

Thread Size
Tensile Area in²

1/4-20	0.0318
1/4-28	0.0364
5/16-18	0.0524
5/16-24	0.0580
3/8-16	0.0775
3/8-24	0.0878
7/16-14	0.1063
7/16-20	0.1187
1/2-13	0.1419
1/2-20	0.1599
9/16-12	0.1820
9/16-18	0.2030
5/8-11	0.2260
5/8-18	0.2560
3/4-10	0.3340
3/4-16	0.3730
7/8-9	0.4620
7/8-16	0.5090
1-8	0.6060
1-12	0.6630

mm²

M6-1.0	20.125
M8-1.25	36.611
M8-1.0	39.169
M10-1.5	57.994
M10-1.25	61.202
M12-1.75	84.272
M12-1.5	88.131
M12-1.25	92.076
M14-2.0	115.447
M14-1.5	124.552
M16-2.0	156.677
M16-1.5	167.255
M18-1.5	216.242
M20-2.5	244.808
M20-1.5	271.513
M22-2.5	303.415
M22-1.5	333.066
M24-3.0	352.524
M24-2.0	384.431

CONVERSION DATA

	To convert from...	to...	Multiply by...
Torque	Newton-Meter	Foot-pound	0.73756
	Newton-Meter	Inch-pound	8.85
Force	Newton	Pound	0.22482
Stress	Mega-Pascal	Pounds/sq. inch	145.038

COMMON STRENGTH GRADES (English External Thread)

Strength Classification	Material	Proof Stress (ksi)	Tensile Strength (ksi)	Core Hardness (Rockwell)
SAE J429 Grade 2 (data for 1/4" - 3/4" dia)	carbon steel	55	74	B80 - B100
SAE J429 Grade 5 (data for 1/4" - 1" dia)	medium carbon or carbon steel with additives	85	120	C25 - C34
SAE Grade 8 (data for 1/4" - 1 1/2" dia)	medium carbon or carbon steel with additives, or alloy steel	120	150	C33 - C39
ASTM A574 (covers 1/4" - 4" dia socket head cap screws, high strength)	medium carbon alloy steel, quenched & tempered	140 (up to 1/2")	180 (up to 1/2")	C39 - C45 (up to 1/2")
		135 (above 1/2")	170 (above 1/2")	C37 - C45 (above 1/2")

COMMON PROPERTY CLASSES (Metric External Thread)

Property Class ISO 898 (covers M1.6 - M39)	Material	Proof Stress (MPa)	Tensile Strength (MPa)	Core Hardness (HRC)
8.8	carbon, alloy, or carbon steel with additives	580	800	22 - 32
9.8		650	900	28 - 37
10.9		830	1040	32 - 39
12.9	alloy steel, quenched & tempered	970	1220	39 - 44
12.9	carbon steel with additives	970	1220	39 - 44

Due to embrittlement concerns, class 12.9 is not recommended unless the application and fastener fabrication process is fully reviewed.