

SC-91LT

FLUX CORED ARC WELDING CONSUMABLE
FOR LOW-TEMPERATURE SERVICE STEEL

2022.02

HYUNDAI WELDING CO., LTD.



SC-91LT

❖ Specification

<i>AWS A5.29</i>	E91T1-Ni2C-J
<i>(AWS A5.29M)</i>	E621T1-Ni2C-J)
<i>EN ISO 17632-A</i>	T 50 6 Z P C1 2 H5

❖ Applications

SC-91LT is a titania type flux cored wire for welding of low-temperature service steel.

❖ Characteristics on Usage

SC-91LT is titania type flux cored wire for all position welding with CO₂ shielding gas. This wire provide excellent notch toughness at low temperature down to -60°C.

❖ Note on Usage

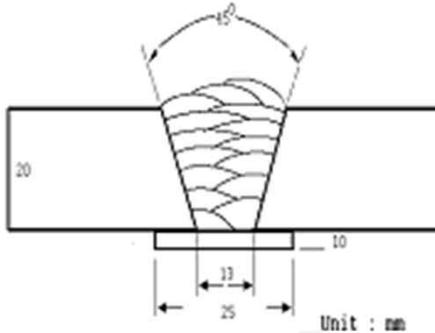
1. For preheating guidelines, please refer to your local standards and codes relative to your best practices.
2. Use 100% CO₂ gas
3. Original packaging until ready for use should remain.
4. Remaining after use so that you can be protected from moisture and re-packaging plastic, etc. should be kept in the room and as soon as possible should be used.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter(mm)	: 1.2mm
Shielding Gas	: 100% CO ₂
Flow Rate(l /min.)	: 20
Amp./ Volt.	: 260~280 / 29~31
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T.
Interpass Temp.(°C)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa(lbs/in ²)	TS MPa((lbs/in ²)	EL(%)	-40°C (-40°F)	-62°C (-80°F)
SC-91LT	644 (93,000)	676 (98,000)	22.8	95(70)	80(59)
AWS A5.29 E91T1-Ni2C-J	≥ 540 (78,000)	620~760 (90,000~ 110,000)	≥ 17	≥ 27J at -40°C (≥ 20ft · lbs at 40°F)	

❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S	Ni
SC-91LT	0.04	0.25	1.25	0.010	0.010	2.30
AWS A5.29 E91T1-Ni2C-J	≤ 0.12	≤ 0.80	≤ 1.50	≤ 0.03	≤ 0.03	1.75~2.75

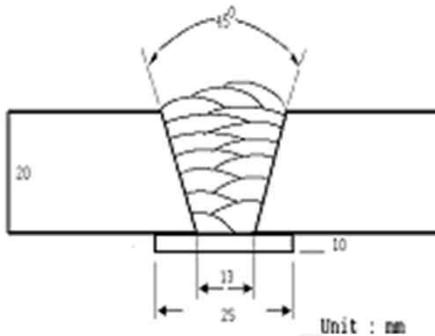
This information is provided solely for the purpose of confirming product conformance with applicable standards. The serviceability of a product or structure utilizing this type of information is and must be the sole responsibility of the builder/user. Many variables beyond the control of HYUNDAI WELDING 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.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[Joint Preparation & Layer Details]

Welding Position	: 1G(PA)
Diameter(mm)	: 1.4mm
Shielding Gas	: 100% CO ₂
Flow Rate(ℓ / min.)	: 20
Amp./ Volt.	: 290~310 / 29~32
Stick-Out(mm)	: 20~25
Pre-Heat(°C)	: R.T .
Interpass Temp.(°C)	: 150±15
Polarity	: DC(+)

❖ Mechanical Properties of all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft · lbs)	
	YS MPa(lbs/in ²)	TS MPa((lbs/in ²))	EL(%)	-40 °C (-40 °F)	-62 °C (-80 °F)
SC-91LT	636(92,000)	670 (97,000)	22.5	90(66)	75(55)
AWS A5.29 E91T1-Ni2C-J	≥ 540 (78,000)	620~760 (90,000~ 110,000)	≥ 17	≥ 27J at -40 °C (≥ 20ft · lbs at 40 °F)	

❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S	Ni
SC-91LT	0.04	0.24	1.23	0.010	0.010	2.20
AWS A5.29 E91T1-Ni2C-J	≤ 0.12	≤ 0.80	≤ 1.50	≤ 0.03	≤ 0.03	1.75~2.75

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Welding Efficiency

❖ Deposition Rate & Efficiency

Wire size	Welding Conditions		Deposition Efficiency(%)	Deposition Rate(kg/hr)
	Amp.(A)	Volt.(V)		
1.2mm	230	27	84~86	2.6
	280	31	84~86	3.6
	330	33	85~87	4.7
1.4mm	250	27	84~86	2.4
	300	31	84~86	3.4
	350	35	85~87	4.5
Remark			Deposition efficiency =(Deposited metal weight/ Wire weight used)×100	Deposition rate =(Deposited metal weight/ Welding time,min.)×60

* Shielding Gas : 100%CO₂



Diffusible Hydrogen Content

❖ Welding Conditions

Diameter(mm)	: 1.2	Amps(A) / Volts(V)	: 280 / 31
Shielding Gas	: 100%CO ₂	Stick-Out(mm)	: 20~25
Flow Rate(ℓ /min.)	: 20	Welding Speed	: 30 cpm
Welding Position	: 1G	Current Type & Polarity	: DC(+)

❖ Hydrogen Analysis Using Gas Chromatography Method

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

❖ Result(ml/100g Weld Metal)

X1	X2	X3	X4
3.8	3.9	3.7	3.8

Average Hydrogen Content 3.8 ml / 100g Weld Metal



Proper Welding Condition

❖ Welding Conditions

Consumable	Shielding Gas	Welding Position	Wire Dia. (mm)	
			1.2mm	1.4mm
SC-91LT	100% CO ₂	Flat	130~300 Amp	160~330 Amp
		V-up Over head	170~230 Amp	180~240 Amp
		V-down	150~300 Amp	170~320 Amp

❖ AUTHORIZED APPROVAL DETAILS

Welding position	Register of shipping & size(mm)			
	ABS	DNV	RS	CWB
All	5YQ500SA(H5) 1.2	VY50MS(H5) 1.2	5Y50SM H5 1.2	A5.29/A5.29M:2010 E621T1-Ni2C-J H4 (E91T1-Ni2C-J H4) 1.2 / 1.4

❖ F No & A No

F No	A No
6	10

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