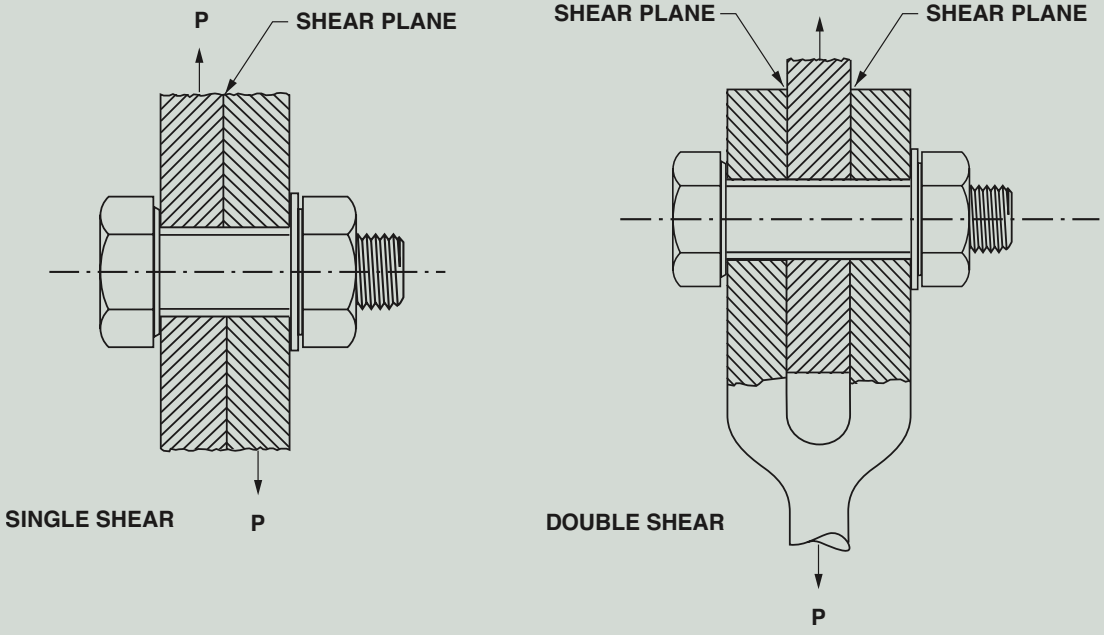
Shear Strength is defined as the maximum load typically applied normal to a fastener's axis that can be supported prior to fracture. Single shear is load applied in one plane that would result in the fastener being cut into two pieces, while double shear would result in three fastener pieces.

Single shear values for fasteners are typically calculated based upon the nominal body diameter or body shear area, BSA. See the definitions following the table below. An appropriate factor of safety must be applied to the calculated Single Shear Strength values by the Engineer of Record.

SHEAR CONFIGURATIONS



SINGLE SHEAR CALCULATIONS, MIN. LBS

NOMINAL BOLT DIAMETER	BODY SHEAR AREA, SQ IN	GR 2	A307A & B	GR 5 / A325	GR 8 / A490
1/4"	0.04908	2,179.2	1,766.9	3,533.8	4,417.2
5/16"	0.07669	3,405.0	2,760.8	5,521.7	6,902.1
3/8"	0.11044	4,903.5	3,975.8	7,951.7	9,939.6
7/16"	0.15033	6,674.7	5,411.9	10,823.8	13,529.7
1/2"	0.19634	8,717.5	7,068.2	14,136.5	17,670.6
9/16"	0.24850	11,033.4	8,946.0	17,892.0	22,365.0
5/8"	0.30679	13,621.5	11,044.4	22,088.9	27,611.1
3/4"	0.44178	19,615.0	15,904.1	31,808.2	39,760.2
7/8"	0.60132	21,647.5	21,647.5	43,295.0	54,118.8
1"	0.78539	28,274.0	28,274.0	56,548.1	70,685.1
1 1/8"	0.99401	35,784.4	35,784.4	62,622.6	89,460.9
1 1/4"	1.22718	44,178.5	44,178.5	77,312.3	110,446.2

DEFINITIONS:

> Ultimate Tensile Strength, UTS - PSI - Lbs/Square Inch
> Ultimate Shear Strength, USS - PSI USS = .6 X UTS
> Body Shear Area, BSA - Square Inches
> Single Shear Strength, SSS - Lbs SSS = USS X BSA

ULTIMATE TENSILE STRENGTH, PSI

NOMINAL BOLT DIAMETER	GR 2	A307A & B	GR 5 / A325	GR 8 / A490
1/4"	74,000	60,000	120,000	150,000
5/16"	74,000	60,000	120,000	150,000
3/8"	74,000	60,000	120,000	150,000
7/16"	74,000	60,000	120,000	150,000
1/2"	74,000	60,000	120,000	150,000
9/16"	74,000	60,000	120,000	150,000
5/8"	74,000	60,000	120,000	150,000
3/4"	74,000	60,000	120,000	150,000
7/8"	60,000	60,000	120,000	150,000
1"	60,000	60,000	120,000	150,000
1 1/8"	60,000	60,000	105,000	150,000
1 1/4"	60,000	60,000	105,000	150,000

TODAY, THAT LITTLE "n" MEANS BIG THINGS!

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