HYUNDAI WELDING

Rev. 01

S-8016.G

COVERED ARC WELDING ELECTRODE
FOR 550MPa CLASS HIGH TENSILE STEEL

HYUNDAI WELDING CO., LTD.

S-8016.G

❖ Specification

AWS A5.5	E8016-G
JIS Z3211	E5516
EN ISO 2560-A	E46 3 1Ni B 1 2

❖ Applications

Structures using 550MPa class high tensile steel, such as bridges, building, rolling stock and machines.

❖ Characteristics on Usage

S-8016.G is a low hydrogen type electrode for welding 550MPa class high tensile steel.
Its usability is good with direct current applications as well as alternating current applications and easy to weld in all position.

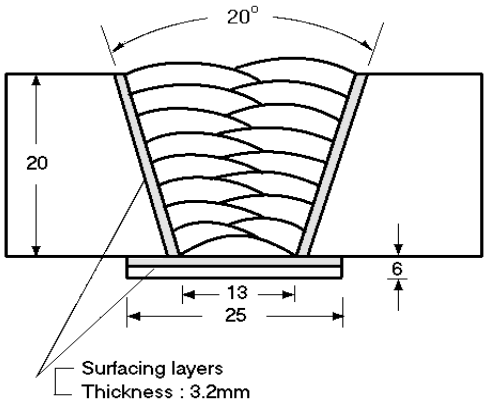
❖ Note on Usage

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

❖ Mechanical Property of All Weld Metal

Consumable	Tensile test			CVN Impact Value J (ft·lbs)	
	YS MPa (ksi)	TS MPa (ksi)	EL (%)	-20℃ (-4°F)	-30℃ (-22°F)
S-8016.G	519(75)	613(89)	28.8	160(118)	141(104)
AWS Spec.	≥460(67)	≥550(80)	≥19	-	

❖ Chemical Composition of All Weld Metal(wt%)

Consumable	Chemical Composition					
	C	Si	Mn	P	S	Ni
S-8016.G	0.08	0.34	1.44	0.011	0.009	0.94
AWS Spec.	NS	≥0.80	≥1.00	≤0.03	≤0.03	≥0.50

In order to meet the alloy requirements of the "G" group,
the undiluted weld metal shall have the minimum of at least one of the elements listed in this table.

Weldability & Welding Efficiency Test

❖ Weldability

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

❖ Test Conditions of Deposition Efficiency

Consumable	Base Metal		Welding conditions		
	Specification	Dimension (mm)	Amp. (A)	Welding speed (mm/min)	Position
S-8016.G (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-8016.G (4.0 x 400 mm) (5/32 x 16 in)	63 ~ 66	97 ~ 100

Diffusible Hydrogen Content

❖ Welding Conditions

consumable	:	S-8016.G	Welding Position	:	1G
Diameter mm(in)	:	4.0 x 400(5/32 x 16)	Amp.(A) / Volts(V)	:	160~170Amp.
Re-drying conditions	:	350℃ X 1hr (662°F X 1hr)	Current Type & Polarity	:	AC/DC+

❖ Hydrogen Analysis Using Gas Chromatography Method

Hydrogen Evolution Time	:	72 hrs	Analysis Temp.	:	25 ℃(77°F)
Evolution Temp.	:	25 ℃(77°F)	Exposure Condition	:	80%RH-30℃(86°F)
Barometric Pressure	:	780 mm-Hg			

❖ Result (㎖/100g Weld Metal)

X1	X2	X3	X4
7.0	6.7	6.8	6.7

Average Hydrogen Content 6.8 *㎖/100g Weld Metal*

Size Available and recommended Current & Approval

❖Sizes Available and Reconnended Current

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 position	55 ~90	90 ~130	130 ~190	190 ~250	250 ~310
	Vertical & Overhead position	50 ~80	80 ~120	110 ~170	150 ~200	-

❖ Authorized Approval Details

Classification	Dia. mm(in)	Welding position	Grade						
AWS			KR	ABS	LR	BV	DNV	GL	NK
S-8016.G	2.6(3/32) ~5.0(3/16)	All		○					