

S-7018.W

COVERED ARC WELDING ELECTRODE
FOR HIGHLY EFFICIENT WELDING
OF 490MPa CLASS WEATHER PROOF STEEL

2020.12



❖ Specification

AWS A5.5	E7018-W1
JIS Z 3214	DA5026G
EN ISO 2560-A	E42 2 ZNiCrCu B 3 2

❖ Applications

High resistance to corrosion caused by seawater or combination of oil, gas and seawater.

Suitable for off- and on-shore construction

❖ Characteristics on Usage

S-7018.W is an iron powder low hydrogen type electrode for all position welding. It shows high resistibility to the atmospheric corrosion, since its weld metal contains Cu and Ni.

Crack resistibility and mechanical properties are good

❖ Note on Usage

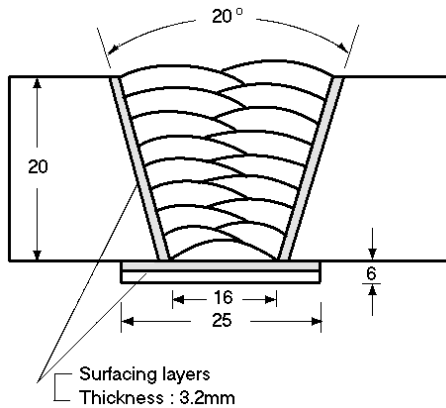
1. Dry the electrodes at 300°C ~ 350°C (572 ~ 662°F) for 60 minutes before use.
2. Keep the arc as short as possible, and avoid large width weaving.
3. Adopt back step method or strike the arc on a small steel plate prepared for this particular purpose to prevent blowholes at the arc starting.
4. Use the wind screen against strong wind.



Mechanical Properties & Chemical Compositions of all-Weld Metal

❖ Welding Conditions

Method by AWS Rules



Diameter, : 4.0 X 400mm(5/32 X 16in)

Amp./ Volt. : 180 / 25 ~ 26

Interpass Temp. : 131~145°C (268~393°F)

Polarity : AC or DC +

[Joint Preparation & Layer Details]

❖ Mechanical Properties of The Weld Metal

Consumable	Tensile test			CVN Impact Value J (ft·lbs)
	YS MPa (lbs/in ²)	TS MPa (lbs/in ²)	EL (%)	-20°C (-4°F)
S-7018.W	505(73,300)	573(83,200)	31.3	100(74)
AWS Spec.	≥415(60,000)	≥490(71,000)	≥22	≥20(15)

❖ Chemical Analysis of The Weld Metal(wt%)

Consumable	Chemical Composition (%)							
	C	Si	Mn	P	S	Ni	Cr	Cu
S-7018.W	0.05	0.56	0.62	0.015	0.013	0.23	0.24	0.37
AWS Spec.	≤0.12	0.40 ~0.70	0.40 ~0.70	≤0.025	≤0.025	0.20 ~0.40	0.15 ~0.30	0.30 ~0.60

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.



Welding Efficiency & Bending Test

❖ Test Conditions of Deposition Efficiency

Consumable	Base Metal		Welding conditions		
	Specification	Dimension, mm(in)	Amp. (A)	Welding speed (mm/min)	Position
S-7018.W (4.0 x 400 mm) (5/32 x 16 in)	ASTM A36	300 X 100 X12 (12 X 3.9 X 0.5)	160	200	Flat

❖ Results of Deposition Efficiency Test

Consumable	Deposition efficiency (%)	
	For electrode	For core wire
S-7018.W (4.0 x 400 mm) (5/32 x 16 in)	65 ~ 70	110 ~ 120

❖ Results of Bending Test

Consumable	Face	Root	Side
S-7018.W (4.0 x 400 mm) (5/32 x 16 in)	Good	Good	Good

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.



Weldability & Diffusible Hydrogen Contents & Proper Welding conditions

❖ Weldability

Item	Division	Flat position	Vertical position
	Arc stability		Good
Melting rate		Excellent	Good
Deposition rate		Excellent	Excellent
Resistance of spatter occurrence		Good	Good
Bead appearance		Good	Good
Slag detachability		Excellent	Excellent
The others		Good	Good

❖ Diffusible Hydrogen Contents of Weld Metal

Consumable	Welding current	Diffusible hydrogen contents (ml/gr. Weld metal)					Remark
		X ₁	X ₂	X ₃	X ₄	Avg.	
S-7018.W (4.0 x 400 mm) (5/32 x 16 in)	AC 180 Amp.	7.21	6.86	6.60	7.36		-

Average Hydrogen Content 7.01 ml/100g Weld Metal

❖ 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)	60 ~ 90	90 ~ 140	130 ~ 190	180 ~ 240	250 ~ 300
	3G (PF) & 4G,5G (PE)	50 ~ 80	80 ~ 120	120 ~ 170	150 ~ 200	-

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.