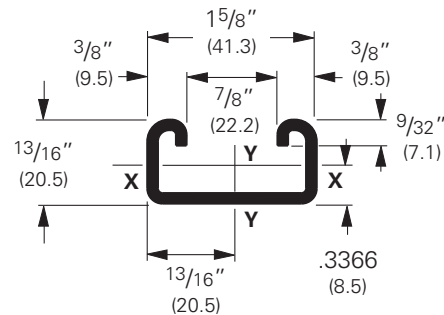
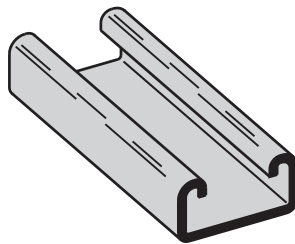


# B52 Channel & Combinations

## B52

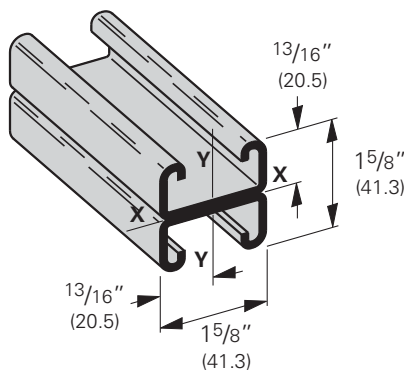
- Thickness: 12 Gauge (2.6 mm)
- Standard lengths: 10' (3.05 m) & 20' (6.09 m)
- Standard finishes: Plain, DURA GREEN™, Pre-Galvanized, Stainless Steel Type 304 or 316, Hot-Dipped Galvanized
- Weight: 1.27 Lbs./Ft. (1.89 kg/m)



## Section Properties

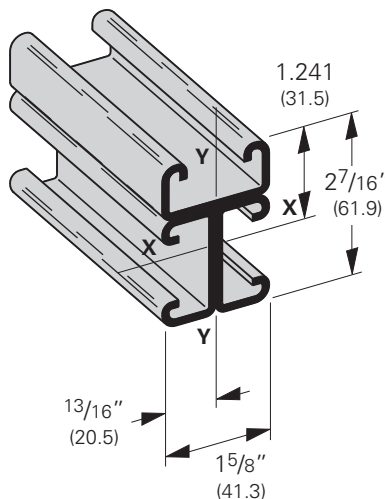
| Section Properties |                         |                                             | X - X Axis                       |                                  |                        | Y - Y Axis                       |                                  |                        |
|--------------------|-------------------------|---------------------------------------------|----------------------------------|----------------------------------|------------------------|----------------------------------|----------------------------------|------------------------|
|                    |                         |                                             | Moment of Inertia (I)            | Section Modulus (S)              | Radius of Gyration (r) | Moment of Inertia (I)            | Section Modulus (S)              | Radius of Gyration (r) |
| Channel            | Weight<br>lbs./ft. kg/m | Areas of Section<br>sq. in. cm <sup>2</sup> | in. <sup>4</sup> cm <sup>4</sup> | in. <sup>3</sup> cm <sup>3</sup> | in. cm                 | in. <sup>4</sup> cm <sup>4</sup> | in. <sup>3</sup> cm <sup>3</sup> | in. cm                 |
| <b>B52</b>         | 1.313 (1.95)            | .386 (2.49)                                 | .0320 (1.33)                     | .0673 (1.10)                     | .288 (.73)             | .1404 (5.84)                     | .1728 (2.83)                     | .603 (1.53)            |
| <b>B52A</b>        | 2.627 (3.91)            | .773 (4.99)                                 | .1517 (6.31)                     | .1868 (3.06)                     | .443 (1.13)            | .2809 (11.69)                    | .3457 (5.67)                     | .603 (1.53)            |

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



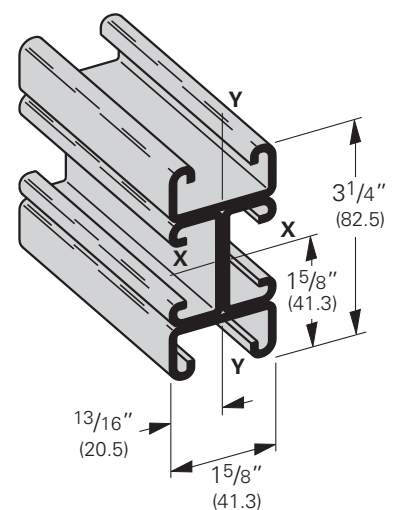
### B52A

Wt. 2.54 Lbs./Ft. (3.78 kg/m)



