EF-200LT+KD-50

SUBMERGED ARC WELDING

KISWEL

Rev.0

EF-200LT+KD-50

KISWEL

■ Description & Application

- **Single and multi-layer welding of various kinds of structures such as offshore structures, pressure vessels, heavy wall steel pipes., etc.**
- **Neutral flux for multi-pass welding.**
- **Excellent impact toughness at low temperature.**

■ Classification

Sub-arc Wire

- **AWS A5.17 : EH14**
- **EN ISO 14171 : S4**
- **JIS Z 3351 : YS-S6**
- **KS B ISO 14171 : S4**

Sub-arc flux

- **EN ISO 14174 : SA CS 1 53 AC H5**
- **JIS Z 3352 : SA CS 1 AC- 12x65**
- **KS B ISO 14174 : SA CS 1 53 AC H5**

Flux/Wire-combination

- **AWS A5.17 : F7A(P)8-EH14**
- **EN ISO 14171 : S 46 6 CS S4**
- **JIS Z 3183 : S502-H**
- **KS B ISO 14171 : S 46 6 CS S4**

■ Typical Chemical Composition of Wire(%)

Item	C	Mn	Si	S	P	Cu
AWS Spec. EH14	0.10-0.20	1.70-2.20	≤0.10	≤0.030	≤0.030	≤0.35
RESULT	0.12	1.85	0.03	0.007	0.010	0.14

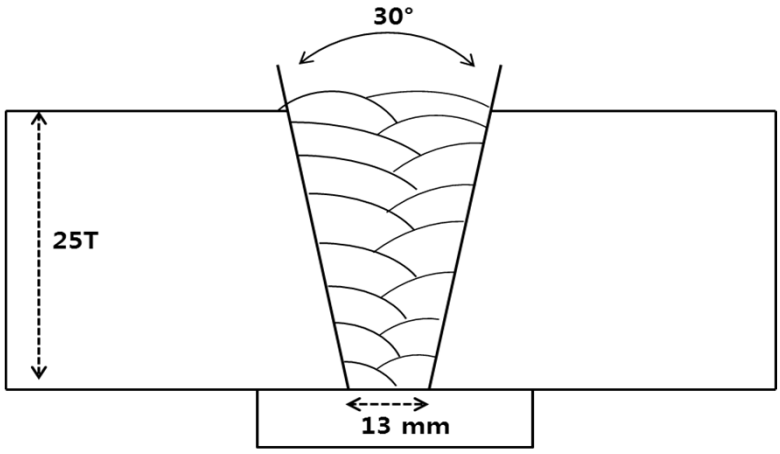
■ Typical Chemical Composition of Weld Metal(%)

Item	C	Mn	Si	S	P	Cu
RESULT	0.08	1.55	0.17	0.011	0.016	0.12

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■ All Weld Metal Test Specimen



Pass	1~16
Diameter	4.0mm
Current / Voltage	520A / 30V
Travel Speed	42 CPM
Stick out	30 mm
Interpass Temp. (℃)	150±15

Base Metal	Thick (mm)	Size (mm)	Grove Design	Remark
SM490	25	300Lx125W	V-Grove	AWS A5.17

