

Mechanical Requirements for Carbon Steel Nuts

With UNF, 12 UN, and Finer Pitch Threads



Strength Grade of Nut	Dimensional Style of Nut	Nominal Nut Size in.	Proof Load Stress ksi		Nut Hardness Rockwell	
			Non-Zinc	Zinc	Min	Max
			Coated Nuts	Coated Nuts		
A563 Gr. A	hex	1/4 to 1-1/2	80	60	B68	C32
	heavy hex	1/4 to 4	90	68		
	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	109	82	B69	C32
		1-1/8 to 1-1/2	94	70		
	heavy hex hex thick	1/4 to 1	120	90	B69	C32
		1-1/8 to 1-1/2	105	79		
SAE Gr.5	hex	1/4 to 1	109	—	—	C32
		1-1/8 to 1-1/2	94	—		
A563 Gr. D	hex	1/4 to 1-1/2	135	135	B84	C38
	heavy hex	1/4 to 4	150	150		
	hex thick	1/4 to 1-1/2				
SAE Gr.8	hex	1/4 to 5/8	150	—	C24	C32
		3/4 to 1			C26	C34
		1-1/8 to 1-1/2			C26	C36
A563 Gr.DH	hex	1/4 to 1-1/2	150	150	C24	C38
	heavy hex	1/4 to 4	175	175		
	hex thick	1/4 to 1-1/2				
See Notes 1	2		3,4,5			

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.
- 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.