### B52B3

Wt. 3.81 Lbs./Ft. (5.67 kg/m)



### B52B4

Wt. 5.08 Lbs./Ft. (7.56 kg/m)

# B52 Beam & Column Loading Data

## Beam Loading

| Beam Span<br>In. mm | Channel<br>Style | Uniform Load and Deflection |  |               |  | Uniform Load @ Deflection = |  |              |  |
|---------------------|------------------|-----------------------------|--|---------------|--|-----------------------------|--|--------------|--|
|                     |                  | Lbs. kN                     |  | In. mm        |  | 1/240 Span                  |  | 1/360 Span   |  |
|                     |                  |                             |  |               |  | Lbs. kN                     |  | Lbs. kN      |  |
| 12 (305)            | B52              | 1079 (4.80)                 |  | .026 (.66)    |  | 1079 (4.80)                 |  | 1079 (4.80)  |  |
|                     | B52A             | 1270* (5.65)                |  | .006 (.15)    |  | 1270* (5.65)                |  | 1270* (5.65) |  |
| 24 (609)            | B52              | 539 (2.40)                  |  | .106 (2.69)   |  | 506 (2.25)                  |  | 337 (1.50)   |  |
|                     | B52A             | 1270* (5.65)                |  | .052 (1.32)   |  | 1270* (5.65)                |  | 1270* (5.65) |  |
| 36 (914)            | B52              | 360 (1.60)                  |  | .240 (6.09)   |  | 225 (1.00)                  |  | 150 (0.67)   |  |
|                     | B52A             | 1013 (4.50)                 |  | .141 (3.58)   |  | 1013 (4.50)                 |  | 719 (3.20)   |  |
| 48 (1219)           | B52              | 270 (1.20)                  |  | .427 (10.84)  |  | 126 (0.56)                  |  | 84 (0.37)    |  |
|                     | B52A             | 759 (3.37)                  |  | .250 (6.35)   |  | 607 (2.70)                  |  | 404 (1.80)   |  |
| 60 (1524)           | B52              | 216 (0.96)                  |  | .667 (16.94)  |  | 81 (0.36)                   |  | 54 (0.24)    |  |
|                     | B52A             | 608 (2.70)                  |  | .391 (9.93)   |  | 388 (1.72)                  |  | 259 (1.15)   |  |
| 72 (1829)           | B52              | 180 (0.80)                  |  | .960 (24.38)  |  | 56 (0.25)                   |  | 37 (0.16)    |  |
|                     | B52A             | 506 (.225)                  |  | .563 (14.30)  |  | 270 (1.20)                  |  | 180 (0.80)   |  |
| 84 (2133)           | B52              | 154 (0.68)                  |  | 1.307 (33.20) |  | 41 (0.18)                   |  | 28 (0.12)    |  |
|                     | B52A             | 434 (1.93)                  |  | .766 (19.45)  |  | 198 (0.88)                  |  | 132 (0.59)   |  |
| 96 (2438)           | B52              | 135 (0.60)                  |  | 1.707 (43.36) |  | 32 (0.14)                   |  | 21 (0.93)    |  |
|                     | B52A             | 380 (1.69)                  |  | 1.001 (25.42) |  | 152 (0.67)                  |  | 101 (0.45)   |  |
| 108 (2743)          | B52              | 120 (0.53)                  |  | 2.160 (54.86) |  | 25 (0.11)                   |  | 17 (0.75)    |  |
|                     | B52A             | 338 (1.50)                  |  | 1.267 (32.18) |  | 120 (0.53)                  |  | 80 (0.35)    |  |
| 120 (3048)          | B52              | 108 (0.48)                  |  | 2.667 (67.74) |  | 20 (0.89)                   |  | 13 (0.58)    |  |
|                     | B52A             | 304 (.135)                  |  | 1.564 (39.72) |  | 97 (0.43)                   |  | 65 (0.29)    |  |

Based on simple beam condition using an allowable design stress of 25,000 psi (172 MPa) in accordance with MFMA, with adequate lateral bracing (see page 12 for further explanation). Actual yield point of cold rolled steel is 42,000 psi. To determine concentrated load capacity at mid span, multiply uniform load by 0.5 and corresponding deflection by 0.8. \*Failure determined by weld shear.

