HYUNDAI WELDING

Rev. 03

S-8018.C3

COVERED ARC WELDING ELECTRODE
FOR 600MPa CLASS HIGH TENSILE STEEL & 1% Ni STEEL

2021.05

HYUNDAI WELDING CO., LTD.

S-8018.C3

❖ Specification

AWS A5.5	E8018-C3
JIS Z 3211	E5518-N2
EN ISO 2560-A	E46 4 1Ni B 3 2

❖ Applications

Welding of high tensile steel and 1% Ni steel used in machinery, pressure vessels, storage tanks for low temperature.

❖ Characteristics on Usage

S-8018.C3 is an iron powder low hydrogen type electrode for all position welding. Good toughness of all-weld metal at low temperature is obtained because the weld metal contains about 1% Ni. X-Ray performance and usability are good.

❖ Note on Usage

1. Dry the electrodes at 350℃~400℃(662~752°F) for 60 minutes before use.

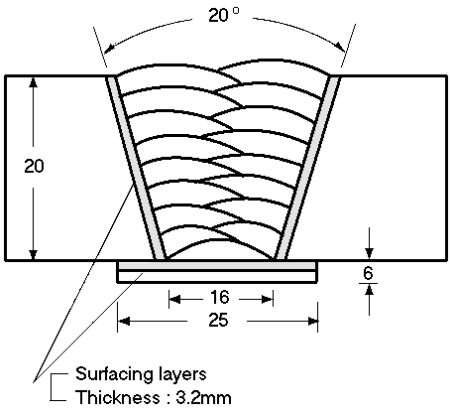
2. Adopt back step method or strike the arc on a small steel plate prepared for this particular purpose, because arc striking on base metal is in danger of initiating cracking.

3. Preheat at 80~100℃(176~212°F) before use. The temperature to be applied varies in accordance with plate thickness.

Mechanical Properties & Chemical Compositions of all-Weld Metal

❖ Welding Conditions

Method by AWS Rules



[Joint Preparation & Layer Details]

Diameter	:	4.0 X 400mm(5/32 X 16in)
Amp./ Volt.	:	170 / 25 ~ 26
Interpass Temp.	:	131~145℃(268~393°F)
Polarity	:	DC +

❖ Mechanical Properties of All Weld Metal

Consumable	Tensile test			CVN Impact Value J (ft·lbs)
	YS MPa (lbs/in²)	TS MPa (lbs/in²)	EL (%)	-40℃(-40°F)
S-8018.C3	503(73,000)	606(87,900)	30.8	99(73)
AWS Spec.	470(68,200) ~550(79,700)	≥550(79,700)	≥19	≥27(20)

❖ Chemical Analysis of All Weld Metal(wt%)

Consumable	Chemical Composition (%)					
	C	Si	Mn	P	S	Ni
S-8018.C3	0.06	0.57	1.10	0.015	0.005	0.88
AWS Spec.	≤0.12	≤0.80	0.40 ~ 1.25	≤0.03	≤0.03	0.80 ~ 1.10

Weldability
& Diffusible Hydrogen Contents & Proper Welding conditions

❖ Weldability

Item \ Division	Flat position	Vertical up position
Arc stability	Good	Excellent
Melting rate	Excellent	Excellent
Deposition rate	Excellent	Excellent
Resistance of spatter occurrence	Good	Good
The others	Good	Good

❖ Diffusible Hydrogen Contents of Weld Metal

Consumable	Welding current	Diffusible hydrogen contents (㎖/gr. Weld metal)					Drying condition of test electrode
		X_1	X_2	X_3	X_4	Avg.	
S-8018.C3	DC+ 170 Amp.	5.7	6.4	6.3	6.5	6.2	350℃ x 1hr. (662°F X 1hr)

❖ Sizes Available and Recommended Currents

Diameter, mm(in)		2.6 (3/32)	3.2 (1/8)	4.0 (5/32)	5.0 (3/16)	6.0 (15/64)
Length, mm(in)		350(14)	350(14)	400(16)	400(16)	450(18)
Recommended current range (AC or DC+ Amp.)	Flat (1G-PA)	55 ~90	90 ~130	130 ~190	190 ~250	250 ~310
	3G (PF) & 4G,5G (PE)	50 ~80	80 ~120	110 ~170	–	–