■ Typical Mechanical Properties of Weld Metal

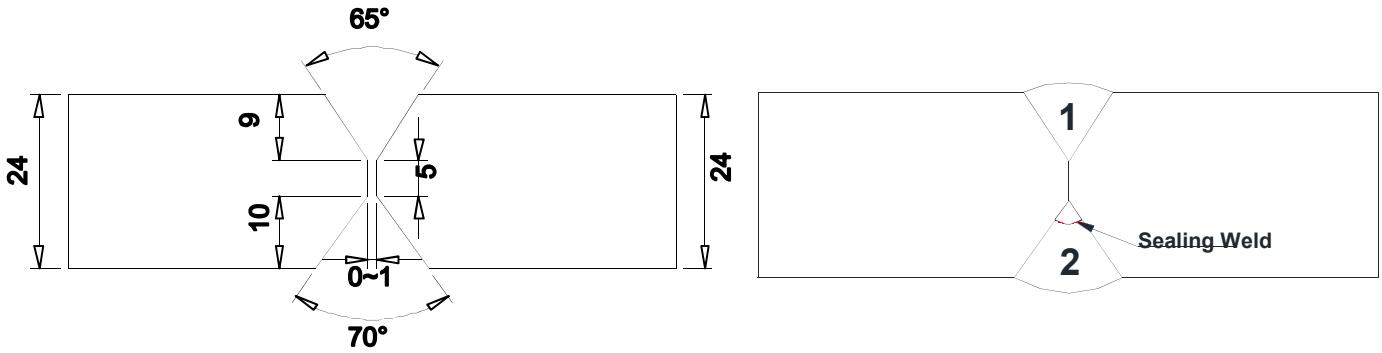
Item [Flux+Wire]	Tensile Test			Impact Test	Remark
	Y.S [MPa]	T.S [MPa]	E.L [%]	Impact Value [J]	
AWS Spec. [A5.17 F7A(P)8-E14]	≥ 400	480-660	≥22	≥27 @ -62℃	-
EF-200LT+KD-50	570	625	29	150 @ -50℃ 100@ -62℃	As-Welded
EF-200LT+KD-50	536	570	31	120 @ -50℃ 90 @ -62℃	PWHT [620℃ 1Hr]

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■ Two-Run Welding Test Condition

Pass	Process	Dia. (mm)	Polarity	Amp. (A)	Volt. (V)	Speed (CPM)	H.I (kJ/㎝)
Sealing	GMAW	1.2	DC+	200	27	32	8
1	SAW	4.0	DC+	680	28	55	45
		4.0	AC	640	34		
2	SAW	4.0	DC+	850	28	55	50
		4.0	AC	640	34		



⋆ Base Metal : EN 10025-3 S355NL

■ Mechanical Property of Two-Run Welding

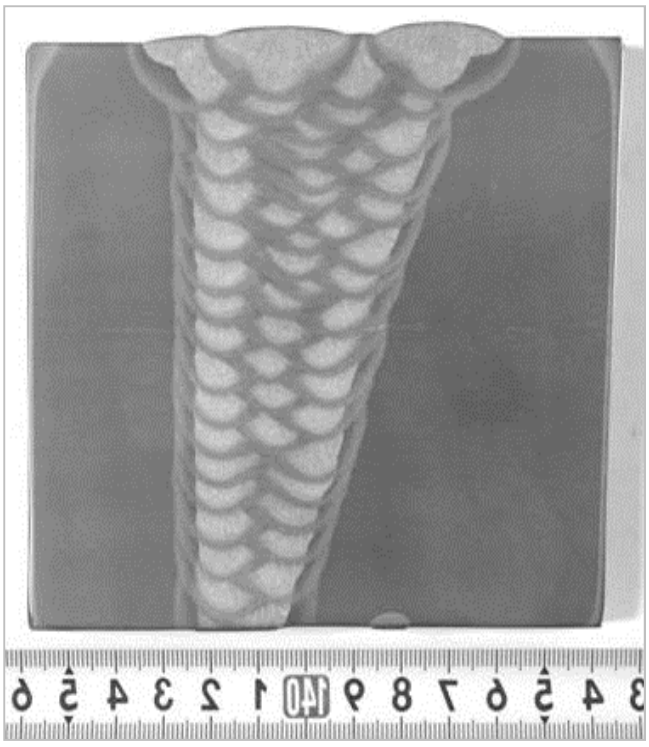
Tensile Test						
Class.	Width [mm]	Thick [mm]	Area [mm2]	Tensile Load [kN]	T.S [MPa]	Broken Position
Result	25	23.42	585.5	329.8	563	B.M
	25	23.30	582.5	328.6	564	B.M

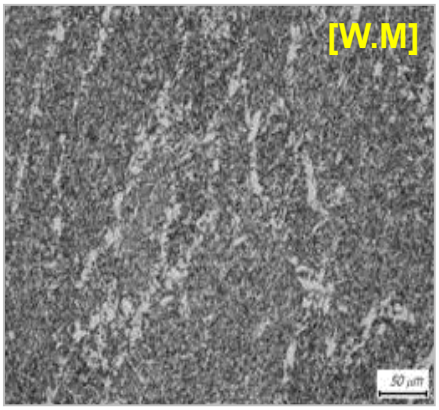
Impact Test				
Class.	Test Temp. [℃]	Weld Metal	F.L	F.L+2mm
Result	-50	Av. 77	Av.68	Av.88

