

Material with electrode selection

Number	BASE MATERIAL		P. Numbe	ASTM Specification						AWS Specifications			Preheat Temp. C (min)	Postheat Temp. c	Hardness BHN Max.		
				PIPE	TUBE	WROUGHT FITTING	FORGING	CASTING	PLATE	Covered Electrode		Bare Electrode					
										Preferred	Alternate						
1	Carbon Steel	Carbon Steel	1	A 53 A106	A178 A179/192	A234 Gr. WPA/B	A181 A105	A216	A285 A515	E6010 Root E7018 F&F	E6013,E7015 E7028	ER70 S-2,S-3,S-5 RG 60, 65	<25.4mm 10 >25.4mm 80	>19mm 595-650	200		
2		Carbon Steel (LTCS-Impact test)		A333 Gr. 1/6	A334 Gr.1/6	A420 WPL6	A350 LF 1/2	A352 LCB/C	A516	E7018 G	E7018	E 70 S-1B					
3	Low and intermediate alloy steels	C - 1/2Mo	3	A335 P1	A161 T1	A234 WPI	A182 F1	A217 WC1	-	E7010-A1 E7018-A1	E7015-A1	E 70 S-1B	<25.4mm 10 >25.4 mm80	>19mm 595-720	225		
4		1/2Cr-1/2Mo		A335 P2	A213 T2	-	A182 F2	-	A387 Gr.2	E8018-B1	E8016-B1	-					
5		1Cr-1/2Mo	4	A335 P12	A213 T12	A234 WP12	A182 F12	-	A387 Gr.12	E8016-B2	E8018-B2	ER515	150	>12.5mm 705-745	225		
6		1 1/4Cr-1/2Mo		A335 P11	A213 T11	A234 W11	A182 F11	A217 WC6	A387 Gr.11								
7		2 1/4Cr-1Mo	5	A335 P22	A213 T22	A234 WP22	A182 F22	A217 WC9	A387 Gr.22	E9015-B3	E9018-B3	ER521	175	>12.5mm 705-760	241		
8		5Cr-1/2Mo		A335 P5	A213 T5	A234 WP5	A182 F5	A217 C5	A387 Gr.5	E502	E8018-B6	ER502					
9		7Cr-1/2Mo		A335 P7	A213 T7	A234 WP7	A182 F7	-	A387 Gr.7	E7 Cr.	-	ER7 Cr					
10		9Cr-1Mo		A335 P9	A213 T9	A234 WP9	A182 F9	A217 C12	A387 Gr.9	E505	E8018-B8	ER505					
11		Stainless steels	Martensinc & Ferrite	6	-	A268 TP409	-	-	-	-	E309	E312	ER309	150 Inter pass<315	730-790	241	
12					12Cr	-	A268 TP410	-	A182 F6	A217 CA15	A240 TP410	E410	-				ER410
13	13Cr			7	-	A268 TP405	-	A182 F6	A296 CA15	A240 TP405	E309	E Ni Cr Fe-3	ER309	10	-	-	
14	17Cr				-	A268 TP430	-	-	-	A240 TP430	E430	E Ni Cr Fe-3	ER430				
15	Austenitic		18Cr-8Ni	8	A312 TP304	A213 TP304	A403 WP304	A182 F304	A351 CF8	A240 TP304	E308	-	ER308	10	-	-	
16					18Cr-8Ni Low	A312 TP304L	A213 TP304L	A403 WP304L	A182 F304L	A351 CF3	A240 TP304L	E308L	-				ER308L
17					18Cr-8Ni High	A312 TP304H	A213 TP304H	A403 WP305H	A182 F304H	-	-	E16-6-2	E308				ER 16-8-2
18					25Cr-12Ni	A312 TP308	-	A403 WP309	-	A351 CH20	A240 TP3095	E309	E310				ER309
19					25Cr-20Ni	A312 TP310	A213 TP310	A403 WP310	A182 F310	A351 CK20	A240 TP310S	E310	-				ER310
20					18Cr-12Ni-2M	A312 TP316	A213 TP316	A403 WP316	A182 F316	A351 CF 8M	A240 TP316	E316	E16-8-2				ER316
