K-81TK2

FLUX CORED ARC WELDING
CONSUMABLE FOR WELDING OF 560 MPa
LOW TEMPERATURE SERVICE STEEL

KISWEL

Rev.0

K-81TK2

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Description & Application

- **It is designed for welding of 560MPa high tensile steel for low temperature service**
- **Typical applications include offshore structures, LNG and LPG carriers and storage tank**
- **Wire is a metal type of flux cored wire for all-position welding**
- **The weld metal contain about 1.5% Ni so, good impact value at low temperatures down to -60℃**
- **It feature good porosity resistance and easy slag removal and deposition rate is higher than a titania type**

Classification

- **AWS A5.29 : E81T1-K2C H4**
- **AWS A5.36 : E81T1-C1A8 K2 H4**
- **KS D 7104 YFL-C506R**
- **JIS Z 3313 : T55 6 T1-1CA-N3-U H5**
- **EN ISO 17632 A : T50 6 1.5Ni P C1 1 H5**
- **EN ISO 17632 B : T55 6 T1-1C1 A-N3-U H5**

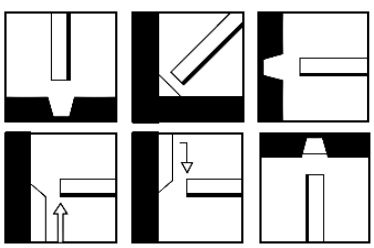
Typical Chemical Composition of Weld Metal(%)

Item	C	Si	Mn	P	S	Ni
AWS A5.29 E81T1-K2C H4	≤0.15	≤0.80	0.50-1.75	≤0.030	≤0.030	1.00-2.00
K-81TK2	**0.03**	**0.42**	**1.29**	**0.009**	**0.004**	**1.66**

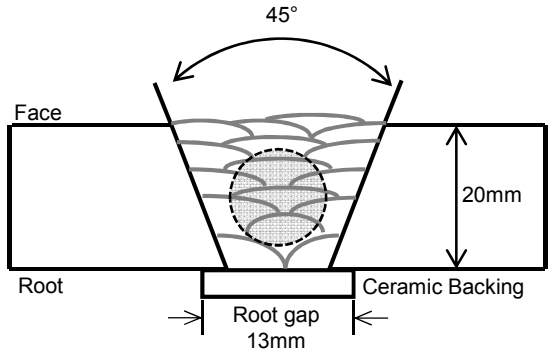
Shielding Gas

- **100% CO_2 (15~25ℓ/min)**

Welding position



All Weld Metal Test Specimen



Base metal	EH-36		
Diameter	1.2 mm		
Welding position	1G	2G	3G(up)
Welding current(A)	240	220	230
Arc voltage(V)	29	27	27
Heat input	17(1G), 11(2G), 25(3G) kJ/cm		

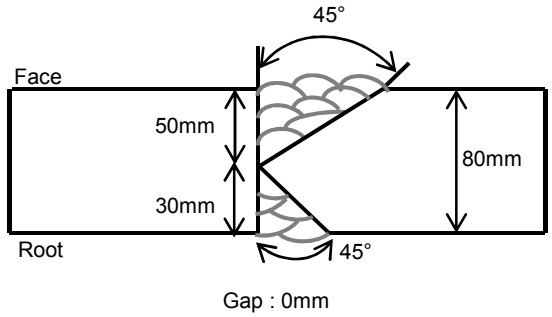
Typical Mechanical Properties of Weld Metal

	Y.S (MPa)	T.S (MPa)	El. (%)	IV (J) (Joule @ Temp)	Shielding Gas	PWHT
AWS E81T1-K2C	<470	550-690	<19	≥ 27 @ -30℃		AW
K-81KT2(1G)	**598**	**647**	**27**	**65-72 @-60℃**	**100%CO_2**	**AW**
K-81TK2(2G)	**624**	**671**	**25**	**49-58 @-60℃**	**100%CO_2**	**AW**
K-81TK2(3G)	**605**	**665**	**22**	**51-55 @-60℃**	**100%CO_2**	**AW**

Typical Operating Procedures

Dia (mm)	Welding Conditions		Feed speed (m/min)	Deposition Efficiency(%)	Melt-off Rate (Kg/Hr)
	Current (amps)	Voltage (volts)			
1.2	200	26	10.2	84-86	2.4
	250	28	11.5	84-86	3.5
	300	33	15.3	85-87	4.5
1.4	250	28	7.6	84-86	2.4
	300	32	10.2	84-86	3.2
	330	36	12.8	85-87	4.4

■ Welding Condition of CTOD test



Base metal	API 2W Gr.60
Diameter	1.2 mm
Welding position	1G
Welding current(A)	300
Arc voltage(V)	33
Heat input	20(1G) kJ/cm

■ Mechanical properties of CTOD test

No.	Y.S (MPa)	Max Force (kN)	Temp. (℃)	CTOD (mm)	Ave. CTOD (mm)
1	560	305	-10	0.568	0.548
2		305	-10	0.583	
3		293	-10	0.494	

■ Diffusible Hydrogen Content (Gas chromatography method)

Class.	Diffusible Hydrogen Content (㎖) / 100g Weld Metal				
	1	2	3	4	Av.
Result	3.31	3.22	3.91	3.81	3.56

*** Test Information**

- **▶ Test Method : Reference to EN ISO 3690**
- **▶ Test Equipment : G.C (Gas Chromatograph)**

■ Packaging





■ Size and Weight

Dia. (mm)	1.2,1.4,1.6
Weight (kg)	5, 12.5, 15, 20
Pail pack(kg)	100~300

■ Approval

ABS	BV	DNV*GL	LR	KR	NK	RS
5YSAH5	5Y40SH5	V Y40MS(H5)	5Y40SH5	L 3SG H5	KSWL3GH5	5Y40SH5

■ Handling and Storage

- **Once Flux cored wire picked up moisture, it cannot be dried at high temperature, unlike covered electrode.**
- **If a wire was left in a wire feeder in a high-temperature high- humidity atmosphere in summer season, a wet environment in rainy season or a dew fall environment at night in winter was unpacked, the wire should be kept in an area of low humidity.**

  ※ Temp. below 30℃ relative humidity below 60%

KISWEL

The Management System of KISWEL LTD, 704, Gongdan-ro, Seongsan-gu, Changwon-si, Gyeongnam 51544, Republic of Korea, 70, Saebyeok-ro 63beon-gil, Sasang-gu, Busan 47018, Republic of Korea has been approved by Lloyd's Register Quality Assurance to : IATF 16949:2016, ISO 14001:2015, applicable to : Manufacture of solid welding wires & rods, flux cored wires, submerged arc welding wires & fluxes, stainless steel welding wires & rods and covered electrodes.
More information : www.kiswel.com