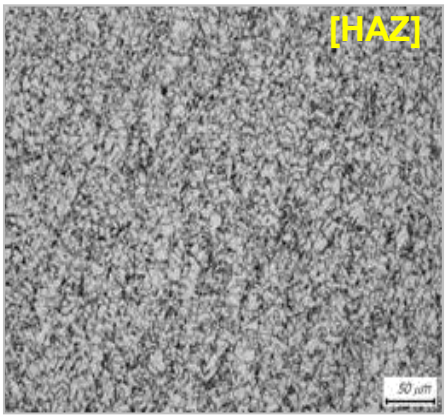
■ CTOD TEST RESULT

Product	EF-200LT+KD-50
AWS Spec.	A5.17 F7A(P)8-EH14
Welding Conditions	H.I : 40kJ/㎝ Interpass & Preheat Temp. : 200~230℃
Base Metal	API 2W Gr.60 (POSCO産 76mmt)

Position of Notch	Test Temp. [℃]	Y.S [MPa]	T.S [MPa]	Vp [mm]	Max Force (kN)	CTOD [mm]
Weld	-20	512	606	5.94	294.1	1.764
				6.96	296.9	2.064
				6.10	291.6	1.794







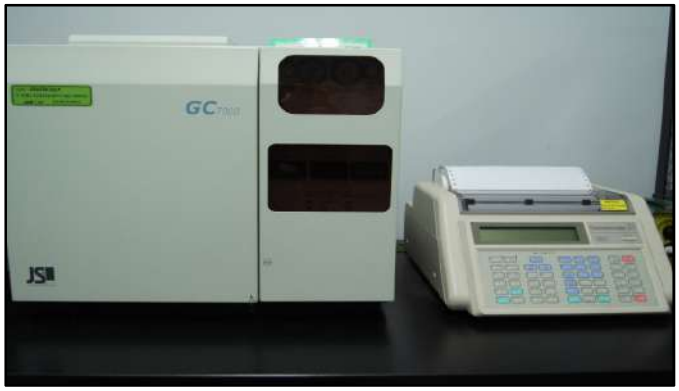
■ Diffusible Hydrogen Test

Class.	Diffusible Hydrogen Content (㎖) / 100g Weld Metal				
	1	2	3	4	Av.
Result	3.62	3.18	3.62	3.96	3.60

*** Test Information**

▶ Test Method : Reference to EN ISO 3690

▶ Test Equipment : G.C (Gas Chromatograph)



< Gas Chromatography equipment >

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■ Packaging



■ Size and Weight

Item	Size	Package	Weight [kg]
Flux	12*30 / 12*60	Steel Can / Paper Bag	15 / 20

Item		Package	Weight [kg]
Diameter [mm]			2.0, 2.4, 3.2, 4.0, 4.8
Wire	Coil		25, 100, 150, 300, 400, 500, 600
	POP		200, 250, 300, 400, 450

■ Approval

ABS	BV	DNV*GL	LR	KR	NK	CWB
3YT H5 4Y400M	A5Y40M A3YT H5	V Y40M(H5) III YT (H5)	BF 3YT	4YM 3YT	KAW53T KAW54M	F49A6- EH14-H4

■ Handling and Storage

◆ Storage

- **Unopened flux must be stored in the following conditions :**
  → Temperature : 20±10℃, Relative humidity : As low as possible not exceeding 60% max
- **Flux shall not be stored longer than 2 years**
- **The content of unheated flux hoppers must shift after 8 hour, it be placed in a drying cabinet or heated flux hopper at a temperature of 150±25℃**
- **Remaining flux from opened cans must be kept at a temperature of 150±25℃**

◆ Re-Drying

- **When handled and stored as above, fluxes can normally be used without re-drying**
- **In severe applications, stipulated by the applicable material specification, re-drying of the flux is recommended**
- **Re-drying shall be performed as follows :300~350 for about 60~180 minutes**
- **Re-drying must be done in equipment that turns the flux so the moisture can evaporate easily or in an oven shallow plates with a flux height not exceeding 5 cm.**
- **Re-dried flux not immediately used must be stored at 150±25℃ before use**

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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

