

# **S-7016.0**

COVERED ARC WELDING ELECTRODE  
FOR 490MPa CLASS HIGH TENSILE STEEL

2020.12

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**HYUNDAI WELDING CO., LTD.**



## ❖ Specification

AWS A5.1	E7016
JIS Z 3211	E4316
EN ISO 2560-A	E42 2 B 1 2

## ❖ Applications

S-7016.O can be used for One-side welding of pipe and general butt joints of carbon steel and high tensile steel.

## ❖ Characteristics on Usage

S-7016.O is an low hydrogen type electrode for one side welding of 490MPa class high tensile steel.  
Extremely good arc stability in one side welding with relatively low current.

## ❖ Note on Usage

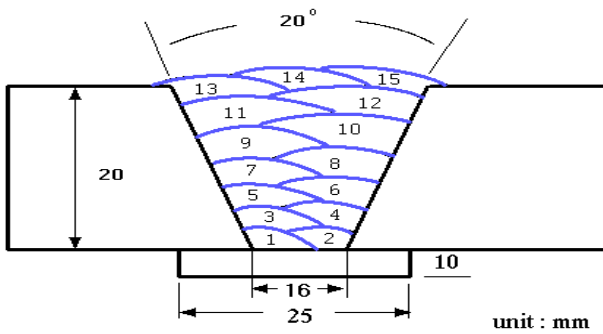
1. Dry the electrodes at 300~350℃ (572~662°F) for 30~60 minutes before use.
2. Stop the arc after moving the crater to the side wall of the groove.
3. Adopt back step method or strike the arc on a small steel plate prepared for this particular purpose to prevent blowholes at the arc starting.
4. Keep the arc as short as possible, and avoid large width weaving



## Mechanical Properties & Chemical Compositions of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



Diameter. : 4.0 X 400mm(5/32 X 16in)  
 Amp./ Volt. : 170 / 23~24  
 Interpass Temp. : 130 ~ 150℃ (266~302°F)  
 Polarity : AC

[ Joint Preparation & Layer Details ]

### ❖ Mechanical Property of All Weld Metal

Consumable	Tensile test			CVN Impact Value J (ft·lbs)	
	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL (%)	-20℃(-4°F)	-30℃(-22°F)
S-7016.O	489(70,905)	566(82,070)	29.6	132(270)	109(228)
AWS Spec.	≥ 400(58,000)	≥ 490(71,000)	≥ 22	≥ 27(20) at -30℃(-22°F)	

### ❖ Chemical Composition of All Weld Metal(wt%)

Consumable	Chemical Composition (%)				
	C	Si	Mn	P	S
S-7016.O	0.07	0.45	1.10	0.015	0.007
AWS Spec.	≤0.15	≤0.75	≤1.60	≤0.035	≤0.035

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

### ❖ Weldability

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

### ❖ Diffusible Hydrogen Contents of Weld Metal

Consumable	Welding current	Diffusible hydrogen contents (mℓ/gr. Weld metal)					Test method
		X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	Avg.	
S-7016.O (4.0 x 400 mm) (5/32 x 16 in)	AC 170 Amp.	4.11	4.50	5.02	4.73	4.59	Gas Chromatograph

**Average Hydrogen Content** *4.59 mℓ/100g Weld Metal*



## Size Available and recommended Current & Approval

### ❖ Sizes Available and Recommended Current

Diameter, mm(in)		2.6(3/32))	3.2(1/8)	4.0(5/32)	5.0(3/16)
Length, mm(in)		350(14)	350(14)	400(16)	400(16)
Recommended current range ( AC or DC+ Amp.)	Flat position	60 ~90	90 ~130	130 ~180	180 ~240
	Vertical & Overhead position	50 ~80	80 ~120	110 ~180	150 ~210
	Root pass	30 ~65	60 ~110	90 ~150	130 ~180

### ❖ Authorized Approval Details

Classification	Dia. mm(in)	Welding position	Grade					
			KR	ABS	LR	BV	DNV GL	NK
AWS								
E7016	2.6(3/32) ~ 5.0(3/16)	All	3H10, 3YH10	3H10, 3Y	3, 3YH15	-	3YH10	KMW 53HH

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