

# **SC-110M Cored**

METAL CORED ARC WELDING CONSUMABLE  
FOR 760MPa CLASS HIGH TENSILE STEEL

2022.02



## SC-110M Cored

### ❖ Specification

<i>AWS A5.28</i>	E110C-G
<i>(AWS A5.28M)</i>	E76C-G)
<i>EN ISO 18276-A</i>	T69 4 Mn2NiMo M M21 3 H5

### ❖ Applications

Single and multipass welding of high strength low alloy steel  
Such as HY-80, and HY-100

### ❖ Characteristics on Usage

SC-110M is a metal cored wire which provides an exceptionally smooth and stable arc, low spatter and minimal slag coverage.

### ❖ Note on Usage

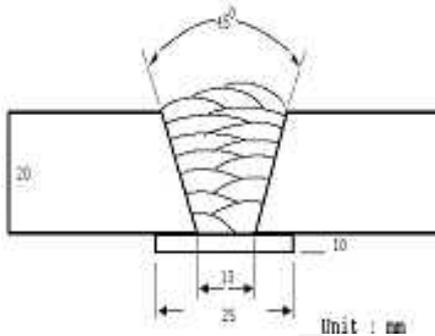
1. For preheating guidelines, please refer to your local standards and codes relative to your best practices
2. One-side welding defects such as hot cracking in may occur with wrong welding parameter such as high welding speed.
3. Use Ar + 20-25% CO<sub>2</sub> gas.



## 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>	: 80%Ar + 20%CO <sub>2</sub>
<b>Flow Rate</b>	: 20 ℓ /min
<b>Amp./ Volt.</b>	: 280A / 29V
<b>Stick-Out</b>	: 20~25mm (0.79~0.98in)
<b>Pre-Heat</b>	: R.T .
<b>Interpass Temp.</b>	: 150±15℃ (302±59°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 (%)	-50℃ (-58°F)
SC-110M Cored	730 (106,000)	800 (116,000)	20	40 (30)
AWS A5.28 E110C-G	-	≥ 760 (110,000)	-	-

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

Consumable	C	Si	Mn	P	S	Ni	Cr	Mo
SC-110M Cored	0.04	0.70	1.80	0.015	0.015	2.0	0.10	0.60
AWS A5.28 E110C-G	N/S (Not Specified) <sup>h</sup>							

\* h : The electrode must have a minimum of one or more of the following: ≥0.5%Ni, ≥0.3%Cr, ≥0.2%Mo

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.



## Welding Efficiency

### ❖ Deposition Rate & Efficiency

Wire Size	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency(%)	Deposition Rate kg/hr(lb/hr)
	Amp.(A)	Volt.(V)			
1.2mm (0.045in)	200	24	7.4(290)	90~92	2.7(5.9)
	250	28	9.8(390)	93~94	4.0(8.8)
	300	30	12.7(500)	94~95	5.7(12.5)
Remark				Deposition efficiency =(Deposited metal weight/ Wire weight used)× 100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

\* Shielding Gas : Ar+20% CO<sub>2</sub>



## Diffusible Hydrogen Content

### ❖ Welding Conditions

<b>Diameter</b>	: 1.2mm (0.045in)	<b>Amps / Volts</b>	: 270A / 29V
<b>Shielding Gas</b>	: 80%Ar +20%CO <sub>2</sub>	<b>Stick-Out</b>	: 20~25mm (0.79~0.98in)
<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)

X1	X2	X3	X4
<b>4.0</b>	<b>3.8</b>	<b>4.1</b>	<b>4.1</b>

**Average Hydrogen Content 4.0 ml / 100g Weld Metal**

## Recommended Preheating & Inter pass Temp

Thickness of plate mm(in)	Preheating Temp(°C)
< 10 (2/5 in)	> 20°C (68°F)
> 10~20 (2/5~3/4 in)	> 65°C (149°F)
> 20~40 (3/4 ~ 1-1/2)	> 110°C (230°F)
> 40 (1-1/2 in)	> 150°C (302°F)

❖ The purpose of this guide is to avoid cold cracking (by AWS D 1.1/D1.1M:2010, ANNEX I)

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## Proper Welding Condition

### ❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia.
			1.2mm (0.045in)
SC-110M Cored	Ar+20%CO <sub>2</sub>	F & HF	220~290Amp

### ❖ F No & A No

F No	A No
6	12

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