

S-8018.C1

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

2011. 09



❖ Specification

<i>AWS A5.5</i>	E8018-C1
<i>JIS Z3211</i>	E5518-N5 AP L
<i>EN ISO 2560-A</i>	E46 5 1Ni 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 weldments to with stand impact at sub-normal temperature (lowest -60°C)

❖ Note on Usage

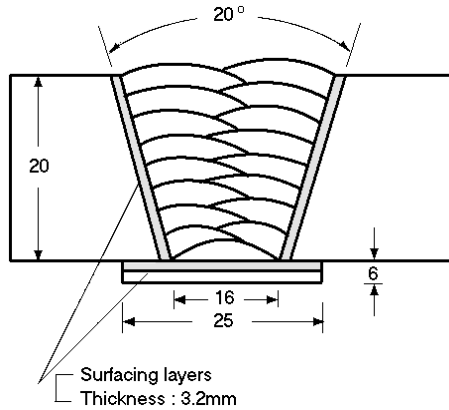
1. Dry the electrodes at 350~400°C (662~752°F) for 60 minutes before use.
2. Keep the Arc as short as possible, and avoid large width weaving.
3. Adopt back step method or strike the Arc on a small steel plate prepared for this particular purpose to prevent blow-holes at the Arc starting.
4. As excessive 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(mm)	: 4.0
Amp./ Volt.	: 170 / 23 ~ 25
Stick-Out(mm)	: -
Pre-Heat(°C)	: 95 ~ 110
Interpass Temp.(°C)	: 95 ~ 110
Postweld Heat(°C)	: 605°C ± 15 x 1hr
Polarity	: AC or DC +

❖ Mechanical Properties of The Weld Metal

consumable	Tensile test			Impact Value (Joule)						
	Y.S (MPa)	T.S (MPa)	EL (%)	Test Temp	X ₁	X ₂	X ₃	Max.	Min.	Avg.
S-8018.C1	539	619	29.2	-59°C	76	84	75	89	72	78
AWS E8018-C1	≥460	≥550	≥19	-59°C	27J @ -60°C					

응력제거 후열처리 : 605°C x 1hr 실시

❖ Chemical Analysis of The Weld Metal(wt%)

Consumable	Chemical Composition					
	C	Si	Mn	P	S	Ni
S-8018.C1	0.077	0.42	1.13	0.013	0.010	2.48
AWS E8018-C1	≤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	Excellent	Excellent
Melting rate	Excellent	Excellent
Deposition rate	Excellent	Excellent
Resistance of spatter occurrence	Excellent	Excellent
The others	Good	Good

❖ Diffusible Hydrogen Contents of Weld Metal

Consumable	Welding current	Diffusible hydrogen contents (ml/gr. Weld metal)					Drying condition of test electrode
		X ₁	X ₂	X ₃	X ₄	Avg.	
S-8018.C1	AC 170 Amp.	5.99	6.33	6.42	6.11	6.21	350℃ x 1hr

❖ Sizes Available and Recommended Currents

Diameter (mm)		3.2	4.0	5.0	6.0
Length (mm)		350	400	400	450
Recommended current range (AC or DC + Amp.)	Flat position	90 ~ 130	130 ~ 190	190 ~ 250	250 ~ 300
	Vertical & Overhead position	80 ~ 120	120 ~ 170	-	-

This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING CO., LTD. affect the results obtained in applying this type of information. These variables include, but are not limited to, welding procedure, shielding gas, plate chemistry and temperature, weldment design, fabrication methods and service requirements.



Approval

❖ Authorized Approval Details

Classification		Dia. (mm)	Welding position	Grade						
KS	AWS			KR	ABS	LR	BV	DNV	GL	NK

