

# SM-47A

☆AWS A5.28 E80C-Ni1-H4

## For Low Temperature Service Steel

### APPLICATIONS

Flat and horizontal welding for YS460 down to -60°C, mixed Ar+CO<sub>2</sub> shielding gas

### CHARACTERISTICS

SM-47A is a metal powder type seamless flux cored wire which is used in all position for shipbuilding and offshore structure welding. It has been designed of root pass in all position in the short-circuit arc range, and flat position, horizontal position and fillet welds in the spray arc range. Diffusible hydrogen content is as low as solid wire and crack resistance is excellent. The generated slag and spatters are low.

### GUIDELINES FOR USAGE

1. Select optimum welding conditions and control heat input in accordance with welding position, plate thickness and required toughness.
2. Enough care should be taken for gas shielding.
3. For others, see GUIDELINES FOR USAGE 1-4 of SF-1.

### WELDING POSITION



### ■ TYPICAL CHEMICAL COMPOSITION OF WELD METAL ( % )

C	Si	Mn	P	S	Cu	Ni
0.07	0.62	1.38	0.013	0.009	0.19	0.92

### ■ TYPICAL MECHANICAL PROPERTIES OF WELD METAL

Tension test			Charpy 2 V-notch, J		Diffusible hydrogen content, mL/100g
Yield Strength, MPa	Tensile Strength, MPa	Elongation, %	-60°C	-40°C	
539	627	26	85	112	3.2

### ■ TYPICAL WELD JOINT TEST

Base metal (Plate thickness)	Welding Position	Groove geometry	Heat input kJ/cm	Typical mechanical properties of weld metal (Root side)				
				Yield Strength, MPa	Tensile Strength, MPa	Elongation %	Charpy 2 V-notch, J	
							-60°C	-40°C
YS420 (60mm)	Flat	45°K Root: 38mm Cap: 20mm	16.2	584	660	29	115	134

Base metal (Plate thickness)	Welding Position	Groove geometry	Heat input kJ/cm	Typical CTOD		
				Test temp. °C	δ mm	Fracture mode
YS420 (60mm)	Flat	45°K Root: 38mm Cap: 20mm	16.2	-10	0.94	m
					0.91	m
					0.95	m

### ■ SIZES & RECOMMENDED CURRENT RANGE<DC( + )>

Diameter (mm)		1.2	1.4
Current A	F, H	180~300	220~350
	H-Fil	180~300	220~350