

SC-81SR

FLUX CORED ARC WELDING CONSUMABLE
FOR WELDING OF LOW-TEMPERATURE
SERVICE STEEL

2024.12

HYUNDAI WELDING CO., LTD.



SC-81SR

❖ Specification

<i>AWS A5.29</i>	E81T1-K2C
<i>(AWS A5.29M)</i>	E551T1-K2C)
<i>EN ISO 17632-A</i>	T46 6 1.5Ni P C1 1 H5
<i>JIS Z3313</i>	T55 6 T1-1 C A-N3-U

❖ Applications

SC-81SR is a titania type flux cored wire for welding of low-temperature service steel

❖ Characteristics on Usage

SC-81SR is a titania-type flux cored wire to be used with 100%CO₂ gas shielding. It provide excellent notch toughness at low temperature, not only as-welded but also stress relieved state

❖ Note on Usage

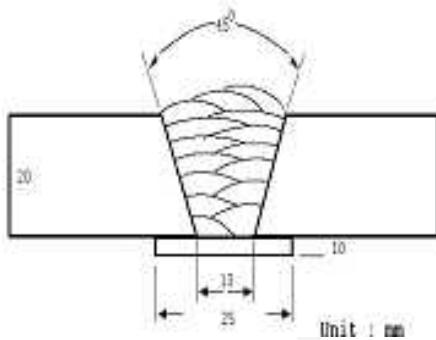
1. For preheating guidelines, please refer to your local standards and codes relative to your best practices.
2. Use 100% CO₂ gas.



Mechanical Properties & Chemical Composition of All Weld Metal

❖ Welding Conditions

Method by AWS Spec.



[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 all weld metal

Consumable	Tensile Test			CVN Impact Test J(ft·lbs)		Remark
	YS MPa (lbs/in ²)	TS MPa (lbs/in ²)	EL (%)	-29℃ (-20°F)	-62℃ (-80°F)	
SC-81SR	580 (84,000)	620 (90,000)	28.0	125 (92)	90 (66)	As welded
	560 (81,000)	600 (87,000)	32.0	90 (66)	70 (52)	PWHT (620℃ × 2hr)
AWS A5.29 E81T1-K2C	≥ 470 (68,000)	550~690 (80,000~ 100,000)	≥ 22	≥ 27J at -29℃ (≥ 20ft · lbs at -20°F)		-

❖ Chemical Analysis of all weld metal(wt%)

Consumable	C	Si	Mn	P	S	Ni
SC-81SR	0.05	0.28	1.20	0.012	0.011	1.50
AWS A5.29 E81T1-K2C	≤ 0.15	≤ 0.80	0.5~1.75	≤ 0.03	≤ 0.03	1.0~2.0

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

Consumable (size)	Welding Conditions		Wire Feed Speed m/min (in/min)	Deposition Efficiency(%)	Deposition Rate kg/hr(lb/hr)
	Amp.(A)	Volt.(V)			
SC-81SR 1.2mm (0.045in)	200	26	10.2 (400)	84~86	2.4 (5.3)
	250	30	11.5 (450)	84~86	3.5 (7.7)
	300	33	15.3 (600)	85~87	4.5 (9.9)
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 (0.045in)	Amps(A) / Volts(V)	: 230 / 24
Shielding Gas	: 100%CO ₂	Stick-Out(mm)	: 20~25mm (0.79~0.98in)
Flow Rate(ℓ /min.)	: 20	Welding Speed	: 30 cm/min (12 in/min)
Welding Position	: 1G	Current Type & Polarity	: DC(+)

❖ Hydrogen Analysis Using Gas Chromatography 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
4.1	4.2	4.0	4.1

Average Hydrogen Content 4.1 ml / 100g Weld Metal



SC-81SR

❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia. (mm)
			1.2mm (0.045in)
SC-81SR	100% CO ₂	Flat	110~280 Amp
		V-up Over head	110~240 Amp
		V-down	110~280 Amp

❖ AUTHORIZED APPROVAL DETAILS

Welding Position	Register of shipping & Size		
	ABS	LR	DNV
All V-Down	5Y400SA H5 1.2 mm (0.045in)	5Y40 H5 1.2 mm (0.045in)	VY40MS(H5) 1.2 mm (0.045in)

❖ F No & A No

F No	A No
6	10

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