Table 1—Filler Metal Groups

Group	AWS Specification	AWS Classification Electrode	Flux [c]
1	A5.1	E6010, E6011	
	A5.5	E7010, E7011	
2	A5.5	E8010, E8011, E9010	
3	A5.1 or A5.5	E7015, E7016, E7018	
	A5.5	E8015, E8016, E8018	
		E9018	
4 [a]	A5.17	EL8	P6XZ
		EL8K	F6X0
		EL12	F6X2
		EM5K	F7XZ
		EM12K	F7X0
		EM13K	F7X2
		EM15K	
5 [b]	A5.18	ER70S-2	
	A5.18	ER70S-6	
	A5.28	ER80S-D2	
	A5.28	ER90S-G	
6	A5.2	RG60, RG65	
7	A5.20	E61T-GS [d]	
		E71T-GS [d]	
8	A5.29	E71T8-K6	
9	A5.29	E91T8-G	

NOTE Other electrodes, filler metals, and fluxes may be used but require separate procedure qualification.

[a] Any combination of flux and electrode in Group 4 may be used to qualify a procedure. The combination is identified by its complete AWS classification number, such as F7A0-EL12 or F6A2-EM12K. Only substitutions that result in the same AWS classification number are permitted without requalification.

[b] A shielding gas (see 5.4.2.10) is required for use with the electrodes in Group 5.

[c] In the flux designation, the X can be either an A or P for as-welded or postweld heat treated.

[d] For root pass welding only.

TABLE 3
TENSION TEST REQUIREMENTS[A,B]

AWS Classification[C]		Tensile Strength		Yield Strength, at 0.2% Offset		Elongation	Postweld Condition[D]
A5.5	A5.5M	ksi	MPa	ksi	MPa	Percent	
E7010-P1	E4910-P1	70	490	60	415	22	AW
E7010-A1	E4910-A1	70	490	57	390	22	PWHT
E7010-G	E4910-G	70	490	57	390	22	AW or PWHT
E7011-A1	E4911-A1	70	490	57	390	22	PWHT
E7011-G	E4911-G	70	490	57	390	22	AW or PWHT
E7015-X	E4915-X	70	490	57	390	22	PWHT
E7015-B2L	E4915-B2L	75	520	57	390	19	PWHT
E7015-G	E4915-G	70	490	57	390	22	AW or PWHT
E7016-X	E4916-X	70	490	57	390	22	PWHT
E7016-B2L	E4916-B2L	75	520	57	390	19	PWHT
E7016-G	E4916-G	70	490	57	390	22	AW or PWHT
E7018-X	E4918-X	70	490	57	390	22	PWHT
E7018-B2L	E4918-B2L	75	520	57	390	19	PWHT
E7018-C3L	E4918-C3L	70	490	57	390	22	AW
E7018-W1	E4918-W1	70	490	60	415	22	AW
E7018-G	E4918-G	70	490	57	390	22	AW or PWHT
E7020-A1	E4920-A1	70	490	57	390	22	PWHT
E7020-G	E4920-G	70	490	57	390	22	AW or PWHT
E7027-A1	E4927-A1	70	490	57	390	22	PWHT
E7027-G	E4927-G	70	490	57	390	22	AW or PWHT
E8010-P1	E5510-P1	80	550	67	460	19	AW
E8010-G	E5510-G	80	550	67	460	19	AW or PWHT
E8011-G	E5511-G	80	550	67	460	19	AW or PWHT
E8013-G	E5513-G	80	550	67	460	16	AW or PWHT
E8015-X	E5515-X	80	550	67	460	19	PWHT
E8015-B3L	E5515-B3L	80	550	67	460	17	PWHT
E8015-G	E5515-G	80	550	67	460	19	AW or PWHT
E8016-X	E5516-X	80	550	67	460	19	PWHT
E8016-C3	E5516-C3	80	550	68 to 80[E]	470 to 550[E]	24	AW
E8016-C4	E5516-C4	80	550	67	460	19	AW
E8016-G	E5516-G	80	550	67	460	19	AW or PWHT
E8018-X	E5518-X	80	550	67	460	19	PWHT
E8018-B3L	5518-B3L	80	550	67	460	17	PWHT
E8018-C3	E5518-C3	80	550	68 to 80[E]	470 to 550[E]	24	AW
E8018-C4	E5518-C4	80	550	67	460	19	AW
E8018-NM1	E5518-NM1	80	550	67	460	19	AW
E8018-P2	*E5518-P2*	*80*	*550*	*67*	*460*	*19*	*AW*
E8018-W2	E5518-W2	80	550	67	460	19	AW
E8018-G	E5518-G	80	550	67	460	19	AW or PWHT
E8045-P2	*E5545-P2*	*80*	*550*	*67*	*460*	*19*	*AW*
E9010-P1	*E6210-P1*	*90*	*620*	*77*	*530*	*17*	*AW*
E9010-G	E6210-G	90	620	77	530	17	AW or PWHT
E9011-G	E6211-G	90	620	77	530	17	AW or PWHT