

"Stud Bolt"

Chemical, Marking And Mechanical Requirements

		ASTM GRADE	AISI MATERIAL	Chemical Composition (%)								Mechanical Property (2 1/2" & under)						Symbol Marking
				C	Mn	P	S	Si	Cr	Mo	V	Tensile Strength Psi	Yield Strength Psi	Elongation %	Reduction Area %	Hardness	Impact Min	
STUD-BOLT	Ferritic Steel	A193 B7	4140 4142 4145	0.37-0.49	0.65-1.10	max 0.035	max 0.04	0.15-0.35	0.75-1.20	0.15-0.25	-	min 125,000	min 105,000	min 16	min 50	HB 277-321	-	
		A193 B16	Cr-Mo-V	0.36-0.47	0.45-0.70	max 0.035	max 0.04	0.15-0.35	0.80-1.16	0.50-0.65	0.25-0.35	min 125,000	min 105,000	min 18	min 50	HB 253-319	-	
		A320 L7	4140 4142 4145	0.38-0.48	0.75-1.00	max 0.035	max 0.04	0.15-0.35	0.80-1.10	0.15-0.25	-	min 125,000	min 105,000	min 16	min 50	HB 277-321	15ft.lbf (20J)	
	Austenitic Steel	A193 B8	304	max 0.08	max 2.00	max 0.045	max 0.03	max 1.00	18.0-20.0	-	-	min 75,000	min 30,000	min 30	min 50	HB max 223 or HRB max 96	-	
		A193 B8M	316	max 0.08	max 2.00	max 0.045	max 0.03	max 1.00	16.0-18.0	2.0-3.0	-	min 75,000	min 30,000	min 30	min 50	HB max 223 or HRB max 96	-	
		A320 B8	304	max 0.08	max 2.00	max 0.045	max 0.03	max 1.00	18.0-20.0	-	-	min 75,000	min 30,000	min 30	min 50	HB max 223 or HRB max 96	-	
NUT	Ferritic Steel	A194 2H	1045	min 0.40	-	max 0.04	max 0.05	-	-	-	-	-	-	-	-	HB 248-352 HRC 24-38	-	
		A194 4	-	0.40-0.50	0.70-0.90	max 0.035	max 0.040	0.15-0.35	-	0.20-0.30	-	-	-	-	-	HB 248-352 HRC 24-38	-	
	Austenitic Steel	A194 8	304	max 0.08	max 2.00	max 0.045	max 0.03	max 1.00	18.0-20.0	-	-	-	-	-	-	HB 126-300	-	
		A194 8M	316	max 0.08	max 2.00	max 0.045	max 0.03	max 1.00	16.0-18.0	2.0-3.0	-	-	-	-	-	HB 126-300	-	

Note 1. It is standard practice to assemble Grade B7 Stud-bolts with Grade 2H Nuts, Grade B16 with Grade 4 Nuts, Grade

B8 with Grade 8 Nuts, Grade B8M with Grade 8M Nuts, Grade L7 Stud-bolts with Grade L4 Nuts.

2. ★ These values are only for diameters of 2 1/2" and Under. Those for 2 1/2" are omitted.

