

HARDNESS (ASTM A194)

Grade and Type	Completed Nuts			Sample Nut after Treatment as in 8.1.5	
	Brinell Hardness	Rockwell Hardness		Brinell Hardness, min	Rockwell Hardness B Scale, min
		C Scale	B Scale		
1	121 min	...	70 min	121	70
2	159 to 352	...	84 min	159	84
2H to 1½ in. or M36, incl	248 to 327	24 to 35	...	179	89
2H over 1½ in. or M36	212 to 327	35 max	95 min	147	79
2HM and 7M	159 to 235	...	84 to 99	159	84
3, 4, 7, and 16	248 to 327	24 to 35	...	201	94
6 and 6F	228 to 271	20 to 28
8, 8C, 8CLN, 8M, 8T, 8F, 8P, 8N, 8MN, 8LN, 8MLN, 8MLCuN, 8ML4CuN, and 9C	126 to 300	32 max	60 min
8A, 8CA, 8CLNA, 8MA, 8TA, 8FA, 8PA, 8NA, 8MNA, 8LNA, 8MLNA, 8MLCuNA, 8ML4CuNA, and 9CA	126 to 192	...	60 to 90
8R, 8RA, 8S, and 8SA	183 to 271	25 max	88 min

^A Where ellipses (...) appear in this table there is no requirement.

PROOF LOAD (ASTM A194)

TABLE 3 Proof Load Using Threaded Mandrel — Inch Series

NOTE 1—Proof loads are not design loads.

Nominal Size, in.	Threads per Inch	Stress Area in. ²	Proof Load, lbf ^A					
			Grade 1		Grades 2, 2HM, 6, 6F, 7M		Grades 2H, 3, 4, 7, 16	
			Heavy Hex ^B	Hex ^C	Heavy Hex ^D	Hex ^E	Heavy Hex ^F	Hex ^G
1/4	20	0.0316	4 130	3 820	4 770	4 300	5 570	4 770
5/16	18	0.0524	6 810	6 290	7 860	7 070	9 170	7 860
3/8	16	0.0774	10 080	9 300	11 620	10 460	13 560	11 620
7/16	14	0.1063	13 820	12 760	15 940	14 350	18 600	15 940
1/2	13	0.1419	18 450	17 030	21 280	19 160	24 830	21 280
5/8	12	0.182	23 660	21 840	27 300	24 570	31 850	27 300
3/4	11	0.226	29 380	27 120	33 900	30 510	39 550	33 900
7/8	10	0.334	43 420	40 080	50 100	45 090	58 450	50 100
1	9	0.462	60 060	55 440	69 300	62 370	80 850	69 300
1 1/8	8	0.606	78 780	72 720	90 900	81 810	106 000	90 900
1 1/4	8	0.790	102 700	94 800	118 500	106 700	138 200	118 500
1 1/2	8	1.000	130 000	120 000	150 000	135 000	175 000	150 000
1 3/4	8	1.233	160 200	148 000	185 000	166 500	215 800	185 000
1 7/8	8	1.492	194 000	170 040	223 800	201 400	261 100	223 800
All Types of Grade 8, Grades 9C and 9CA								
					Heavy Hex ^H	Hex ^I		
	1/4	20	0.0316		2 540	2 380		
	5/16	18	0.0524		4 190	3 930		
	3/8	16	0.0774		6 200	5 810		
	7/16	14	0.1063		8 500	7 970		
	1/2	13	0.1419		11 350	10 640		
	5/8	12	0.182		14 560	13 650		
	3/4	11	0.226		18 080	16 950		
	7/8	10	0.334		26 720	25 050		
	1	9	0.462		36 960	34 650		
	1 1/8	8	0.606		48 480	45 450		
	1 1/4	8	0.790		63 200	59 250		
	1 1/2	8	1.000		80 000	75 000		
	1 3/4	8	1.233		98 640	92 450		
	1 7/8	8	1.492		119 360	111 900		

^A See limit for proof load test in 8.2.2.1. The proof load for jam nuts shall be 46 % of the tabulated load.

^B Based on proof stress of 130 000 psi.

^C Based on proof stress of 120 000 psi.

^D Based on proof stress of 150 000 psi.

^E Based on proof stress of 135 000 psi.

^F Based on proof stress of 175 000 psi.

^G Based on proof stress of 150 000 psi.

^H Based on proof stress of 80 000 psi.

^I Based on proof stress of 75 000 psi.

PROOF LOAD (ASTM A194)

Nominal Size, in.	Threads per in.	Stress Area, in. ²	Proof Load, lbf ^A			
			Grade 8M (strain hardened)	Grade 8M (strain hardened)	All Other Types of Grade 8 (strain hardened)	All Other Types of Grade 8 (strain hardened)
			Heavy Hex ^B	Hex ^C	Heavy Hex ^D	Hex ^B
1/4	20	0.0316	3 480	3 160	3 950	3 480
5/16	18	0.0523	5 760	5 240	6 550	5 760
3/8	16	0.0774	8 510	7 740	9 675	8 510
7/16	14	0.1063	11 690	10 630	13 290	11 690
1/2	13	0.1419	15 610	14 190	17 740	15 610
9/16	12	0.182	20 020	18 200	22 750	20 020
5/8	11	0.226	24 860	22 600	28 250	24 860
3/4	10	0.334	36 740	33 400	41 750	36 740
7/8	9	0.462	46 200	41 580	53 130	46 200
1	8	0.606	60 600	54 540	69 690	60 600
1 1/8	8	0.790	75 050	67 150	82 950	75 050
1 1/4	8	1.000	95 000	85 000	105 000	95 000
1 3/8	8	1.233	110 970	98 640	123 300	110 970
1 1/2	8	1.492	134 280	119 360	149 200	134 280

^A The proof load for jam nuts shall be 46 % of the tabulated value.

^B Based on proof stress of 110 000 psi up to 3/4 in.; 100 000 psi 7/8 to 1 in.; 95 000 psi 1 1/8 to 1 1/4 in.; 90 000 psi 1 3/8 to 1 1/2 in.

^C Based on proof stress of 100 000 psi up to 3/4 in.; 90 000 psi 7/8 to 1 in.; 85 000 psi 1 1/8 to 1 1/4 in.; 80 000 psi 1 3/8 to 1 1/2 in.

^D Based on proof stress of 125 000 psi up to 3/4 in.; 115 000 psi 7/8 to 1 in.; 105 000 psi 1 1/8 to 1 1/4 in.; 100 000 psi 1 3/8 to 1 1/2 in.