

# 火力发电设备用焊接材料

钢种 钢种标准	适用部位	焊接方法	焊材牌号	ASME/AWS 标准	电源极性	保护气体	焊剂粒度 (Mesh) 焊丝直径 (mm φ) 焊条规格 (mm φ)	■ 熔敷金属化学成分例 (mass%)										■ 熔敷金属力学性能一例						
								C	Si	Mn	P	S	Ni	Cr	Mo	V	Nb	其他	屈服强度 MPa	抗拉强度 MPa	延伸率 %	吸收功 J	热处理 ℃ × Hr	
0.5Mo 钢 ASTM A335 Gr.P1 ASTM A204 Gr.A,B,C	蒸汽管 再热管 过热器等	SMAW	TRUSTARC CM-B76	SFA/A 5.5 E7016-A1	AC/DCEP	---	2.6, 3.2, 4.0, 5.0	0.07	0.46	0.77	0.011	0.004	---	---	0.53	---	---	---	540	620	26	0℃ 200	690 × 1	
		GMAW	TRUSTARC MG-S70SA1	SFA/A 5.28 ER70S-A1	DCEP	Ar+5~20%CO <sub>2</sub>	0.9, 1.0, 1.2, 1.6	0.06	0.36	0.72	0.007	0.012	---	---	0.54	---	---	---	450	530	33	-20℃ 110	620 × 1	
		GTAW	TRUSTARC TG-S70SA1	SFA/A 5.28 ER70S-A1	DCEN	Ar	1.2, 1.6, 2.0, 2.4, 3.2	0.06	0.52	1.04	0.007	0.009	---	---	0.55	---	---	---	530	610	32	0℃ 260	620 × 1	
		SAW	FAMILARC TRUSTARC MF-38/US-A4	SFA/A 5.23 F7P0-EA4-A4	AC	---	焊剂: 12 × 65, 20 × 200, 20 × D 3.2, 4.0, 4.8	0.10	0.39	1.35	0.013	0.013	---	---	0.52	---	---	---	510	600	29	-51℃ 40	620 × 1	
1.25Cr-0.5Mo 钢 ASTM A335 Gr.P11	蒸汽管 再热管 过热器等 水冷壁等	SMAW	TRUSTARC CM-B98	SFA/A 5.5 E8018-B2	AC/DCEP	---	2.6, 3.2, 4.0, 5.0, 6.0	0.07	0.68	0.75	0.012	0.006	---	1.29	0.52	---	---	---	590	690	22	---	690 × 1	
		GMAW	TRUSTARC MG-S1CM	SFA/A 5.28 ER80S-G	DCEP	Ar+5~20%CO <sub>2</sub>	0.9, 1.0, 1.2, 1.4, 1.6	0.07	0.56	1.06	0.011	0.010	---	1.32	0.57	---	---	---	510	630	21	0℃ 80	690 × 1	
		GMAW	TRUSTARC MG-S80B2F ※1	SFA/A 5.28 ER80S-B2	DCEP	Ar+5~20%CO <sub>2</sub>	0.8, 0.9, 1.0, 1.2, 1.4, 1.6	0.09 ※2	0.51 ※2	0.59 ※2	0.003 ※2	0.005 ※2	---	1.32 ※2	0.52 ※2	---	---	---	---	---	---	---	---	---
		GTAW	TRUSTARC TG-S80B2	SFA/A 5.28 ER80S-B2	DCEN	Ar	1.0, 1.2, 1.6, 2.0, 2.4, 3.2	0.09	0.53	0.58	0.008	0.005	---	1.35	0.54	---	---	---	490	620	32	-20℃ 240	620 × 1	
2.25Cr-1Mo 钢 ASTM A335 Gr.P22	主蒸汽管 再热管 过热器等	SMAW	TRUSTARC CM-B108	SFA/A 5.5 E9018-B3	AC/DCEP	---	2.6, 3.2, 4.0, 5.0	0.07	0.68	0.70	0.012	0.007	---	2.14	0.95	---	---	---	610	720	23	0℃ 100	690 × 1	
		SMAW	TRUSTARC CM-B105D	SFA/A 5.5 E9015-B3	DCEP	---	2.6, 3.2, 4.0, 5.0	0.06	0.66	0.73	0.011	0.005	---	2.24	0.95	---	---	---	560	670	27	-20℃ 50	696 × 1	
		GMAW	TRUSTARC MG-S2CM	SFA/A 5.28 ER90S-G	DCEP	Ar+5~20%CO <sub>2</sub>	1.0, 1.2, 1.6	0.05	0.34	0.76	0.007	0.005	---	2.29	0.98	---	---	---	550	670	24	0℃ 110	680 × 1	
		GTAW	TRUSTARC TG-S90B3	SFA/A 5.28 ER90S-B3	DCEN	Ar	1.0, 1.2, 1.6, 2.0, 2.4, 3.2	0.12	0.56	0.59	0.008	0.005	---	2.35	1.04	---	---	---	590	720	25	-20℃ 230	690 × 1	
2.25Cr-W-Nb-V 钢 ASTM A335 Gr.P23	主蒸汽管 再热管 过热器等	SAW	FAMILARC TRUSTARC G-80/US-521	SFA/A 5.23 F8P2-EG-B3	AC/DCEP	---	焊剂: 12 × 65, 20 × 200, 32 × 200 2.4, 3.2, 4.0, 4.8	0.05	0.35	0.96	0.014	0.010	---	2.22	0.99	---	---	---	380	530	27	0℃ 90	720 × 6	
