SC | St. Venant Torsion Constant | Warping Constant |
| | d (mm) | b (mm) | h (mm) | t (mm) | A (mm ²) | I _x (10 ⁶ mm ⁴) | S _x (10 ³ mm ³) | r _x (mm) | I _y (10 ⁶ mm ⁴) | S _y (10 ³ mm ³) | r _y (mm) | x (mm) | e (mm) | J (10 ³ mm ⁴) | C _w (10 ⁹ mm ⁶) |
| 12C14 | 305 | 85.9 | 23.9 | 1.90 | 962 | 12.98 | 85.2 | 116.2 | 0.884 | 40.83 | 30.3 | 21.7 | 34.0 | 1.154 | 15.94 |
| 12C13 | 305 | 85.9 | 23.9 | 2.28 | 1151 | 15.47 | 101.5 | 115.9 | 1.044 | 48.21 | 30.1 | 21.7 | 33.6 | 1.991 | 18.77 |
| 12C12 | 305 | 85.9 | 23.9 | 2.66 | 1337 | 17.90 | 117.5 | 115.7 | 1.198 | 55.29 | 29.9 | 21.7 | 33.2 | 3.145 | 21.46 |
| 12C11 | 305 | 85.9 | 23.9 | 3.04 | 1523 | 20.31 | 133.3 | 115.5 | 1.348 | 62.15 | 29.8 | 21.7 | 32.7 | 4.685 | 24.05 |
| 12C10 | 305 | 85.9 | 23.9 | 3.42 | 1706 | 22.67 | 148.8 | 115.3 | 1.492 | 68.72 | 29.6 | 21.7 | 32.3 | 6.638 | 26.51 |
| 14C13 | 356 | 88.9 | 23.9 | 2.28 | 1280 | 22.80 | 128.2 | 133.5 | 1.186 | 57.23 | 30.4 | 20.8 | 33.0 | 2.215 | 28.77 |
| 14C12 | 356 | 88.9 | 23.9 | 2.66 | 1488 | 26.41 | 148.5 | 133.2 | 1.361 | 65.63 | 30.3 | 20.8 | 32.6 | 3.501 | 32.93 |
| 14C11 | 356 | 88.9 | 23.9 | 3.04 | 1696 | 29.99 | 168.7 | 133.0 | 1.533 | 73.77 | 30.1 | 20.8 | 32.2 | 5.217 | 36.95 |
| 14C10 | 356 | 88.9 | 23.9 | 3.42 | 1901 | 33.49 | 188.4 | 132.7 | 1.697 | 81.59 | 29.9 | 20.8 | 31.8 | 7.395 | 40.77 |
| 16C13 | 406 | 88.9 | 23.9 | 2.28 | 1396 | 31.47 | 154.9 | 150.1 | 1.227 | 64.23 | 29.6 | 19.2 | 31.3 | 2.415 | 38.88 |
| 16C12 | 406 | 88.9 | 23.9 | 2.66 | 1623 | 36.46 | 179.5 | 149.9 | 1.407 | 73.61 | 29.5 | 19.2 | 30.9 | 3.819 | 44.52 |
| 16C11 | 406 | 88.9 | 23.9 | 3.04 | 1850 | 41.43 | 203.9 | 149.6 | 1.586 | 82.71 | 29.3 | 19.2 | 30.4 | 5.691 | 49.97 |
| 16C10 | 406 | 88.9 | 23.9 | 3.42 | 2074 | 46.29 | 227.8 | 149.4 | 1.756 | 91.39 | 29.1 | 19.2 | 30.0 | 8.070 | 55.18 |

ExSteel roll forms a wide range of cee and zee sections for use in building applications or to replace hot rolled sections. Sizes range from 114 to 406 mm inches deep with flange widths from 51 to 89 mm and thicknesses from 16 ga. (1.52mm) to 10 ga. (3.42mm). An infinite choice of sizes between those listed are also available. This design table only includes standard section sizes that are typically manufactured by ExSteel.

1. Section properties are in accordance with 2004 NAS - Canada (LSD) for the Design of Cold-Formed Steel Structural Members.