21					18Cr-12Ni-2M	A312 TP316L	A213 TP316L	A403 WP316L	A182 F316L	A351 CF 3M	A240 TP316L	E316L	E308 Mo L				ER316L
22					18Cr-12Ni-2Mo H	A312 TP316H	A213 TP316H	A403 WP316H	A182 F316H	-	-	E16-8-2	E316				ER16-18-2
23					18Cr-12Ni-3M	A312 TP317	A213 TP317	A403 WP317	-	-	A240 TP317	E317	-				ER317
24					18Cr-10Ni-Ti	A312 TP321	A213 TP321	A403 WP321	A182 F321	-	A240 TP321	E347	-				ER347
25					18Cr-10Ni-Ti Hig	A312 TP321H	A213 TP321H	A403 WP321H	A182 F321H	-	-	E16-6-2	E347				ER16-8-2
26					18Cr-10Ni-Cb	A312 TP347	A213 TP347	A403 WP347	A182 F347	A351 CF 8C	A240 TP347	E347	-				ER347
27					18Cr-10Ni-Cb Hig	A312 TP347H	A213 TP347H	A403 WP347H	A182 F347H	-	-	E16-8-2	E347				ER16-8-2
28					18Cr-10Ni-To	A312 TP348	A213 TP348	A403 WP348	A182 F348	-	A240 TP348	E347L To 346	E347				ER348
29					18Cr-10Ni-To Hig	A312 TP348H	A213 TP348H	-	-	-	-	E16-8-2	E347				ER16-8-2
30					25Cr-20Ni	-	A608 HK40	-	-	A351 HK40	-	E310 H	-				ER310 H
31					20Cr-28Ni-2M	B464	B468	B365 WP20CB	B472	A351 CN 7M	B463	E320	E320 LA				ER320
32					PT I	17Cr-4Ni-Ph	-	-	-	A564 TP630	A474 CB7Cu1	-	E630				-
33	Ni Steels	3 1/2 Ni	9	A333 Gr.3	A334 Gr.3	A420 WPL6	A350 LF3	A352 LC3	A203 Gr. D/E	E8018-C2	E8016-D2	-	95	>19mm 595-635	-		
34		9 Ni	11	A333 Gr.8	A334 Gr.8	A420WPL8	A522	-	A353	E Ni Cr Fe-3	-	ER Ni Cr-3	10	>19mm 550-5855	-		
35	Non Ferrous	Alluminium	21	B241	B210, B234	B361 WP3003	B247	-	B209	-	-	ER1100	10	10	-		
36		Copper	31	B42	B75	-	-	-	B11	E Cu	-	ER Cu	10	10	-		
37		70 Cu 30 Ni Cupr	34	B455 C715	B111 C715	-	-	B359 C964	B171	E Cu Ni	-	ER Cu Ni	10	10	-		
38		Alluminium B	35	-	B111 C614	-	B150	B148	B169	E Cu Aj -A1	8 Cu Aj-A2	ER Cu Aj-A2	10	10	-		
39		Nickel	41	B161	B161, B163	B366 WPN	B160	-	B162	E Ni-1	E Ni-3	ER Ni-3	10	10	-		
40		Monel	42	B185	B165, B163	B366 WPNC	B164	-	B127	E Ni Cu-7	E Ni Cu 3-4	ER Ni Cu-7	10	10	-		
41		Inconel	43	B167,8 B517	B516, B183	B366 WPNCI	B166	-	B168	E Ni Cr Fe-1	E Ni-Cr Fe-3	ER Ni Cr Fe-5	10	10	-		
42		Hastelloy B	44	B619	B522	B366 WPHB	-	A296 N12M	B333	E Ni Mo-1	-	ER Ni Mo-1	10	10	-		
43		Hastelloy C		-	-	B366 WPHC	-	A295 CU12M	B334	E Ni Mo-2	-	ER Ni Mo-2	10	10	-		
44		Incoly	45	B407,B 514	B407, B515	B366 WPNIC	B408	-	B409	E Ni Cr Fe-2	-	ER Ni Cr-3	Inter pass<95	10	-		
45		Titanium	-	B337	B338	B363	B381	B367	B255	-	-	ER Ti-2	10	10	-		
46	Zirconium	-	B658 R02	B523 R02	B853 R 02	B493 R C2	-	B551 R 02	-	-	ER ZR 2	10	10	-			