

# **SM-70S**

GAS METAL ARC WELDING CONSUMABLES  
FOR WELDING OF Mild & 490Mpa CLASS  
HIGH TENSILE STEEL

2019.09



## ❖ Specification

**AWS A5.18** ER70S-3

**EN ISO 14341-A** G2Si

## ❖ Applications

Butt and fillet welding of vehicles, buildings, ships, machinery and bridge

## ❖ Characteristics on Usage

SM-70S is a solid wire designed for all position welding and high speed welding of steel sheets can be performed easily by short-circuiting welding.

Arc is stable and spatter loss is low.

## ❖ Note on Usage

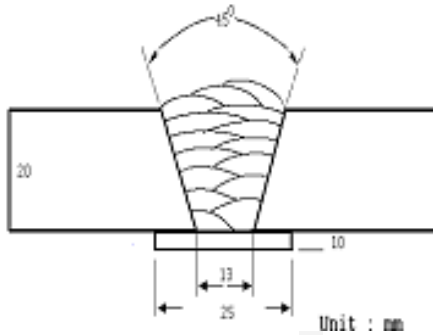
1. Use with Argon + 15~25% CO<sub>2</sub> gas.
2. Flow quantity of shielding gas should be 20ℓ/min. approximately.
3. Use wind screen against wind.
4. Keep distance between tip and base metal 10~15mm for less than 250A, and 15~20mm for more than 250A of welding current.



## 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 <sub>2</sub>
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	: DCEP

### ❖ 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℃ (-4°F)
SM-70S	430 (62.4)	515 (74.7)	28.5	80 (59.0)
AWS A5.18 ER70S-3	≥ 400	≥ 480	≥ 22	≥27J at -20℃

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

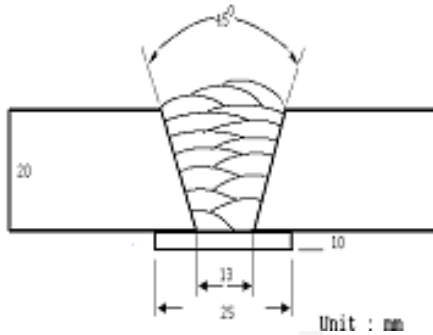
Brand Name	C	Si	Mn	P	S
SM-70S	0.09	0.40	0.85	0.015	0.008
AWS A5.18 ER70S-3	No Spec.				



## 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<sub>2</sub>
- Flow Rate(ℓ /min.)** : 20
- Amp./ Volt.** : 280 / 30
- Stick-Out(mm)** : 20~25
- Pre-Heat(℃)** : R.T .
- Interpass Temp.(℃)** : 150±15
- Polarity** : DCEP

### ❖ 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℃ (-4°F)
SM-70	440 (63.8)	535 (77.6)	28.0	125 (92.2)
AWS A5.18 ER70S-6	≥ 400	≥ 480	≥ 22	≥27J at -20℃

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

Brand Name	C	Si	Mn	P	S
SM-70	0.08	0.44	0.92	0.015	0.008
AWS A5.18 ER70S-6	No Spec.				

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



## Proper Welding Condition

### ❖ Proper Current Range

Consumable	Welding Position	Wire Dia.(mm)		
		1.2mm	1.4mm	1.6mm
SM-70S	F & HF	80 ~ 350A	100 ~ 370A	170 ~ 390A
	V-up	50 ~ 160A	80 ~ 180A	-
	O.H	50 ~ 160A	80 ~ 180A	-



## Chemical Composition of Wire

### ❖ Chemical Composition of Wire (Wt%)

Consumable	C	Si	Mn	P	S
SM-70S	0.07	0.65	1.14	0.015	0.010
AWS A5.18 ER70S-3	0.06~0.15	0.45~0.75	0.90~1.40	≤ 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***