

S-7016.LF

COVERED ARC WELDING ELECTRODE
FOR 490MPa CLASS HIGH TENSILE STEEL



❖ Specification

AWS A5.1	E7016
JIS Z3211	E4916
EN ISO 2560-A	E42 3 B 1 2

❖ Applications

Structures using 490MPa class high tensile steel, bridges, buildings, ship, high pressure vessels, rolling stock and off-shore structures.

❖ Characteristics on Usage

S-7016.LOW FUME is a low hydrogen type electrode for all position welding.

Its fume generation is reduced by about 20% over conventional electrode. The chemical composition and the shape of fumes are improved in order to reduce the hazard of fume on welders.

S-7016.LOW FUME demonstrates good performance in terms of mechanical properties and weldability.

❖ Note on Usage

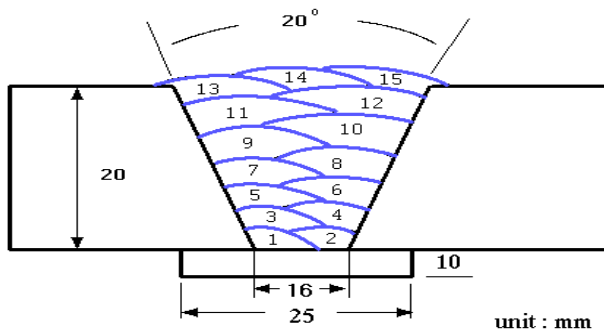
1. Dry the electrodes at 300~350°C (572~662°F) for 30~60 minutes before use.
2. Keep the arc as short as possible, and avoid large width weaving.
3. Adopt back step method or strike the arc on a small steel plate prepared for this particular purpose to prevent blowholes at the arc starting.
4. Use the wind screen against strong wind.



Mechanical Properties & Chemical Compositions of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



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

Amp./ Volt. : 170 / 23~24

Interpass Temp. °C(°F) : 80 ~ 130 (176~266)

Polarity : AC

[Joint Preparation & Layer Details]

❖ Mechanical Property of All Weld Metal

Consumable	Tensile test			CVN Impact Test (Joule)
	YS MPa (ksi)	TS MPa (ksi)	EL (%)	-30°C(-22°F)
S-7016.LF	530(77)	606(88)	28	76(56)
AWS Spec.	≥ 400(58)	≥ 490(71)	≥ 22	≥ 27(20)

❖ Chemical Composition of All Weld Metal(wt%)

Consumable	Chemical Composition (%)				
	C	Si	Mn	P	S
S-7016.LF	0.08	0.52	1.28	0.015	0.010
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
& Generated Fumes****❖ Weldability**

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

❖ The Amounts of Generated Fumes

Times Division Electrode		1	2	3	4	5	6	7	8	9	10	Av
S-7016.LF	Ft	269.2	262.4	270.4	260.6	270.0	282.4	276.4	264.3	260.3	266.4	268.2
	Fw	8.5	8.4	8.6	8.3	8.5	8.8	8.6	8.3	8.3	8.3	8.45
Conventional E/R	Ft	340.0	342.6	344.8	352.6	332.4	337.7	341.4	330.9	330.9	339.6	338.9
	Fw	10.3	10.4	10.5	10.7	9.8	9.9	10.3	9.8	9.8	9.9	10.10

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Diffusible Hydrogen Content

❖ Welding Conditions

consumable	: S-7016.LF	Welding Position	: 1G
Diameter mm(in)	: 4.0 x 400(5/32 x 16)	Amp.(A) / Volts(V)	: 170~180Amp.
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 °C(77°F)
Evolution Temp.	: 25 °C(77°F)	Exposure Condition	: 80%RH-30°C(86°F)
Barometric Pressure	: 780 mm-Hg		

❖ Result (ml/100g Weld Metal)

X1	X2	X3	X4
8.2	7.9	8.5	8.7

Average Hydrogen Content 8.3 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)	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 ~85	90 ~130	130 ~180	180 ~240	250 ~310
	Vertical & Overhead position	50 ~80	80 ~120	110 ~170	150 ~200	-

❖ **Authorized Approval Details**

Classification	Dia. mm(in)	Welding position	Grade					
			KR	ABS	LR	BV	DNV GL	NK
E7016	2.6(3/32) ~ 5.0(3/16)	All	3H10, 3YH10	3H10, 3Y	3, 3YH15	3YHH	3YH10	KMW 53HH
	6.0 (15/64)	Flat						

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