



PROPERTIES OF HEX BOLT & NUT (UNC / UNF) GRADE 8

| NOMINAL DIAMETER | PITCH in TPI | | | stress area in mm ² | | | BOLT, SCREW & STUD SAE J429 GRADE 8 | | | | | | | NUT SAE J995 GRADE 8 | | | |
|------------------|--------------|-----|-----|--------------------------------|-------|-------|--|-------------------|-------------------|---------------------|-------------|--------------|---------------|-------------------------|-------------------|---------------------|--------------|
| | UNC | UNF | 8UN | UNC | UNF | 8UN | Proof Stress N/mm | Proof Load UNC KN | Proof Load UNF KN | Tensile Stress N/mm | Torque* N m | Hardness HRC | ELONGATION# % | Proof Stress UNC N/mm | Proof Load UNC KN | Proof Stress UNF KN | Hardness HRC |
| 1/4 | 20 | 28 | | 20.5 | 23.5 | | 827 | 17.0 | 19.4 | 1034 | 14.47 | 33-39 | 12.0 | 1034 | 21.2 | 24.3 | 24-32 |
| 5/16 | 18 | 24 | | 33.8 | 37.5 | | 827 | 28.0 | 31.0 | 1034 | 29.81 | 33-39 | 12.0 | 1034 | 35.0 | 38.7 | 24-32 |
| 3/8 | 16 | 24 | | 50.0 | 56.7 | | 827 | 41.3 | 46.9 | 1034 | 52.87 | 33-39 | 12.0 | 1034 | 51.7 | 58.6 | 24-32 |
| 7/16 | 14 | 20 | | 68.6 | 76.6 | | 827 | 56.7 | 63.3 | 1034 | 84.62 | 33-39 | 12.0 | 1034 | 70.9 | 79.2 | 24-32 |
| 1/2 | 13 | 20 | | 91.5 | 103 | 91.5 | 827 | 75.7 | 85.3 | 1034 | 129.1 | 33-39 | 12.0 | 1034 | 94.7 | 106.7 | 24-32 |
| 9/16 | 12 | 18 | | 117 | 131 | 117 | 827 | 97.1 | 108.3 | 1034 | 186.2 | 33-39 | 12.0 | 1034 | 121.4 | 135.4 | 24-32 |
| 5/8 | 11 | 18 | | 146 | 165 | 146 | 827 | 120.6 | 136.6 | 1034 | 257.0 | 33-39 | 12.0 | 1034 | 150.8 | 170.7 | 24-32 |
| 3/4 | 10 | 16 | | 216 | 241 | 216 | 827 | 178.5 | 199.0 | 1034 | 456.4 | 33-39 | 12.0 | 1034 | 223.1 | 248.8 | 26-32 |
| 7/8 | 9 | 14 | | 298 | 329 | 298 | 827 | 246.4 | 271.8 | 1034 | 735.1 | 33-39 | 12.0 | 1034 | 308.0 | 339.9 | 26-32 |
| 1 | 8 | 12 | 8 | 391 | 428 | 391 | 827 | 323.2 | 353.8 | 1034 | 1,102 | 33-39 | 12.0 | 1034 | 404.1 | 442.3 | 26-32 |
| 1 1/16 | | | 8 | | | 448 | 827 | - | - | 1034 | - | 33-39 | 12.0 | 1034 | - | - | 26-32 |
| 1 1/8 | 7 | 12 | 8 | 492 | 552 | 510 | 827 | 407.2 | 456.6 | 1034 | 1,562 | 33-39 | 12.0 | 1034 | 509.2 | 570.8 | 26-32 |
| 1 3/16 | | | 8 | | | 575 | 827 | - | - | 1034 | - | 33-39 | 12.0 | 1034 | - | - | 26-32 |
| 1 1/4 | 7 | 12 | 8 | 625 | 692 | 645 | 827 | 517.1 | 572.5 | 1034 | 2,204 | 33-39 | 12.0 | 1034 | 646.5 | 715.8 | 26-32 |
| 1 5/16 | | | 8 | | | 718 | 827 | - | - | 1034 | - | 33-39 | 12.0 | 1034 | - | - | 26-32 |
| 1 3/8 | 6 | 12 | 8 | 745 | 848 | 796 | 827 | 616.2 | 701.5 | 1034 | 2,889 | 33-39 | 12.0 | 1034 | 770.4 | 877.0 | 26-32 |
| 1 7/16 | | | 8 | | | 877 | 827 | - | - | 1034 | - | 33-39 | 12.0 | 1034 | - | - | 26-32 |
| 1 1/2 | 6 | 12 | 8 | 907 | 1,020 | 962 | 827 | 749.8 | 843.6 | 1034 | 3,835 | 33-39 | 12.0 | 1034 | 937.4 | 1,055 | 26-32 |
| 1 9/16 | | | 8 | | | 1,052 | | | | | | | | | | | |
| 1 5/8 | | | 8 | | | 1,145 | | | | | | | | | | | |
| 1 11/16 | | | 8 | | | 1,242 | | | | | | | | | | | |
| 1 3/4 | 5 | | 8 | 1,225 | | 1,343 | | | | | | | | | | | |
| 1 7/8 | | | 8 | | | 1,557 | | | | | | | | | | | |
| 2 | 4 1/2 | | 8 | 1,612 | | 1,788 | | | | | | | | | | | |
| 2 1/4 | 4 1/2 | | 8 | 2,095 | | 2,295 | | | | | | | | | | | |
| 2 1/2 | 4 | | 8 | 2,580 | | 2,866 | | | | | | | | | | | |
| 2 3/4 | | | 8 | | | 3,819 | | | | | | | | | | | |
| 3 | | | 8 | | | 4,198 | | | | | | | | | | | |
| 3 1/4 | | | 8 | | | 4,959 | | | | | | | | | | | |
| 3 1/2 | | | 8 | | | 5,783 | | | | | | | | | | | |
| 4 | | | 8 | | | 7,621 | | | | | | | | | | | |

| DIMENSION | NORMAL HEX | NORMAL HEX |
|------------|-----------------------|------------------|
| MARKING | Six Radial Lines | Six Radial Lines |
| CARBON | 0.03-0.48 / 0.35-0.53 | -0.55 |
| MANGANESE | 1.65- | -0.30 |
| SULPHUR | -0.04 | -0.05 |
| SILICON | 0.60- | 0.15-0.30 |
| CHROMIUM | 3.99- | |
| MOLYBDENUM | | |
| NICKLE | | |
| VANADIUM | | |
| PHOPHORUS | | -0.04 |
| MATERIAL | Alloy Steel | Alloy Steel |

Notes:

- 1. 8UN means less than 1" UNC thread and above 1" 8 TPI thread
- 2. Left hand side of '-' is minimum value right hand side of '-' is maximum value
Eg. 0.5-0.7 min is 0.5 and max is 0.7
Eg. -0.8 max is 0.8 no minimum value
Eg. 2.0- min is 2.0 no maximum value

* Torque value based on 75% of proof load and finish as recieved steel

| Metric Units is followed, if not available it has been converted to metric unit for uniformity