

# Mechanical Requirements for Carbon Steel Nuts

## With UNC, 8 UN, 6 UN and Coarser Pitch Threads



Strength Grade of Nut	Dimensional Style of Nut	Nominal Nut Size in.	Proof Load Stress ksi		Nut Hardness Rockwell	
			Non-Zinc Coated Nuts	Zinc Coated Nuts	Min	Max
A563 Gr. A	hex	1/4 to 1-1/2	90	68	B68	C32
	heavy hex	1/4 to 4	100	75		
	hex thick	1/4 to 1-1/2				
SAE Gr.2	hex	1/4 to 1-1/2	90	—	—	C32
A563 Gr. B	hex	1/4 to 1	120	90	B69	C32
		1-1/8 to 1-1/2	105	79		
	heavy hex and hex thick	1/4 to 1	133	100	B69	C32
		1-1/8 to 1-1/2	116	87		
SAE Gr.5	hex	1/4 to 1	120	—	—	C32
		1-1/8 to 1-1/2	105	—		
A563 Gr.C A563 Gr.C3	heavy hex	1/4 to 4	144	144	B78	C38
A563 Gr. D	hex	1/4 to 1-1/2	135	135	B84	C38
A194 Gr. 2	heavy hex	1/4 to 4	150	150		
A563 Gr. D	hex thick	1/4 to 1-1/2	150	150	B84	C38
SAE Gr.8	hex	1/4 to 5/8			C24	C32
		3/4 to 1	150	—	C26	C34
		1-1/8 to 1-1/2			C26	C36
A563 Gr.DH A194 Gr.2H	hex	1/4 to 1-1/2	150	150	C24	C38
A563 Gr.DH A563 Gr.DH3 A194 Gr.2H	heavy hex	1/4 to 4	175	175	C24	C38
A563 Gr.DH	hex thick	1/4 to 1-1/2	175	175	C24	C38
See Notes 1,2	3		4,5,6			

### NOTES:

- For titles and source of availability of referenced ASTM and SAE specifications, refer to page N-38. For ASTM A563, see page B-167. For ASTM A194/A194M, see page B-126.
- A563 Grades C and C3 nuts are intended for use with A325 high strength structural bolts. These grades are available only in the heavy hex style.
- Dimensions for all styles of nuts are covered in ASME/ANSI B18.2.2. page D-2.
- To compute the proof load, in pounds, for a nut, multiply the proof load stress value, ksi, as given in the table for the applicable strength grade, style, size and surface condition by 1000 and multiply this answer by the tensile stress area of the nut's screw thread as given in Tables 1, 2 and 3 of ASME B1.1, pages A-36 thru A-38.
- Zinc coated nuts are nuts intended for use with externally threaded fasteners which are hot-dip galvanized, mechanically galvanized, or have a plating or coating of sufficient thickness to necessitate that the nut thread be overlapped to provide assemblability.
- Proof loads of slotted and jam nuts may be assumed to be 80 percent and 60 percent, respectively, of the proof loads of full thickness nuts of the same grade, size and basic dimensional style.