

Proof Load Tensile Strength for Grade 2, 5 & 8

Coarse Thread Series – UNRC

Nominal Diameter of Products & Threads per inch	Stress Area (sq. in.)	Grade 2		Grade 5		Grade 8	
		Proof Load (lbs.)	Tensile Strength Min. (lbs.)	Proof Load (lbs.)	Tensile Strength Min. (lbs.)	Proof Load (lbs.)	Tensile Strength Min. (lbs.)
1/4 – 20	0.0318	1,750	2,350	2,700	3,800	3,800	4,750
5/16 – 18	0.0524	2,900	3,900	4,450	6,300	6,300	7,850
3/8 – 16	0.0775	4,250	5,750	6,600	9,300	9,300	11,600
7/16 – 14	0.1063	5,850	7,850	9,050	12,800	12,800	15,900
1/2 – 13	0.1419	7,800	10,500	12,100	17,000	17,000	21,300
9/16 – 12	0.1820	10,000	13,500	15,500	21,800	21,800	27,300
5/8 – 11	0.2260	12,400	16,700	19,200	27,100	27,100	33,900
3/4 – 10	0.3340	18,400	24,700	28,400	40,100	40,100	50,100
7/8 – 9	0.4620	15,200	27,700	39,300	55,400	55,400	69,300
1 - 8	0.6060	20,000	36,400	51,500	72,700	72,700	90,900
1-1/8 - 7	0.7630	25,200	45,800	56,500	80,100	91,600	114,400
1-1/4 – 7	0.9690	32,000	58,100	71,700	101,700	116,300	145,400
1-3/8 – 6	1.1550	38,100	69,300	85,500	121,300	138,600	173,200
1-1/2 – 6	1.4050	46,400	84,300	104,000	147,500	168,600	210,800

Fine Thread Series – UNRC

Nominal Diameter of Products & Threads per inch	Stress Area (sq. in.)	Grade 2		Grade 5		Grade 8	
		Proof Load (lbs.)	Tensile Strength Min. (lbs.)	Proof Load (lbs.)	Tensile Strength Min. (lbs.)	Proof Load (lbs.)	Tensile Strength Min. (lbs.)
1/4 – 28	0.0364	2,000	2,700	3,100	4,350	4,350	5,450
5/16 – 24	0.0580	3,200	4,300	4,900	6,950	6,950	8,700
3/8 – 24	0.0878	4,800	6,500	7,450	10,500	10,500	13,200
7/16 – 20	0.1187	6,550	8,800	10,100	14,200	14,200	17,800
1/2 – 20	0.1599	8,800	11,800	13,600	19,200	19,200	24,000
9/16 – 18	0.2030	11,200	15,000	17,300	24,400	24,400	30,400
5/8 – 18	0.2560	14,100	18,900	21,800	30,700	30,700	38,400
3/4 – 16	0.3730	20,500	27,600	31,700	44,800	44,800	56,000
7/8 – 14	0.5090	16,800	30,500	43,300	61,100	61,100	76,400
1 – 12	0.6630	21,900	39,800	56,400	79,600	79,600	99,400
1 – 14 UNF	0.6790	22,400	40,700	57,700	81,500	81,500	101,900
1-1/8 – 12	0.8560	28,200	51,400	63,300	89,900	102,700	128,400
1-1/4 – 12	1.0730	35,400	64,400	79,400	112,700	128,800	161,000
1-3/8 - 12	1.3150	43,400	78,900	97,300	138,100	157,800	197,200
1-1/2 - 12	1.5810	52,200	94,900	117,000	166,000	189,700	237,200

Proof loads and tensile strengths are computed by multiplying the proof load stresses and tensile strengths stresses by the stress area of the thread.

$A_s = 0.7854 (D - 0.9743/n)^2$ squared where D equals nominal diameter in inches and n equals thread per inch

