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a member of the **Hudaco** group

## IMPERIAL Steel/Alloy Fastener Breaking (Tensile) Load Comparison

### IMPERIAL

| Thd Size (UNC) | Major dia in mm | Stress area in mm <sup>2</sup><br>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.

\* 1 MPa = 145.04 psi

\* 1 psi = 0.006894 MPa

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

\* 1 kN = 224.81 lbf

Calculation based on the tensile strength of:

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

**Grade 8 - 150000 psi.**

\* 1 lbf = 0.004448 kN