SECTION RESISTANCE TABLE

METRIC

| SECTION | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | LIMIT STATES DESIGN - 2004 NAS - CANADA | | | | | | | |
|---------|---|------------|-------------|------------------|------------------|-----------|--------------------|--|-------|-------|-------|-------|-------|-------|------|
| | | | | | | | | M_r' (kN-m) (FACTORED EFFECTIVE MOMENT RESISTANCE) | | | | | | | |
| | Mass (kg/m) | V_r (kN) | C_r' (kN) | P_r 102mm (kN) | P_r 203mm (kN) | L_u (m) | $M_r < L_u$ (kN-m) | UNBRACED LENGTH | | | | | | | |
| | | | | | | | | 1.83m | 2.44m | 3.05m | 3.66m | 4.27m | 4.88m | 5.49m | 6.1m |
| 12C14 | 7.54 | 18.4 | 137 | 8.0 | 10.3 | 1.61 | 22.4 | 22.0 | 20.6 | 18.8 | 15.6 | 12.1 | 9.3 | 7.4 | 6.1 |
| 12C13 | 9.02 | 31.9 | 178 | 11.4 | 14.7 | 1.61 | 29.9 | 29.4 | 27.0 | 23.7 | 19.2 | 14.4 | 11.1 | 8.9 | 7.3 |
| 12C12 | 10.48 | 50.8 | 229 | 15.2 | 19.6 | 1.61 | 36.7 | 35.9 | 32.8 | 28.2 | 22.5 | 16.7 | 13.0 | 10.4 | 8.6 |
| 12C11 | 11.94 | 76.1 | 287 | 19.7 | 25.1 | 1.61 | 43.4 | 42.1 | 37.8 | 32.6 | 25.5 | 19.1 | 14.9 | 12.0 | 9.9 |
| 12C10 | 13.38 | 108.5 | 339 | 24.6 | 31.2 | 1.61 | 48.9 | 47.4 | 42.8 | 36.7 | 28.5 | 21.4 | 16.8 | 13.6 | 11.3 |
| 14C13 | 10.04 | 27.2 | 180 | 11.1 | 14.3 | 1.64 | 34.6 | 34.2 | 32.1 | 29.7 | 24.7 | 18.8 | 14.5 | 11.6 | 9.5 |
| 14C12 | 11.67 | 43.2 | 229 | 14.9 | 19.1 | 1.64 | 45.2 | 44.8 | 41.2 | 36.0 | 29.1 | 21.8 | 16.9 | 13.5 | 11.1 |
| 14C11 | 13.30 | 64.8 | 288 | 19.3 | 24.6 | 1.64 | 54.2 | 53.1 | 48.0 | 41.4 | 33.2 | 24.8 | 19.2 | 15.4 | 12.7 |
| 14C10 | 14.91 | 92.3 | 344 | 24.1 | 30.6 | 1.64 | 61.6 | 60.0 | 54.1 | 46.9 | 37.1 | 27.7 | 21.6 | 17.4 | 14.4 |
| 16C13 | 10.95 | 23.7 | 181 | 10.8 | 14.0 | 1.62 | 37.1 | 36.4 | 33.7 | 30.3 | 25.9 | 20.4 | 16.2 | 13.2 | 11.0 |
| 16C12 | 12.73 | 37.6 | 230 | 14.6 | 18.7 | 1.62 | 46.6 | 45.8 | 42.8 | 38.3 | 31.7 | 24.4 | 19.3 | 15.7 | 12.9 |
| 16C11 | 14.51 | 56.3 | 290 | 18.9 | 24.1 | 1.62 | 57.6 | 56.6 | 51.9 | 45.5 | 37.2 | 28.4 | 22.5 | 18.0 | 14.8 |
| 16C10 | 16.27 | 80.3 | 346 | 23.7 | 30.1 | 1.62 | 67.7 | 66.0 | 60.3 | 53.2 | 42.5 | 32.4 | 25.2 | 20.2 | 16.6 |

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3. Values have been calculated assuming no effect from cold work of forming.
4. Users of data contained in these tables assume all liability arising from such use.

F_y = 379 MPa = minimum specified yield strength
 L_u = calculated maximum unbraced length to achieve fully braced member capacities
 M_r = factored effective moment resistance for unbraced length less than or equal to L_u
 M_r' = factored effective moment resistance based on unsupported length
 C_r' = factored compressive resistance for a fully braced member

V_r = factored shear resistance
 $K_x = K_y = K_t = 1.0$
 $C_b = 1.0$
 P_r 102mm = 102mm bearing web crippling resistance
 P_r 203mm = 203mm bearing web crippling resistance
 R = Average bend radius (all values calculated based on 4.8mm bend radius)