



**NMSS GROUP**  
 Building Quality Potential

# Z-SECTION PROPERTIES AND ALLOWABLES

**Material: Grade: ASTM A653, Grade:50, EN-10147, S350, GD Z275, C90 (Fy=350 N/mm2)**

| SECTION         |                     | 142Z15 | 142Z20 | 172Z15 | 172Z20 | 202Z15 | 202Z20 | 202Z25 | 232Z15 | 232Z20 | 232Z25 |        | 250Z25  | 262Z20 | 262Z25  | 302Z25  | 302Z30  | 342Z25  | 342Z30  |
|-----------------|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|--------|---------|---------|---------|---------|---------|
| Depth           | D mm                | 142    | 142    | 172    | 172    | 202    | 202    | 202    | 232    | 232    | 232    | 250    | 250     | 262    | 262     | 302     | 302     | 342     | 342     |
| Thickness       | t mm                | 1.5    | 2.0    | 1.5    | 2.0    | 1.5    | 2.0    | 2.5    | 1.5    | 2.0    | 2.5    | 2.0    | 2.5     | 2.0    | 2.5     | 2.5     | 3.0     | 2.5     | 3.0     |
| Top Flange      | W <sub>u</sub> mm   | 60     | 60     | 65     | 65     | 65     | 65     | 65     | 76     | 76     | 76     | 80     | 80      | 80     | 80      | 90      | 90      | 100     | 100     |
| Bot.Flange      | W <sub>b</sub> mm   | 55     | 55     | 60     | 60     | 60     | 60     | 60     | 69     | 69     | 69     | 72     | 72      | 72     | 72      | 82      | 82      | 92      | 92      |
| Lip             | L mm                | 16     | 16     | 16     | 16     | 16     | 16     | 16     | 16     | 16     | 16     | 16     | 16      | 16     | 16      | 18      | 18      | 18      | 18      |
| Lip Angle       | Deg                 | 45     | 45     | 45     | 45     | 45     | 45     | 45     | 45     | 45     | 45     | 45     | 45      | 45     | 45      | 45      | 45      | 45      | 45      |
| Bend Radius     | R mm                | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 2.0    | 3.0    | 2.0    | 2.0    | 3.0    | 2.0    | 3.0     | 2.0    | 3.0     | 3.0     | 3.0     | 3.0     | 3.0     |
| Weight          | W kg/m              | 3.33   | 4.44   | 3.81   | 5.10   | 4.12   | 5.49   | 6.86   | 4.78   | 6.37   | 7.96   | 6.71   | 8.39    | 6.90   | 8.63    | 9.79    | 11.73   | 10.97   | 13.14   |
| Area            | A mm <sup>2</sup>   | 421.82 | 558.19 | 481.82 | 638.19 | 526.82 | 698.19 | 865.30 | 601.82 | 798.19 | 990.30 | 848.19 | 1052.80 | 872.19 | 1082.80 | 1247.30 | 1491.80 | 1397.30 | 1671.80 |
| Ixx             | cm <sup>4</sup>     | 135.26 | 177.34 | 221.87 | 291.55 | 322.76 | 424.67 | 521.59 | 487.09 | 641.96 | 790.24 | 786.90 | 969.52  | 878.84 | 1083.18 | 1661.13 | 1978.11 | 2377.02 | 2823.95 |
| Sxx (t)         | cm <sup>3</sup>     | 19.39  | 25.43  | 26.20  | 34.43  | 32.41  | 42.65  | 52.39  | 42.73  | 56.32  | 69.34  | 64.15  | 79.05   | 68.33  | 84.23   | 111.79  | 133.12  | 141.01  | 168.06  |
