

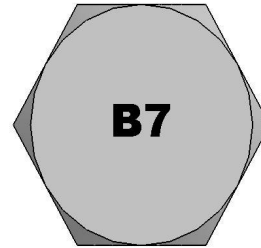


### GRADE B7

Chromium Molybdenum (AISI 4140)

#### Chemical Requirements

	<u>Range</u>	<u>Variation</u>
• Carbon	0.37-0.49	0.02
• Manganese	0.65-1.10	0.04
• Phosphorous max	0.035	0.005 over
• Sulfur max	0.040	0.005 over
• Silicon	0.15-0.35	0.02 over
• Chromium	0.75-1.20	0.05
• Nickel	0.15-0.25	0.02



#### Mechanical Requirements

- Tensile strength (KSI) 125
- Elongation (%) 16
- Yield Strength (KSI) 105
- Reduction of Area (%) 50

- Heavy Hex Nuts Grade 2H ASTM A194     Washers ASTM F436 Hardened Steel
- Black Plain     Zinc Plated     Hot Dip Galv
- Buried     Submerged     Above Grade     Below Grade     Other

#### Dimensional Data

- All bolts and nuts should be heavy pattern and threaded in accordance with ANSI/ASME B1.1, page A-26, class 2A fit, sizes 1 inch and smaller in diameter with the coarse-thread series, and 1 1/8 inch and larger in diameter with 8-pitch thread series bolt heads shall be in accordance with the dimensions of ANSI/ASME B 18.2.1, page C-1.
- Additional information can be found in ASTM 193/A1293M, DTD 1998 (Alloy Steel and Stainless Bolting Materials for High Temperature Services) and in ASTM A194/A194M, DTD 1998 (Carbon and Alloy Steel Nuts for Bolts for High-Temperature Services).