



IMPERIAL Steel/Alloy Fastener Breaking (Tensile) Load Comparison

| IMPERIAL | | | | |
|---------------------|-----------------------|---|----------------------|----------------------|
| Thd Size (UNC) | Major dia in mm | Stress area in mm ² As | SAE Grade 5 kN | SAE Grade 8 kN |
| No 1 -64 | 1.854 | 1.697 | 1.40 | 1.75 |
| No 2 -56 | 2.184 | 2.387 | 1.98 | 2.47 |
| No 3 -48 | 2.515 | 3.142 | 2.60 | 3.25 |
| No 4 -40 | 2.845 | 3.897 | 3.22 | 4.03 |
| No 5 -40 | 3.175 | 5.135 | 4.25 | 5.31 |
| No 6 -32 | 3.505 | 5.865 | 4.85 | 6.07 |
| No 8 -32 | 4.166 | 9.032 | 7.47 | 9.34 |
| No 10 -24 | 4.826 | 11.290 | 9.34 | 11.68 |
| No 12 -24 | 5.486 | 15.613 | 12.92 | 16.15 |
| 1/4 -20 | 6.350 | 20.516 | 16.98 | 21.22 |
| 5/16 -18 | 7.938 | 33.806 | 27.97 | 34.96 |
| 3/8 -16 | 9.525 | 50.000 | 41.37 | 51.71 |
| 7/16 -14 | 11.112 | 68.581 | 56.74 | 70.93 |
| 1/2 -13 | 12.700 | 91.458 | 75.75 | 94.68 |
| 9/16 -12 | 14.288 | 117.419 | 97.15 | 121.44 |
| 5/8-11 | 15.875 | 145.806 | 120.64 | 150.80 |
| | | | | |
| 3/4 -10 | 19.020 | 215.483 | 178.29 | 222.86 |
| 7/8 -9 | 22.225 | 298.064 | 246.62 | 308.27 |
| 1 -8 | 25.400 | 390.967 | 323.49 | 404.36 |
| | | | | |
| 1 1/8 -7 | 28.575 | 492.257 | 356.38 | 509.12 |
| | | | | |
| 1 1/4 -7 | 31.750 | 625.160 | 452.60 | 646.57 |
| 1 3/8 -6 | 34.925 | 745.160 | 539.48 | 770.69 |
| | | | | |
| 1 1/2 -6 | 38.100 | 906.450 | 656.25 | 937.50 |
| | | | | |
| 1 3/4 -5 | 44.450 | 1225.804 | 887.46 | 1267.79 |
| | | | | |
| 2 -4 1/2 | 50.800 | 1612.900 | 1167.70 | 1668.15 |
| 2 1/4 -4 1/2 | 57.150 | 2096.770 | 1518.02 | 2168.59 |
| 2 1/2 -4 | 63.500 | 2580.640 | 1863.33 | 2669.04 |

Note: For comparison sake, IMPERIAL units have been converted to METRIC.

Breaking (Tensile) Load = Stress area (As) x Tensile Strength

- * 1 kN = 224.81 lbf
- * 1 MPa = 145.04 psi
- * 1 psi = 0.006894 MPa
- * 1 lbf = 0.004448 kN

Calculation based on the tensile strength of:

Grade 5 - 120000 psi upto 1"-100000 psi over 1"

Grade 8 - 150000 psi.