

S-8016.C3

COVERED ARC WELDING ELECTRODE
FOR 600MPa CLASS HIGH TENSILE STEEL & 1% Ni STEEL



❖ Specification

AWS A5.5	E8016-C3
JIS Z3211	E5516-N2
EN ISO 2560-A	E46 4 1Ni B 1 2

❖ Applications

Welding of high tensile steel and 1% Ni steel used in machinery, pressure vessels, storage tanks for low temperature.

❖ Characteristics on Usage

S-8016.C3 is low hydrogen type electrode for all position welding. Good notch toughness of all-weld metal at low temperature is obtained because the weld metal contains about 1% Ni. X-Ray performance and usability are good.

❖ Note on Usage

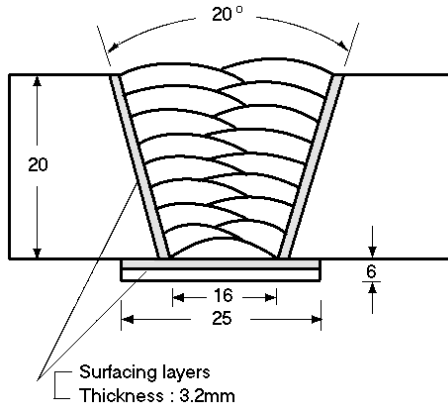
1. Dry the electrodes at 350~400°C (662~752°F) for 30~60 minutes before use.
2. Adopt back step method or strike the arc on a small steel plate prepared for this particular purpose, because arc striking on base metal is in danger of initiating cracking.
3. Preheat at 80~100°C (176~212°F) before use. The temperature to be applied varies in accordance with plate thickness.



Mechanical Properties & Chemical Compositions of all-Weld Metal

❖ **Welding Conditions**

Method by AWS Rules



Diameter, mm(in) : 4.0 X 400(5/32 X 16)
 Amp./ Volt. : 170 / 25 ~ 26
 Interpass Temp. °C(°F) : 131~145(268~393)
 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 (ksi)	TS MPa (ksi)	EL (%)	-40°C (-40°F)
S-8016.C3	520(75)	616(89)	30.8	75(55)
AWS Spec.	470(68) ~550(80)	≥550(80)	≥19	≥27(20)

❖ **Chemical Analysis of The Weld Metal(wt%)**

Consumable	Chemical Composition (%)					
	C	Si	Mn	P	S	Ni
S-8016.C3	0.07	0.45	1.05	0.013	0.006	0.91
AWS Spec	≤0.12	≤0.80	0.40 ~ 1.25	≤0.03	≤0.03	0.80 ~ 1.10

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 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 (mℓ/gr. Weld metal)					Drying condition of test electrode
		X ₁	X ₂	X ₃	X ₄	Avg.	
S-8016.C3	AC 170 Amp.	6.0	6.8	6.6	6.5	6.5	350°C x 1hr. (662°F X 1hr)

❖ **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 position	55 ~90	90 ~130	130 ~190	190 ~250	250 ~310
	Vertical & Overhead position	50 ~80	80 ~120	110 ~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.