

SM-80G

High tensile steels

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Conformances

AWS A5.28 / ASME SFA5.28 ER80S-G
 JIS Z3312 G 59J A 1 U C 3M1T
 EN ISO 14341-B S3M1T
 ABS AWS A5.28 ER80S-G (-20°C ≥47J)

Applications

- High tensile welded structure
- Pressure vessels
- Machinery

Features

- High deposition rate
- Special alloying elements added
- Stable arc with high current

Welding Position



1G 2F
(PA) (PB)

Current

DC +

Shielding Gas

100% CO₂
 Ar + 20~25% CO₂

Diameter / Packaging

Diameter mm (in)	Spool			Pac		
	5kg (11lbs)	15kg (33lbs)	20kg (44lbs)	250kg (551lbs)	300kg (661lbs)	350kg (771lbs)
0.8 (0.033)	✓	✓	✓	✓	✓	✓
0.9 (0.035)	✓	✓	✓	✓	✓	✓
1.0 (0.040)	✓	✓	✓	✓	✓	✓
1.2 (0.045)	✓	✓	✓	✓	✓	✓
1.4 (0.052)	✓	✓	✓	✓	✓	✓
1.6 (1/16)	✓	✓	✓	✓	✓	✓

Typical Chemical Composition of the Wire(%)

C	Si	Mn	P	S	Mo	Ti
0.06	0.81	1.85	0.013	0.007	0.27	0.15

Typical Mechanical Properties of All-Weld Metal

	YS Mpa(lbs/in ²)	TS Mpa(lbs/in ²)	EL (%)	Temp °C(°F)	CVN-Impact Value J (ft-lbs)
As welded with 100% CO ₂	571 (77,100)	645 (93,500)	26.6	-20 (-4)	117 (86)
As welded with 80% Ar + CO ₂	651 (94,400)	715 (103,600)	25.6	-20 (-4)	72 (53)
As welded with 90% Ar + CO ₂	668 (96,800)	732 (106,140)	22.8	-20 (-4)	65 (48)

Typical Operating Procedures

Diameter, Polarity Shielding Gas	CTWD mm(in)	Wire Feed Speed m/min (in/min)	Voltage (volts)	Approx. Current (amps)	Melt-Off Rate kg/hr (lb/hr)
1.2mm (0.045in), DC +					
100% CO ₂ Gas	20 (3/4)	14.5 (570)	31	280	7.3 (16.1)
		17.0 (670)	34	320	8.6 (19.0)
		21.0 (830)	37	350	10.6 (23.3)
Mixed Gas (Ar + CO ₂)	20 (3/4)	11.2 (440)	30	280	5.6 (12.3)
		12.8 (503)	33	320	6.5 (14.3)
		14.0 (551)	36	350	7.1 (15.7)
1.4mm (0.052in), DC +					
100% CO ₂ Gas	20 (3/4)	12.0 (472)	34	300	8.3 (18.3)
		14.6 (575)	36	340	10.1 (22.2)
		15.8 (622)	39	360	11.0 (24.2)
Mixed Gas (Ar + CO ₂)	20 (3/4)	8.7 (343)	32	300	6.0 (13.2)
		9.5 (374)	34	340	6.6 (14.5)
		10.0 (394)	35	360	6.9 (15.3)
1.6mm (1/16in), DC +					
100% CO ₂ Gas	20 (3/4)	9.4 (370)	37	340	8.5 (18.7)
		11.7 (460)	43	390	10.6 (23.3)
		12.2 (480)	44	400	11.1 (24.4)
Mixed Gas (Ar + CO ₂)	20 (3/4)	6.6 (260)	34	340	6.0 (13.2)
		8.2 (322)	38	390	7.4 (16.3)
		8.6 (339)	38	400	7.8 (17.2)