

# **SL-71MAG**

FLUX CORED ARC WELDING CONSUMABLE  
FOR WELDING OF MILD & 490MPa  
CLASS HIGH TENSILE STEEL

2022.11

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**HYUNDAI WELDING CO., LTD.**



## ❖ Specification

**AWS A5.20** E71T-1M/-9M H4

**(AWS A5.20M)** E491T-1M/-9M H4)

**EN ISO 17632-A** T46 4 P M21 1 H5

## ❖ Applications

All position welding of shipbuilding, steel construction, bridges, offshore, pipes, and pressure vessels.

## ❖ Characteristics on Usage

SL-71MAG is titania type Seamless Flux Cored Wire applicable for all position welding with Ar + 20~25%CO<sub>2</sub> shielding gas.

SL-71MAG offer optimal protection against moisture reabsorption. During use, moisture cannot penetrate into the filling since there is no closed seam running over the wire length. This extremely low level of diffusible hydrogen prevents the weld from hydrogen induced cracking or cold cracking.

## ❖ Note on Usage

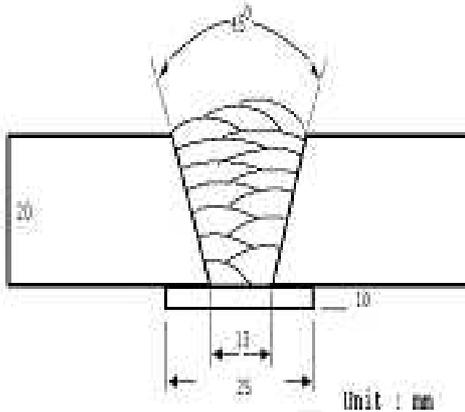
1. Proper preheating(50~150°C, 122~302°F) and interpass temperature must be used in order to release hydrogen which may cause cracking in weld metal when electrodes are used for medium and heavy plates.
2. Use Ar-20~25%CO<sub>2</sub> gas.



## Mechanical Properties & Chemical Composition of All Weld Metal

### ❖ Welding Conditions

Method by AWS Spec.



[ Joint Preparation & Layer Details ]

<b>Welding Position</b>	: 1G(PA)
<b>Diameter</b>	: 1.2mm (0.045in)
<b>Shielding Gas</b>	: Ar-20%CO <sub>2</sub>
<b>Flow Rate</b>	: 20 ℓ /min
<b>Amp / Volt</b>	: 240~250A / 28~29V
<b>Stick-Out</b>	: 15~20mm (0.59~0.78in)
<b>Pre-Heat</b>	: R.T .
<b>Interpass Temp.</b>	: ≤150 (≤302°F)
<b>Polarity</b>	: DC(+)

### ❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa (lbs/in <sup>2</sup> )	TS MPa (lbs/in <sup>2</sup> )	EL (%)	-20℃ (0°F)	-40℃ (-40°F)
<b>SL-71MAG</b>	518(75,100)	571(82,800)	26.0	114(84)	90(66)
<b>AWS A5.20 E71T-1M/-9M</b>	≥ 390 (56,000)	490~670 (70,000~97,000)	≥ 22	≥27J at -30℃ (≥20ft · lbs at -20°F)	

### ❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S
<b>SL-71MAG</b>	0.029	0.426	1.414	0.021	0.011
<b>AWS A5.20 E71T-1M/-9M</b>	≤ 0.12	≤ 0.9	≤ 1.75	≤ 0.03	≤ 0.03

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.



## Diffusible Hydrogen Content

### ❖ Welding Conditions

<b>Diameter</b>	: 1.2mm (0.045in)	<b>Amps / Volts</b>	: 240~250A / 28~29V
<b>Shielding Gas</b>	: Ar-20%CO <sub>2</sub>	<b>Stick-Out</b>	: 15~20mm (0.59~0.78in)
<b>Flow Rate</b>	: 20 l /min	<b>Welding Speed</b>	: 30 cm/min (12 in/min)
<b>Welding Position</b>	: 1G (PA)	<b>Current Type &amp; Polarity</b>	: DC(+)

### ❖ Hydrogen Analysis Using Gas Chromatography Method

<b>Hydrogen Evolution Time</b>	: 72 hrs
<b>Evolution Temp.</b>	: 45 °C (113°F)
<b>Barometric Pressure</b>	: 780 mm-Hg

### ❖ Result(ml/100g Weld Metal)

**Diffusible Hydrogen** **2.6 ml / 100g**



## ❖ Proper welding parameters

Consumable	Shielding Gas	Item	Wire Dia.	
			1.2mm (0.045in)	1.6mm (1/16in)
SL-71MAG	Ar +20%CO <sub>2</sub>	Amp.(A)	220~300	300~400
		Volt.(V)	23~32	25~35

## ❖ F No & A No

F No	A No
6	1