



**Valve Bolting Studs**

Bolt Grade (in)	BL, L7	B7M, L7M	B8M
Alloy Type	1% chromium molybdenum steel	1% chromium low moly steel	austenitic chromium-nickle molybdenum steel
Typical Duty	general purpose	high temp	high temp
Min Temp °F	-148°	not stated -50°	-418°
Max Temp °F	752°	high temp	1112°
Tensile Strength T/in <sup>2</sup>	56 51	100	35 56
Yield Strength 0.2% Proof Stress (T/in <sup>2</sup> )	47 43	80	13.5 56
% Elongation	14 14	18	35 12
Hardness HB	248/335 223/310	187/237	183 max 350 max
Limiting Ruling Section (in)	2.5 4		.75
Nut Grades Inch Series	2H, 4, 7 or 8"	7.7M	8M

*Condition and Heat Treatment*  
 Hardened and tempered  
 - harden 1562° F to 1616° F  
 - temper 1112° F min

*Condition and Heat Treatment*  
 Hardened and tempered  
 - harden 1150° F

*Condition and Heat Treatment*  
 - solution treated 1832° F to 2012° F WQ  
 - cold worked after solution treatment

**Valve Bolting Nuts**

Nut Grade ID	2H	7M	8MA
Alloy Type	carbon steel	1% chrome moly steel	316 SS
Typical Min Temp °F	32°	not specified	-100°
Typical Max Temp °F	842°	high temp	not specified
Typical Conditions & Heat Treatment	hardened & tempered harden 1580° F temper 752° F min	tempered at 1100° F	solution anneal water quench
Hardness HB	248/352	248/352	126/192