

Table 1 - Chemical Requirements of ASTM A182

Grade/Identification Symbol	UNS Designation	Chemical Composition (%)										
		carbon	Manganese	Phosphorus	Sulfur	Silicon	Nickel	Chromium	Molybdenum	Columblum	Titanium	Other Elements
<i>Low Alloy Steels</i>												
F5 ^C	K41545	0.15	0.30-0.60	0.030	0.030	0.50	0.50	4.0-6.0	0.44-0.65	...	...	...
F9	K90941	0.15	0.30-0.60	0.030	0.030	0.50-1.00	...	8.0-10.0	0.90-1.10	...	...	...
F91	K90941	0.08-0.12	0.30-0.60	0.020	0.010	0.20-0.50	0.40	8.0-9.5	0.85-1.05	0.06-0.10		N 0.03-0.07 Al 0.02 ^D Ti 0.01 ^D Zr 0.01 ^D
F92	K92460	0.07-0.13	0.30-0.60	0.020	0.010	0.50	0.40	8.50-9.50	0.30-0.60	0.04-0.09		V 0.15-0.25 N 0.030-0.070 Al 0.02 ^D W 1.50-2.00 B 0.007-0.015 Ti 0.01 ^D Zr 0.01 ^D
F11, Class 1	K11597	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00	...	1.00-1.50	0.44-0.65	...	...	...
F11, Class 2	K11572	0.10-0.20	0.30-0.80	0.040	0.040	0.50-1.00	...	1.00-1.50	0.44-0.65	...	...	...
F11, Class 3	K11572	0.10-0.20	0.30-0.80	0.040	0.040	0.50-1.00	...	1.00-1.50	0.44-0.65	...	...	...
F12, Class 1	K11562	0.05-0.15	0.30-0.60	0.045	0.045	0.50 max	...	0.80-1.25	0.44-0.65	...	...	...
F12, Class 2	K11564	0.10-0.20	0.30-0.80	0.040	0.040	0.10-0.60	...	0.80-1.25	0.44-0.65	...	...	...
F21	K31545	0.05-0.15	0.30-0.60	0.040	0.040	0.50 max	...	2.7-3.3	0.80-1.06	...	...	...
F22, Class 1	K21590	0.05-0.15	0.30-0.60	0.040	0.040	0.50		2.00-2.50	0.87-1.13	...	...	...
F22, Class 3	K21590	0.05-0.15	0.30-0.60	0.040	0.040	0.50		2.00-2.50	0.87-1.13	...	...	...
<i>Austenitic Stainless Steels</i>												
F304	S30400	0.080	2.00	0.045	0.030	1.00	8.0-11.0	18.0-20.0	...	...	...	N 0.10
F304L	S30403	0.030	2.00	0.045	0.030	1.00	8.0-13.0	18.0-20.0	...	...	...	N 0.10
F316	S31600	0.080	2.00	0.045	0.030	1.00	10.0-14.0	16.0-18.0	2.00-3.00	...	...	N 0.10
F316L	S31603	0.030	2.00	0.045	0.030	1.00	10.0-15.0	16.0-18.0	2.00-3.00	...	...	N 0.10
F321	S32100	0.080	2.00	0.045	0.030	1.00	9.0-12.0	17.0-19.0	...	...	I	...

C. The present grade F 5a (0.25 max carbon) previous to 1995 was assigned the identification symbol F 5. Identification symbol F 5 in 1955 was assigned to the 0.15 max carbon grade to be consistent with ASTM specification for other products such as pipe, tubing, bolting, welding fittings, and the like.

D. Applies to both heat and product analyses.

I. Grade F 321 shall have a titanium content of not less than five times the carbon content and not more than 0.70%.