

Gas Tungsten Arc Welding (Solid Wire)
Consumables for WELDING of MILD
& 490N/mm² class HIGH TENSILE STEEL

(ST-50.6 AWS A5.18 ER70S-6)

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1. INTRODUCTION

- ST-50.6 is 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 straight polarity.

2. APPLICATIONS

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

3. PRODUCT SPECIFICATIONS

Consumables	Specification
	AWS A5.18
ST-50.6	ER 70S-6

4. TYPICAL CHEMICAL COMPOSITION OF SOLID ELECTRODES

Consumables	Chemical composition (wt%)					
	C	Si	Mn	P	S	Cu
AWS A5.18 ER70S-6	0.06~0.15	0.80~1.15	1.40~1.85	≤0.025	≤0.035	≤0.5
ST-50.6	0.06	0.81	1.47	0.012	0.012	0.10

5. CHARACTERISTICS OF ALL WELD METAL

5.1 WELDING CONDITION

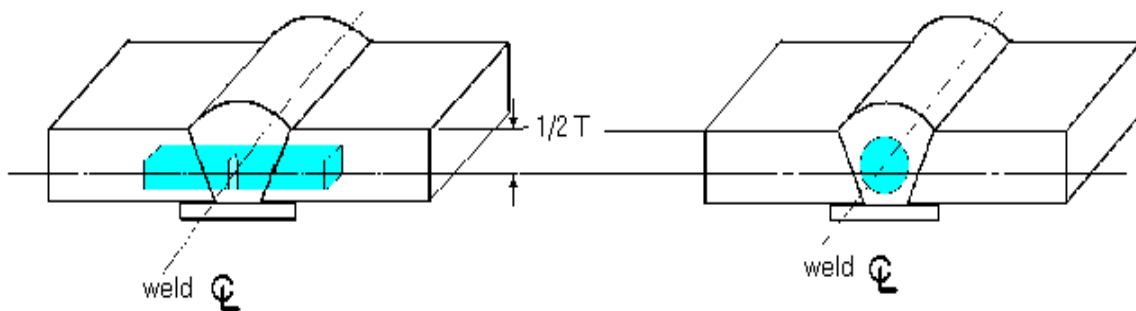
Dia.(φmm)	Current & Polarity	Welding Position	Layer No./Pass No.
2.4mm (3/32in)	DCSP	Flat	8 / 14
Amp.(A)/Vol.(V)	Speed(cm/min)	Preheat Temp. °C (°F)	Interpass Temp °C (°F)
230 / 15	10.3~13.4	139 (282)	140~155 (284 ~ 311)

Note) In accordance with the rule of AWS A5.18

5.2 MECHANICAL PROPERTIES

Consumables		Tensile test			Charpy V-notch impact value, J (ft. lbs)				
		YS MPa(ksi)	TS MPa(ksi)	EL(%)	Temp. °C(°F)	X ₁	X ₂	X ₃	Avg.
AWS A5.18 ER70S-6		≥ 400	≥ 480	≥ 22	-20	-			Min. 27
ST-50.6	Ar	520 (75.4)	585 (84.8)	26.5	-20 (-4)	120	170	116	135 (100)

Note) Heat treatment : As welded



Location of impact and tensile specimen

5.3 TYPICAL CHEMICAL COMPOSITION OF ALL WELD METAL

Consumables		Chemical composition (wt%)					
		C	Si	Mn	P	S	Cu
ST-50.6	Ar	0.061	0.65	1.22	0.014	0.014	0.13
ASME A No.1		≤ 0.15	≤ 1.00	≤ 1.60	-	-	-

* Analyzed by Optical Emission Spectrometer

6. NOTES ON USAGES

6.1 Use welding grade Ar 100% gas.

6.2 Flow quantity of shielding gas should be 15~20 l /min, generally.

6.3 Use the wind-screen against wind.