HYUNDAI WELDING

Rev. 04

S-8018.G

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

2021.05

HYUNDAI WELDING CO., LTD.

S-8018.G

❖ Specification

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

❖ Applications

Structures using 600MPa class high tensile steel, such as bridges, building, rolling stock and machines.

❖ Characteristics on Usage

S-8018.G is an iron powder low hydrogen type electrode of high efficiency used for welding of high tensile steel. Its usability is good with direct current applications as well as alternating current applications and easy to weld in all position.

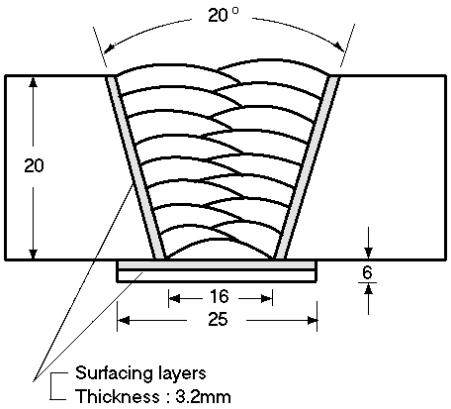
❖ Note on Usage

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 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



[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

Consumable	Tensile test			CVN Impact Value J (ft·lbs)	
	YS MPa (lbs/in²)	TS MPa (lbs/in²)	EL (%)	0℃ (32°F)	-20℃ (-4°F)
S-8018.G	525(76,100)	624(90,500)	30.2	147(109)	103(76)
AWS Spec.	≥460(66,700)	≥550(79,800)	≥19	-	

❖ Chemical Analysis of The Weld Metal(wt%)

Consumable	Chemical Composition (%)				
	C	Si	Mn	P	S
S-8018.G	0.08	0.32	1.58	0.012	0.010

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-8018G (4.0 x 400 mm) (5/32 x 16 in)	ASTM A36	300 X 100 X12 (12 X 3.9 X 0.5)	180	200	Flat

❖ Results of Deposition Efficiency Test

Consumable	Deposition efficiency (%)	
	For electrode	For core wire
S-8018G (4.0 x 400 mm) (5/32 x 16 in)	65 ~ 70	110 ~ 120

❖ Results of Bending Test

Consumable	Face	Root	Side
S-8018G (4.0 x 400 mm) (5/32 x 16 in)	Good	Good	Good

Weldability
& Diffusible Hydrogen Contents & Proper Welding conditions

❖ Weldability

Item \ Division	Flat position	Vertical position
Arc stability	Good	Good
Melting rate	Excellent	Excellent
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 (㎖/gr. Weld metal)					Remark
		X_1	X_2	X_3	X_4	Avg.	
S-8018G (4.0 x 400 mm) (5/32 x 16 in)	DC 170 Amp.	6.98	7.26	6.75	7.34	7.08	-

Average Hydrogen Content 7.08 ㎖/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 ~ 130	130 ~ 190	190 ~ 250	250 ~ 300
	3G (PF) & 4G,5G (PE)	50 ~ 80	80 ~ 120	120 ~ 170	150 ~ 200	-