HYUNDAI WELDING

Rev. 04

SC-81SR

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

2020.12

HYUNDAI WELDING CO., LTD.

SC-81SR

❖ Specification

AWS A5.29	E81T1-K2C
(AWS A5.29M	E551T1-K2C)
EN ISO 17632-A	T46 6 1.5Ni P C1 1 H5
JIS Z3313	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%CO_2 gas shielding. It provide excellent notch toughness at low temperature, not only as-welded but also stress relieved state

❖ Note on Usage

1. Proper preheating(50~150℃) 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

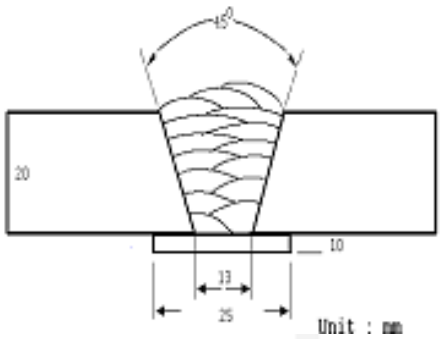
2. Use 100% CO_2 gas.

SC-81SR

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/in²)	TS MPa (lbs/in²)	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**

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%CO_2

Diffusible Hydrogen Content

❖ Welding Conditions

Diameter(mm)	:	1.2 (0.045in)	**Amps(A) / Volts(V)**	:	280 / 31
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 ℃ (113°F)
Barometric Pressure	:	780 mm-Hg

❖ Result(㎖/100g Weld Metal)

X1	X2	X3	X4
3.4	**3.5**	**3.3**	**3.4**

Average Hydrogen Content 3.4 *㎖ / 100g Weld Metal*

❖ Proper Current Range

Consumable	Shielding Gas	Welding Position	Wire Dia. (mm)
			1.2mm (0.045in)
SC-81SR	100% CO_2	Flat	150~300 Amp
		V-up Over head	170~230 Amp
		V-down	180~300 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