



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.
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