

**TRIANGLE FASTENER CORPORATION**  
**TECH CENTER | CLEVELAND, OH | 216.351.9933**

JS0215-0222

**Tensile Strength Calculator for Bolts**



MATERIAL MINIMUM TENSILE STRENGTH						
CARBON STEEL				STAINLESS STEEL		
SAE J429 <u>GRADE 2</u>	ASTM A307 <u>GRADE B</u>	SAE J429 <u>GRADE 5</u>	SAE J429 <u>GRADE 8</u>	<u>304SS</u>	<u>305SS</u>	<u>316 SS</u>
74,000	60,000	120,000	150,000	90,000	90,000	90,000

BOLT SIZE	STRESS AREA in. <sup>2</sup>	SAE J429 GRADE 2	ASTM A307 GRADE B	SAE J429 GRADE 5	SAE J429 GRADE 8	304SS	305SS	316 SS
1/4-20	0.0318	2,353	1,908	3,816	4,770	2,862	2,862	2,862
5/16-18	0.0524	3,878	3,144	6,288	7,860	4,716	4,716	4,716
3/8-16	0.0775	5,735	4,650	9,300	11,625	6,975	6,975	6,975
7/16-14	0.1063	7,866	6,378	12,756	15,945	9,567	9,567	9,567
1/2-13	0.1719	12,721	10,314	20,628	25,785	15,471	15,471	15,471
9/16-12	0.1820	13,468	10,920	21,840	27,300	16,380	16,380	16,380

**Calculations**

Per ASME B1.1

Tensile Stress  $TS = 0.7854 * (\text{Dia} - (0.9743 / \text{TPI}))^2$

Tensile  $T = TSA * \text{Material tensile}$

DISCLAIMER: All information is non-binding and without guarantee. Before using the products, all specifications and calculations must be checked by a suitably qualified person and local regulations must be observed. This document is subject to revision. We reserve the right to make technical changes. (0321-1)