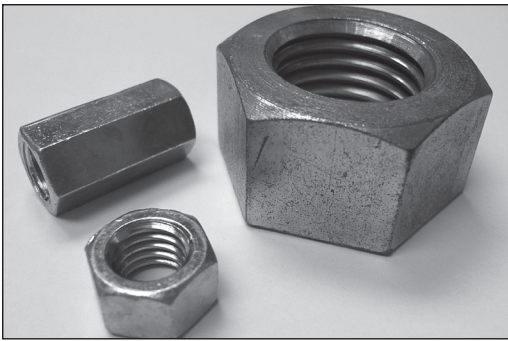

















# CARBON STEEL NUTS PROOF LOADS AND HARDNESS



## GRADE IDENTIFICATION MARKINGS FOR POPULAR GRADES OF CARBON STEEL NUTS

| Grade Identification Marking                                                              | Specification         | Material                                                            | Nominal Size in.  | Proof Load Stress ksi | Hardness Rockwell |     | See Note |
|-------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------|-------------------|-----------------------|-------------------|-----|----------|
|                                                                                           |                       |                                                                     |                   |                       | Min               | Max |          |
|  No Mark | ASTM A 563 - Grade 0  | Carbon Steel                                                        | 1/4 thru 1 1/2    | 69                    | B55               | C32 | 3, 4     |
|                                                                                           | ASTM A 563 - Grade A  | Carbon Steel                                                        | 1/4 thru 1 1/2    | 90                    | B68               | C32 | 3, 4     |
|                                                                                           | ASTM A 563 - Grade B  | Carbon Steel                                                        | 1/4 thru 1        | 120                   | B55               | C32 | 3, 4     |
|                                                                                           |                       |                                                                     | over 1 thru 1 1/2 | 105                   |                   |     |          |
|          | ASTM A563 - Grade C   | Carbon Steel, May Be Quenched and Tempered                          | 1/4 thru 4        | 144                   | B78               | C38 | 5        |
|          | ASTM A563 - Grade C3  | Atmospheric Corrosion Resistant Steel. May Be Quenched and Tempered | 1/4 thru 4        | 144                   | B78               | C38 | 5.9      |
|          | ASTM A563 - Grade D   | Carbon Steel, May Be Quenched and Tempered                          | 1/4 thru 4        | 150                   | B84               | C38 | 6        |
|         | ASTM A563 - Grade DH  | Carbon Steel, Quenched and Tempered                                 | 1/4 thru 4        | 175                   | C24               | C38 | 6        |
|        | ASTM A563 - Grade DH3 | Atmospheric Corrosion Resistant Steel, Quenched and Tempered        | 1/4 thru 4        | 175                   | C24               | C38 | 5, 9     |
|        | ASTM A194 - Grade 1   | Carbon Steel                                                        | 1/4 thru 4        | 130                   | B70               | -   | 7        |
|        | ASTM A194 - Grade 2   | Medium Carbon Steel                                                 | 1/4 thru 4        | 150                   | 159               | 352 | 7.8      |
|        | ASTM A194 - Grade 2H  | Medium Carbon Steel, Quenched and Tempered                          | 1/4 thru 4        | 175                   | C24               | C38 | 7        |
|        | ASTM A194 - Grade 2HM | Medium Carbon Steel, Quenched and Tempered                          | 1/4 thru 4        | 150                   | 159               | 237 | 7, 8     |
|        | ASTM A194 - Grade 4   | Medium Carbon Alloy Steel, Quenched and Tempered                    | 1/4 thru 4        | 175                   | C24               | C38 | 7        |
|        | ASTM A194 - Grade 7   | Medium Carbon Alloy Steel, Quenched and Tempered                    | 1/4 thru 4        | 175                   | C24               | C38 | 7        |
|        | ASTM A194 - Grade 4   | Medium Carbon Alloy Steel, Quenched and Tempered                    | 1/4 thru 4        | 150                   | 159               | 237 | 7        |
| See note 1,2,10                                                                           |                       |                                                                     |                   |                       |                   |     |          |

### NOTES:

- In addition to the indicated grade marking, all grades, except AS63 grades 0, A and B, must be marked for manufacturer identification.
- The markings shown for all grades of A194 nuts are for cold formed and hot forged nuts. When nuts are machined from bar stock the nut must be additionally marked with the letter 'B'.
- Nuts are not required to be marked unless specified by the purchaser. When marked, the identification marking shall be the grade letter 0, A or B.
- Properties shown are those of non-plated or non-coated coarse thread hex nuts.
- Properties shown are those of coarse thread heavy hex nuts.
- Properties shown are those of coarse thread heavy hex nuts.
- Properties shown are those of coarse and 8-pitch thread heavy hex nuts.
- Hardnesses are Brinell Hardness Numbers.
- The nut manufacturer; at his option, may add other markings to indicate the use of atmospheric corrosion resistant steel.
- Specifications - ASTM A563 - Carbon and Alloy Steel Nuts / ASTM A194 - Carbon and Alloy Steel Nuts for Bolts for High Pressure and High Temperature Service