

Table 3 -Heat Treatment Requirements of ASTM A182

Grade	Heat Treat Type	Austenitizing/ Solutioning Temperature, Minimum or Range, °F [°C] ^A	cooling Media	Quenching Cool Below °F [°C]	Tempering, Temperature, Minimum or Range, °F [°C]
Low Alloy Steels					
F5	anneal	1750 [955]	furnace cool	B	^B
	normalize and temper	1750 [955]	air cool	B	1250 [675]
F9	anneal	1750 [955]	furnace cool	B	^B
	normalize and temper	1750 [955]	cool or liquid	B	1250 [675]
F91	normalize and temper or quench and temper	1900-1975 [1040-1080]	air cool accelerated air	B	1350-1470 [730-800]
			cool or liquid	B	
F92	normalize and temper	1900-1975 [1040-1080]	air cool	B	1350-1470 [730-800]
F11, Class 1, 2, 3	anneal	1650 [900]	furnace cool	B	^B
	normalize and temper	1650 [900]	air cool	B	1150 [620]
F12, Class 1, 2	anneal	1650 [900]	furnace cool	B	^B
	normalize and temper	1650 [900]	air cool	B	1150 [620]
F21	anneal	1750 [955]	furnace cool	B	^B
	normalize and temper	1750 [955]	air cool	B	1250 [675]
F22, Class 1, 3	anneal	1650 [900]	furnace cool	B	B
	normalize and temper	1650 [900]	air cool	B	1250 [675]
Austenitic Stainless Steels					
F304	solution treat and quench	1900 [1040]	liquid ^E	500 [260]	^B
F304L	solution treat and quench	1900 [1040]	liquid ^E	500 [260]	^B
F316	solution treat and quench	1900 [1040]	liquid ^E	500 [260]	^B
F316L	solution treat and quench	1900 [1040]	liquid ^E	500 [260]	^B
F321	solution treat and quench	1900 [1040]	liquid ^E	500 [260]	^B

A. Minimum unless temperature range is listed

B. Not applicable

E. Forged or rolled bar meeting the requirements of 7.5 shall be liquid quenched or rapid-cooled by other means in accordance with Specification A484/ A484M