

Supercored 110

FLUX CORED ARC WELDING CONSUMABLES
for WELDING of MILD & 800Mpa
CLASS HIGH TENSILE STEEL



Supercored 110

❖ Specification

<i>AWS A5.36</i>	E111T1-C1A4-G H4
<i>(AWS A5.36M)</i>	E761T1-C1A4-G H4)
<i>(AWS A5.29)</i>	E111T1-GC H4)
<i>EN ISO 18276-A</i>	T 69 4 ZMn2.5NiMo P C1 1 H5

❖ Applications

Single and multi pass welding of high strength low alloy steel, such as HT-80 class steels.

❖ Characteristics on Usage

Supercored 110 is a titania type flux cored wire for all position welding with 100% CO₂ shielding gas

❖ Note on Usage

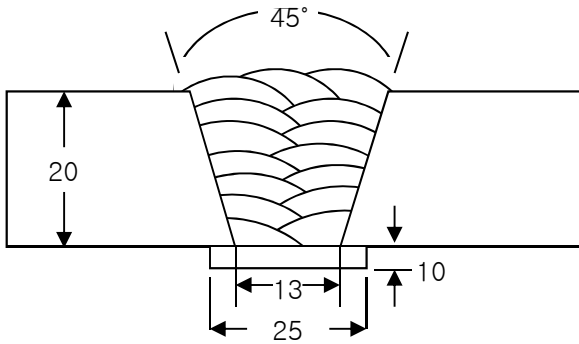
1. Proper preheating(50~180°C)(122~356°F) and inter pass temperature must be used in order to release hydrogen which may cause cracking in weld metal when electrodes are used for medium and heavy plates.
2. One-side welding defects such as hot cracking may occur with wrong welding parameter such as high welding speed.
3. Use 100% CO₂ gas.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS A5.29



Unit : mm

[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter	: 1.2mm (0.045in)
Shielding Gas	: 100%CO ₂
Flow Rate	: 20 ℓ /min
Amp./ Volt.	: 280A / 32V
Stick-Out	: 20~25mm (0.79~0.98in)
Pre-Heat	: R.T .
Interpass Temp.	: 150±15℃ (302±59°F)
Polarity	: DC(+)

❖ Mechanical Properties of the weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)
	YS Mpa (Ksi)	TS Mpa (Ksi)	EL (%)	-40℃ (-40°F)
Supercored 110	780 (113)	830 (120)	19.0	60 (44)
AWS A5.36 E110T1-C1A4-G	≥ 680 (98)	760~900 (110~130)	≥ 15	≥ 27J at -40℃ (≥ 20ft · lbs at -40°F)

❖ Chemical Analysis of the weld metal(wt%)

	C	Si	Mn ^a	P	S	Ni ^a	Cr ^a	Mo ^a	V ^a
Supercored 110	0.06	0.35	1.55	0.016	0.007	2.20	0.02	0.50	0.01
AWS A5.36	As agreed upon between supplier and purchaser								

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

Diameter	: 1.4mm (0.052in)	Amps(A) / Volts(V)	: 240A / 27V
Shielding Gas	: 100%CO ₂	Stick-Out	: 20~25mm (0.79~0.98in)
Flow Rate	: 20 ℓ /min	Welding Speed	: 30 cm/min (12 in/min)
Welding Position	: 1G (PA)	Current Type & Polarity	: DC(+)

❖ Hydrogen Analysis Using Gas Chromatograph Method

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

❖ Result(ml/100g Weld Metal)

X1	X2	X3	X4
2.8	2.9	2.8	2.7

Average Hydrogen Content 2.8 ml / 100g Weld Metal

Recommended Preheating & Inter pass Temp

Thickness of plate (mm, in)	Preheating Temp(°C, °F)
< 10 (0.39)	> 20 (68)
> 10~20 (0.39~0.79)	> 65 (149)
> 20~40 (0.79~1.57)	> 110 (230)
> 40 (1.57)	> 150 (302)

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

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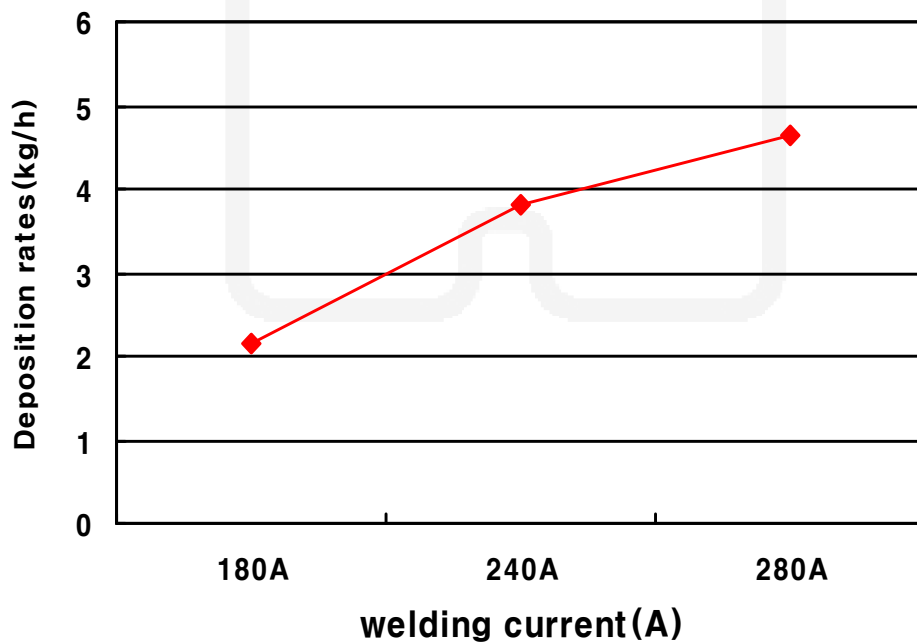


Welding Efficiency

❖ Deposition Rate & Efficiency

Consumable (size)	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency %	Deposition Rate kg/hr(lb/hr)
	Amp.(A)	Volt.(V)			
Supercored 110 1.2mm (0.045in)	180	23	9.2 (360)	84~87	2.2 (4.8)
	240	26	11.0 (430)	85~88	3.8 (8.4)
	300	33	14.3 (560)	86~88	4.7 (10.3)
Remark				Deposition efficiency =(Deposited metal weight/ Wire weight used)×100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

* Shielding Gas : CO₂



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Proper Welding Condition

❖ Welding Conditions

Consumables	Shielding Gas	Welding Position	Amp.(A)
			1.2mm (0.045in)
Supercored 110	100% CO ₂	F & H-F	120~280
		V-up, OH	120~260
		V-down	200~280

Approval

ABS	KR
AWS A5.29 E111T1-GC H4 (IV -40°C ≥41J) 1.2mm (0.045in)	3Y69S(C) H5 1.2mm (0.045in)

❖ F No & A No

F No	A No
6	10

Notice

*This test report is made for giving general information, and it's not meaning guarantee.
Test results are changeable by several welding
- parameter including base materials*