HYUNDAI WELDING

Rev. 03

S-8018.C1

COVERED ARC WELDING ELECTRODE
FOR HIGHLY EFFICIENT WELDING
OF 600MPa CLASS HIGH TENSILE STEEL

2021.05

HYUNDAI WELDING CO., LTD.

S-8018.C1

❖ Specification

AWS A5.5	E8018-C1
JIS Z 3211	E5518-N5 AP L
EN ISO 2560-A	E46 5 2Ni B 3 2

❖ Applications

S-8018.C1 is designed for use in the welding of nickel bearing steels for low temperature applications where toughness of the weld metal is important. Welding of applications include ship-building, storage, piping and tank.

❖ Characteristics on Usage

S-8018.C1 is an iron powder low hydrogen all position electrode. and high quality electrode designed for applications of 2.5% nickel deposits. The deposit is extremely dense and the good mechanical properties make this electrode particularly, suitable for weld-ments to with stand impact at sub-normal temperature (lowest -60℃)

❖ Note on Usage

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

2. Keep the arc as short as possible, and avoid large width weaving.

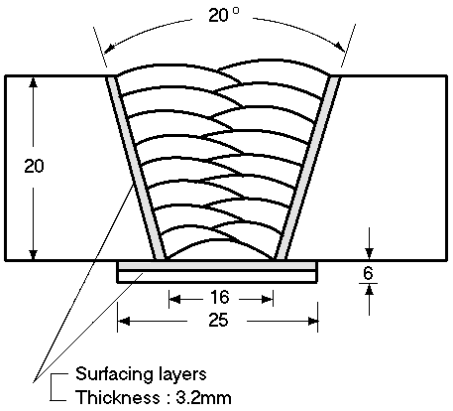
3. Adopt back step method or strike the arc on a small steel plate prepar-ed for this particular purpose to prevent blowholes at the arc starting.

4. As excessive heat input causes deterioration of impact values weld with proper heat-input electrode according to the impact values required.

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 The Weld Metal

[605℃(1121°F) X 1hr, S.R]

Consumable	Tensile test			CVN Impact Value J (ft·lbs)
	YS MPa (lbs/in²)	TS MPa (lbs/in²)	EL (%)	-60℃ (-76°F)
S-8018.C1	512(74,300)	607(88,000)	32.8	78(58)
AWS Spec.	≥460(66,700)	≥550(79,800)	≥19	-

❖ Chemical Analysis of The Weld Metal(wt%)

Consumable	Chemical Composition (%)					
	C	Si	Mn	P	S	Ni
S-8018.C1	0.06	0.34	1.09	0.011	0.009	2.23
AWS Spec	≤0.12	≤0.80	≤1.25	≤0.03	≤0.03	2.00 ~ 2.75

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.C1	DC+ 170 Amp.	6.8	6.4	6.6	6.7	6.6	350℃ X 1hr (662°F X 1hr)

❖ Sizes Available and Recommended Currents

Diameter, mm(in)		3.2 (1/8)	4.0 (5/32)	5.0 (3/16)	6.0 (15/64)
Length, mm(in)		350(14)	400(16)	400(16)	450(18)
Recommended current range (AC or DC+ Amp.)	Flat (1G-PA)	90 ~130	130 ~190	190 ~250	250 ~310
	3G (PF) & 4G,5G (PE)	80 ~120	110 ~170	150 ~200	-