		SMAW	TRUSTARC CM-2CW	---	AC/DCEP	---	2.6, 3.2, 4.0	0.04	0.27	0.84	0.009	0.006	---	2.39	0.07	0.21	0.02	W 1.70	470	580	28	0℃ 150	747 × 2	
		GMAW	TRUSTARC MG-S2CW	SFA/A 5.28 ER90S-G	DCEP	Ar+5~20%CO <sub>2</sub>	0.8, 1.0, 1.2	0.05	0.33	1.02	0.005	0.004	0.47	2.23	0.10	0.24	0.04	W 1.96	550	640	28	0℃ 150	747 × 2	
		GTAW	TRUSTARC TG-S2CW	---	DCEN	Ar	0.8, 1.0, 1.2, 1.6, 2.0, 2.4	0.02	0.42	0.48	0.004	0.003	---	2.27	0.52	0.32	0.03	W 1.20	490	620	31	-20℃ 280	747 × 2	
9Cr-1Mo-Nb-V 钢 ASTM A335 Gr.P91	主蒸汽管 再热管 过热器等 汽轮机等	SMAW	TRUSTARC CM-9Cb	SFA/A 5.5 E9016-G	AC/DCEP	---	2.6, 3.2, 4.0, 5.0	0.06	0.31	1.51	0.006	0.003	0.94	9.11	1.06	0.18	0.03	---	600	750	25	0℃ 80	750 × 5	
		SMAW	TRUSTARC CM-95B91	SFA/A 5.5 E9015-B91	DCEP	---	2.6, 3.2, 4.0	0.09	0.23	0.71	0.007	0.004	0.10	8.40	0.99	0.21	0.06	N 0.03 Mn+Ni 0.81 Co 0.42	593	730	21	20℃ 70	760 × 2	
		GMAW	TRUSTARC MG-S9Cb	SFA/A 5.28 ER90S-G	DCEP	Ar+5%CO <sub>2</sub>	0.9, 1.0, 1.2, 1.6	0.08	0.27	1.29	0.007	0.006	0.38	8.86	0.98	0.19	0.03	---	570	700	25	0℃ 90	740 × 8	
		GMAW	TRUSTARC MG-S90B91	SFA/A 5.28 ER90S-B9	DCEP	Ar+5%CO <sub>2</sub>	1.2	0.12	0.23	0.63	0.004	0.005	0.15	8.38	0.98	0.18	0.06	N 0.04 Mn+Ni 0.78 Co 0.41	590	730	23	20℃ 30	760 × 2	
		GTAW	TRUSTARC TG-S9Cb	SFA/A 5.28 ER90S-G	DCEN	Ar	0.8, 1.0, 1.2, 1.6, 2.0, 2.4, 3.2	0.07	0.16	0.99	0.007	0.006	0.68	8.97	0.90	0.18	0.05	---	700	780	22	0℃ 240	740 × 8	
		GTAW	TRUSTARC TG-S90B91	SFA/A 5.28 ER90S-B9	DCEN	Ar	1.0, 1.2, 1.6, 2.0, 2.4, 3.2	0.10	0.29	0.72	0.004	0.005	0.15	8.36	0.97	0.18	0.06	N 0.03 Mn+Ni 0.87 Co 0.41	620	750	25	20℃ 150	760 × 2	
		SAW	TRUSTARC TRUSTARC PF-200S/US-9Cb	SFA/A 5.23 F10PZ-EG-G	AC/DCEP	---	焊剂: 10 × 48 1.6, 2.4, 3.2, 4.0	0.06	0.12	1.58	0.008	0.004	0.55	8.31	0.88	0.21	0.03	---	580	710	24	0℃ 60	740 × 8	
9Cr-W-Nb-V 钢 ASTM A335 Gr.P92 12Cr-W-Nb-V 钢 ASTM A335 Gr.P122	主蒸汽管 再热管 过热器等 汽轮机等	SAW	TRUSTARC TRUSTARC PF-90B91/US-90B91	SFA/A 5.23 F9PZ-EB91-B91	DCEP	---	焊剂: 10 × 48 2.4, 3.2	0.09	0.25	0.74	0.005	0.005	0.12	8.58	1.03	0.18	0.05	N 0.05 Mn+Ni 0.86 Co 0.37	590	730	25	---	760 × 2	
		SMAW	TRUSTARC CR-12S	---	AC/DCEP	---	2.6, 3.2, 4.0, 5.0	0.08	0.41	0.94	0.008	0.001	0.52	9.62	0.23	0.37	0.03	N 0.05 W 1.63 Co 1.57	640	770	22	0℃ 40	740 × 8	
		GMAW	TRUSTARC MG-S12CRS	---	DCEP	Ar+5~20%CO <sub>2</sub>	0.8, 1.2	0.04	0.48	1.15	0.004	0.004	0.52	10.09	0.42	0.32	0.04	N 0.04 W 1.64 Co 1.57	610	740	23	0℃ 40	740 × 8	
		GTAW	TRUSTARC TG-S12CRS	---	DCEN	Ar	1.2, 1.6, 2.0, 2.4	0.06	0.30	0.97	0.004	0.003	0.51	10.06	0.35	0.21	0.03	W 1.44 Co 1.01	680	790	21	0℃ 40	740 × 8	
SAW	TRUSTARC TRUSTARC PF-200S/US-12CRSD	---	DCEP	---	焊剂: 10 × 48 1.2, 1.6, 2.4, 3.2	0.06	0.24	0.88	0.008	0.004	0.52	9.48	0.32	0.20	0.03	N 0.04 W 1.36 Co 0.98	650	770	23	20℃ 30	745 × 8			

※1 仅限单焊道用(角焊用)

※2 焊丝的化学成分例