

# *SM-70EN*

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



## ❖ *Specification*

**AWS A5.18**

ER70S-6

**EN ISO 14341-A**

G 42 2 C G4Si1

G 46 4 M G4Si1

## ❖ *Applications*

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

## ❖ *Characteristics on Usage*

SM-70EN Copper Free 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*

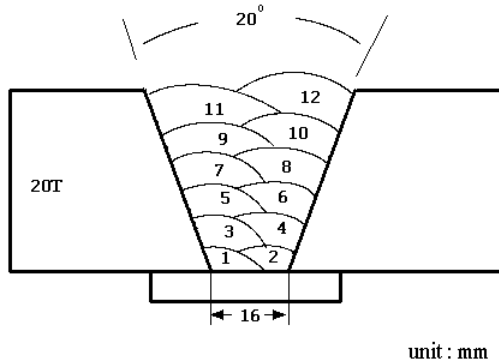
1. Use with CO<sub>2</sub> / Argon + 15~25% CO<sub>2</sub> gas.
2. Flow quantity of shielding gas should be 20ℓ/min. approximately.
3. Use wind screen against wind.
4. Keep distance between tip and base metal 6~15mm for less than 250A, and 15~25mm for more than 250A of welding current.



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by EN ISO



[ Joint Preparation & Layer Details ]

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

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)	
	YS(MPa)	TS(MPa)	EL(%)	-20℃	-30℃
<b>SM-70EN</b>	461	560	29.0	95	55
<b>EN ISO 14341-A G 42 2 C G4Si1</b>	≥ 420	500~640	≥ 20	≥ 47J at -20℃	

### ❖ Chemical Analysis of all weld metal(wt%)

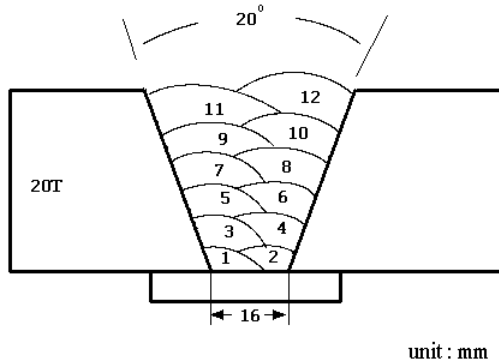
Consumable	C	Si	Mn	P	S
<b>SM-70EN</b>	0.09	0.56	1.06	0.015	0.012



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by EN ISO



[ Joint Preparation & Layer Details ]

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

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test (Joule)	
	YS(MPa)	TS(MPa)	EL(%)	-30℃	-40℃
<b>SM-70EN</b>	524	617	27.0	109	89
<b>EN ISO 14341-A G 46 4 M G4Si1</b>	≥ 460	530~680	≥ 20	≥ 47J at -40℃	

### ❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
<b>SM-70EN</b>	0.09	0.68	1.26	0.015	0.012



## Proper Welding Condition

### ❖ Proper Current Range

Consumable	Welding Position	Wire Dia. (mm)		
		1.2mm	1.4mm	1.6mm
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%)*

<b>Consumable</b>	<b>C</b>	<b>Si</b>	<b>Mn</b>	<b>P</b>	<b>S</b>
<b>SM-70EN</b>	<b>0.076</b>	<b>0.95</b>	<b>1.70</b>	<b>0.019</b>	<b>0.015</b>
<b>EN ISO 14341-A G4Si1</b>	<b>0.06~0.14</b>	<b>0.80~1.20</b>	<b>1.60~1.90</b>	<b>≤ 0.025</b>	<b>≤ 0.025</b>