

# **ST-50.3**

GAS TUNGSTEN WELDING CONSUMABLES  
FOR WELDING OF Mild & 490MPa CLASS  
HIGH TENSILE STEEL

2020.12



## ❖ Specification

**AWS A5.18**

**ER70S-3**

**EN ISO 636-A**

**38 4 W2Si**

## ❖ Applications

Butt and fillet welding of carbon steel for pressure vessels, tubes, ships

## ❖ Characteristics on Usage

ST-50.3 is a wire for TIG welding with pure Ar gas.

All position welding and steel sheet welding can be performed quite easily.

Most suitable for one-side welding of tubes.

It is used in DC electrode negative polarity.

## ❖ Note on Usage

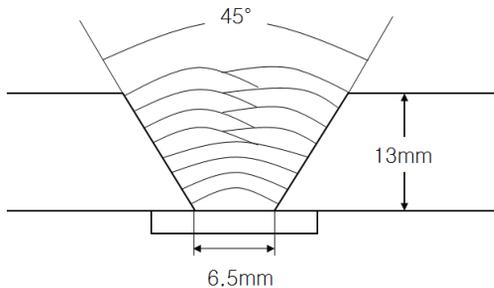
1. Use welding grade Ar100% gas.
2. Flow quantity of shielding gas should be 15~20ℓ/min, generally.
3. Use the wind-screen against wind.



## Mechanical Properties of All Weld Metal & Chemical Composition of Wire

### ❖ Welding Conditions

Method by AWS Spec.



Diameter(mm)	: 2.4mm (3/32in)
Shielding Gas	: 100%Ar
Flow Rate(ℓ /min.)	: 15 ~ 20
Amp./ Volt.	: 220 ~ 250A / 13~16V
Pre-Heat(℃)	: 150±15
Interpass Temp.(℃)	: 150±15
Polarity	: DC(-)

### [ Joint Preparation & Layer Details ]

### ❖ Mechanical Properties of the weld metal

Brand Name	Tensile Test Results			Charpy V-Notch Impact Value Joule (ft . lbs)	
	YS MPa(ksi)	TS MPa(ksi)	EL(%)	-20℃ (0°F)	-40℃ (-40°F)
ST-50.3	430 (62.4)	540 (78.3)	30.2	151 (112)	106 (78)
AWS A5.18 ER70S-3	≥ 400	≥ 480	≥ 22	27J@-20℃	

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

Brand Name	C	Si	Mn	P	S	Cu
ST-50.3	0.07	0.65	1.15	0.010	0.010	0.05
AWS A5.18 ER70S-3	0.06~0.15	0.45~0.75	0.90~1.40	≤0.025	≤0.035	≤0.50

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