

SM-70EN

GAS METAL ARC WELDING CONSUMABLES
FOR NON-ALLOY AND FINE-GRAIN STEELS

2023.12



❖ Specification

AWS A5.18

ER70S-6

EN ISO 14341-A

G 42 2 C1 4Si1

G 46 5 M21 4Si1

❖ Applications

Butt and fillet welding of steel structures such as vehicles, machinery and bridges.

❖ Characteristics on Usage

SM-70EN is a solid wire for all position welding by short-circuiting type transfer. As the deposition efficiency is high and penetration is deep, highly efficient welding can be performed.

❖ Note on Usage

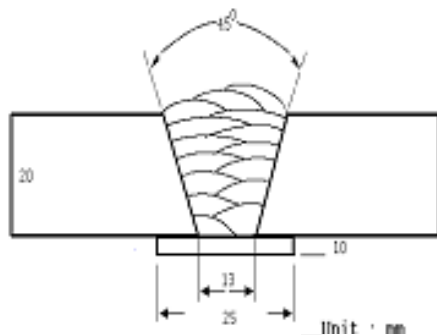
1. Use with CO₂ / Argon + 15~25% CO₂ gas.
2. Flow quantity of shielding gas should be 25ℓ/min. approximately.
3. Use wind screen against wind.
4. Keep distance between tip and base metal 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Rules



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm (0.045in)
Shielding Gas	: 100%CO ₂
Flow Rate(l /min.)	: 20
Amp./ Volt.	: 280 / 32
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value J (ft . lbs)	
	Y.S. MPa(ksi)	T.S. MPa(ksi)	EL.(%)	-20°C (-4°F)	-30°C (-22°F)
SM-70EN	461 (66.9)	560 (81.2)	29	95 (70)	55 (41)
EN ISO 14341-A G 42 2 C1 4Si1	≥ 420	500~640	≥ 20	≥ 47J at -20°C	

❖ Chemical Analysis of the weld metal(wt%)

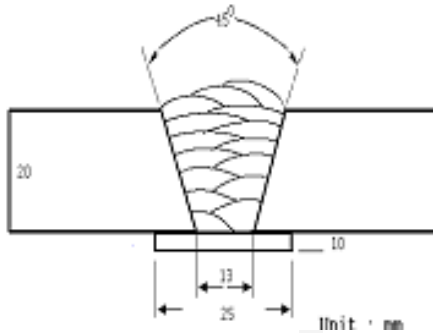
Brand Name	C	Si	Mn	P	S
SM-70EN	0.09	0.56	1.06	0.015	0.012



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Rules



[Joint Preparation & Layer Details]

Diameter(mm)	: 1.2mm (0.045in)
Shielding Gas	: Ar + 20%CO ₂
Flow Rate(ℓ /min.)	: 20
Amp./ Volt.	: 280 / 30
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value J (ft . lbs)	
	Y.S. MPa(ksi)	T.S. MPa(ksi)	EL.(%)	-30°C (-4°F)	-50°C (-58°F)
SM-70EN	524 (76.0)	617 (89.5)	27.0	110 (81)	71 (52)
EN ISO 14341-A G 46 5 M21 4Si1	≥ 460	530~680	≥ 20	≥ 47J at -50°C	

❖ Chemical Analysis of the weld metal(wt%)

Brand Name	C	Si	Mn	P	S
SM-70EN	0.09	0.68	1.26	0.015	0.012



Proper Welding Condition

❖ Proper Current Range

Brand Name	Welding Position	Wire Dia. (mm)		
		1.2mm (0.045in)	1.4mm (0.052in)	1.6mm (1/16in)
SM-70EN	F & HF	150~330Amp	200~430Amp	200~480Amp
	Vertical Up	150~220Amp	180~240Amp	-



Chemical Composition of Wire

❖ Chemical Composition of Wire (Wt%)

Brand Name	C	Si	Mn	P	S
SM-70EN	0.076	0.95	1.65	0.019	0.015
EN ISO 14341-A 4Si1	0.06~0.14	0.80~1.20	1.60~1.90	≤ 0.025	≤ 0.035

Notice

***This test report is made for giving general information,
and it's not meaning guarantee.***

***Test results are changeable by several welding
- parameter including base materials***