| Sxx (b)         | cm <sup>3</sup>     | 18.72  | 24.54  | 25.41  | 33.38  | 31.51  | 41.46  | 50.92  | 41.28  | 54.40  | 66.95  | 61.80  | 76.13   | 65.89  | 81.20   | 108.29  | 128.95  | 137.06  | 163.35  |
| Rx              | cm                  | 5.66   | 5.64   | 6.79   | 6.76   | 7.83   | 7.80   | 7.76   | 9.00   | 8.97   | 8.93   | 9.63   | 9.60    | 10.04  | 10.02   | 11.54   | 11.52   | 13.04   | 13.02   |
| Iyy             | cm <sup>4</sup>     | 36.06  | 47.09  | 44.26  | 57.93  | 44.26  | 57.94  | 71.01  | 64.34  | 84.40  | 103.67 | 95.30  | 117.14  | 95.31  | 117.15  | 171.05  | 201.50  | 227.48  | 269.63  |
| Syy (l)         | cm <sup>3</sup>     | 5.39   | 7.07   | 6.17   | 8.10   | 6.18   | 8.11   | 9.98   | 7.94   | 10.44  | 12.87  | 11.34  | 13.99   | 11.35  | 13.99   | 17.99   | 21.35   | 21.65   | 25.72   |
| Syy (r)         | cm <sup>3</sup>     | 5.20   | 6.82   | 5.95   | 7.82   | 5.94   | 7.81   | 9.60   | 7.57   | 9.95   | 12.26  | 10.75  | 13.26   | 10.75  | 13.25   | 17.13   | 20.33   | 20.70   | 24.59   |
| Ry              | cm                  | 2.92   | 2.90   | 3.03   | 3.01   | 2.90   | 2.88   | 2.87   | 3.27   | 3.25   | 3.24   | 3.35   | 3.34    | 3.31   | 3.29    | 3.70    | 3.68    | 4.04    | 4.02    |
| Allowable Shear | Vu KN               | 14.92  | 29.89  | 12.17  | 29.21  | 10.28  | 24.62  | 46.70  | 8.90   | 21.28  | 42.29  | 19.68  | 39.05   | 18.74  | 37.15   | 31.56   | 54.73   | 27.75   | 48.09   |
| Allowable BM*   | M <sub>u</sub> KN-m | 3.35   | 4.72   | 4.45   | 6.08   | 5.46   | 7.60   | 10.31  | 6.25   | 9.75   | 12.55  | 10.93  | 13.88   | 11.66  | 14.84   | 19.48   | 23.61   | 22.76   | 28.15   |
| Allowable bm*   | M <sub>u</sub> KN-m | 3.12   | 4.40   | 4.14   | 5.66   | 5.66   | 7.07   | 9.60   | 5.82   | 9.07   | 11.68  | 10.18  | 12.93   | 10.86  | 13.82   | 18.14   | 21.98   | 21.19   | 26.21   |
| Allowable BMS   | M <sub>u</sub> KN-m | 2.23   | 3.14   | 2.96   | 4.04   | 4.04   | 5.05   | 6.86   | 4.16   | 6.48   | 8.35   | 7.27   | 9.23    | 7.76   | 9.87    | 12.96   | 15.70   | 15.13   | 18.72   |
| Ultimate Shear  | Vu KN               | 22.42  | 44.92  | 18.29  | 43.90  | 43.90  | 37.00  | 70.19  | 13.37  | 31.98  | 63.56  | 29.57  | 58.69   | 28.16  | 55.84   | 47.44   | 82.26   | 41.71   | 72.29   |
| Ultimate BM*    | M <sub>u</sub> KN-m | 5.32   | 7.49   | 7.05   | 9.64   | 9.64   | 12.05  | 16.36  | 9.92   | 15.46  | 19.91  | 17.34  | 22.03   | 18.50  | 23.55   | 30.91   | 37.45   | 36.10   | 44.66   |
| Ultimate BM**   | M <sub>u</sub> KN-m | 4.95   | 6.98   | 6.57   | 8.98   | 8.98   | 11.22  | 15.23  | 9.23   | 14.40  | 18.54  | 16.15  | 20.51   | 17.23  | 21.92   | 28.78   | 34.87   | 33.61   | 41.58   |
| Ultimate BM \$  | M <sub>u</sub> KN-m | 3.54   | 4.98   | 4.69   | 6.41   | 6.41   | 8.02   | 10.88  | 6.59   | 10.28  | 13.24  | 11.53  | 14.65   | 12.30  | 15.66   | 20.56   | 24.90   | 24.01   | 29.708  |