## Column Loading

| Unbraced<br>Height<br>In. mm | Channel<br>Style | Max. Column Loading K = .80 |  |                      |  | Max. Column Loading (Loaded @ C.G.) |  |                |  |               |  |
|------------------------------|------------------|-----------------------------|--|----------------------|--|-------------------------------------|--|----------------|--|---------------|--|
|                              |                  | Loaded@<br>C.G.             |  | Loaded@<br>Slot Face |  | K = .65                             |  | K = 1.0        |  | K = 1.2       |  |
|                              |                  | Lbs. kN                     |  | Lbs. kN              |  | Lbs. kN                             |  | Lbs. kN        |  | Lbs. kN       |  |
| 12 (305)                     | B52              | 8407 (37.36)                |  | 3162 (14.06)         |  | 8543 (38.00)                        |  | 8205 (36.50)   |  | 7989 (35.54)  |  |
|                              | B52A             | 19160 (85.23)               |  | 5290 (23.53)         |  | 19425 (86.41)                       |  | 18777 (83.52)  |  | 18363 (81.68) |  |
| 24 (609)                     | B52              | 7519 (33.44)                |  | 2755 (12.25)         |  | 7879 (35.05)                        |  | 6521 (29.01)   |  | 5397 (24.01)  |  |
|                              | B52A             | 17444 (77.59)               |  | 4955 (22.04)         |  | 18144 (80.71)                       |  | 16412 (73.00)  |  | 15275 (67.94) |  |
| 36 (914)                     | B52              | 5397 (24.01)                |  | 2152 (9.57)          |  | 6653 (29.59)                        |  | 3616 (16.08)   |  | 2511 (11.17)  |  |
|                              | B52A             | 15275 (67.94)               |  | 4496 (20.00)         |  | 16547 (73.60)                       |  | 13376 (59.50)  |  | 11243 (50.01) |  |
| 48 (1219)                    | B52              | 3178 (14.13)                |  | 1560 (6.94)          |  | 4785 (21.28)                        |  | 2034 (9.05)    |  | 1412** (6.28) |  |
|                              | B52A             | 12692 (56.46)               |  | 3963 (17.63)         |  | 14667 (65.24)                       |  | 9683 (43.07)   |  | 6780 (30.16)  |  |
| 60 (1524)                    | B52              | 2034 (9.05)                 |  | 1159 (5.15)          |  | 3081 (13.70)                        |  | 1302** (5.79)  |  | 904** (4.02)  |  |
|                              | B52A             | 9683 (43.07)                |  | 3383 (15.05)         |  | 12516 (55.67)                       |  | 6248 (27.79)   |  | 4339 (19.30)  |  |
| 72 (1829)                    | B52              | 1412** (6.28)               |  | 891 (3.96)           |  | 2139 (9.51)                         |  | 904** (4.02)   |  | —             |  |
|                              | B52A             | 6780 (30.16)                |  | 2799 (12.45)         |  | 10084 (44.85)                       |  | 4339 (19.30)   |  | 3013 (13.42)  |  |
| 84 (2133)                    | B52              | 1038** (4.62)               |  | 704 (3.13)           |  | 1572 (6.99)                         |  | 664** (2.95)   |  | —             |  |
|                              | B52A             | 4981 (22.15)                |  | 2337 (10.39)         |  | 7545 (33.56)                        |  | 3188 (14.18)   |  | 2214** (9.85) |  |
| 96 (2438)                    | B52              | 794** (3.53)                |  | 570 (2.53)           |  | 1203** (5.35)                       |  | —              |  | —             |  |
|                              | B52A             | 3814 (16.96)                |  | 1973 (8.77)          |  | 5777 (25.70)                        |  | 2441** (10.86) |  | 1695** (7.54) |  |
| 108 (2743)                   | B52              | —                           |  | 470 (2.09)           |  | 951** (4.23)                        |  | —              |  | —             |  |
|                              | B52A             | 3013 (13.40)                |  | 1684 (7.49)          |  | 4564 (20.30)                        |  | 1928** (8.57)  |  | 1339** (5.95) |  |
| 120 (3048)                   | B52              | —                           |  | 394 (1.75)           |  | 770** (3.42)                        |  | —              |  | —             |  |
|                              | B52A             | 2441** (10.86)              |  | 1452 (6.46)          |  | 3697 (16.44)                        |  | 1562** (6.95)  |  | —             |  |

\*\*Where the slenderness ratio  $\frac{KL}{r}$  exceeds 200, and K = end fixity factor, L = actual length and r = radius of gyration.