KK-50LF

COVERED ELECTRODE

FOR 490MPA GRADE STEEL

KISWEL

KK-50LF

Description

- Covering is low hydrogen type for welding of 490MPa class high tensile steel in ships, bridges
- It is a covered, low hydrogen type electrode equivalent to AWS A5.1 E7016 and offers superb excellent mechanical properties
- Satisfactory bead appearance and slag removal
- Stables arc performance in almost welding current
- Redry the electrode at 300~400℃ for 1~2hours prior to use

Classification

- AWS A5.1 : E7016
- JIS Z 3211 : E4916
- EN ISO 2560-A : E 42 3 B 12 H10
- EN ISO 2560-B : E 49 16 A U H10

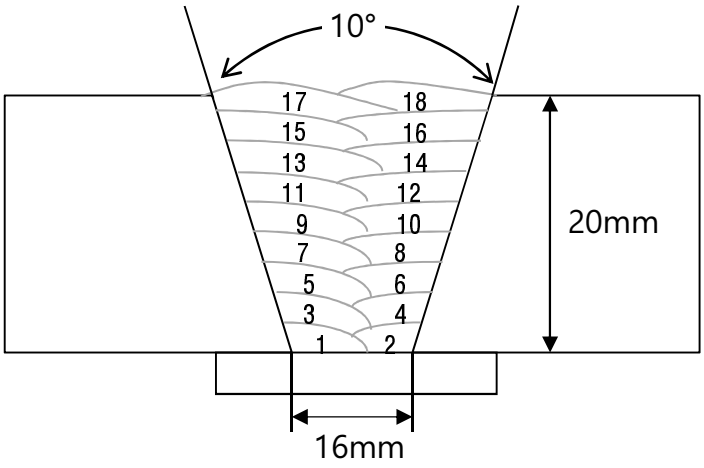
Welding Position



Base Materials

Industry	Steel Grades	Type
General structural	EN 10025	S185, S235, S275, S355
Ship	ASTM A131	A, B, D, AH32 to EH36
Cast	EN 10213-2	GP240R
Pipe	EN 10208	L210, L240, L290, L360, L415
	API 5LX	X42, X46, X52, X60
Boiler & Pressure vessel	EN10028-2	P235GH, P265GH, P295GH, 355GH

■ All Weld Metal Test Specimen



Base metal	A36
Size	4.0*400mm
Polarity / Current	DC+ / 160~165A
Welding Position	PA / 1G
Heat Input	13.4~16.4 kJ/cm

■ Typical Mechanical Properties of Weld Metal

	Y.S (MPa)	T.S (MPa)	El. (%)	I.V (J) (J @ Temp.)	PWHT	Remark
AWS Spec.	≥400	≥490	≥22	≥27 @ -30℃	A.W	1G
KK-50LF	520	590	32	100 @ -30℃	A.W	

*** Diffusible hydrogen content (㎖/100gr W.M) : Avg 9.7 (G.C)**

■ Typical Chemical Composition of Weld Metal (%)

	C	Si	Mn	P	S	Ni
AWS Spec.	≤0.15	≤0.75	≤1.60	≤0.035	≤0.035	≤0.30
KK-50LF	0.07	0.53	0.93	0.012	0.010	0.01

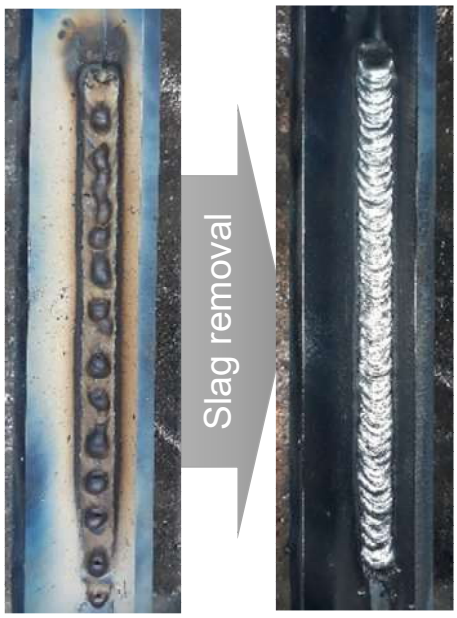
■ Weldability

		Flat, H-Fillet	V-Up
Arc	Stability	Excellent	Good
	Concentration	Excellent	Good
	Force	Good	Good
Slag	Fluidity	Excellent	Excellent
	Removability	Excellent	Good
Spatter	Quantity	Excellent	Good
Fume	Quantity	Good	Good
Porosity	Occurrence	Excellent	Good

■ Bead Appearance



H-Fillet, 4.0*450mm, DC+ 160~165A



V-Up, 4.0*450mm, DC+ 125~130A

■ Welding Efficiency

Nominal electrode efficiency (%)	Deposition efficiency (%)
95~100	65~70

1) Size : 3.2*350mm

2) Nominal electrode efficiency (%) : M_D/M_{CN} *100

3) Deposition efficiency (%) : $M_D/(M_E-M_S)$*100

* M_D : mass of deposited weld metal
* M_{CN} : nominal mass of consumed core wire
* M_E : total mass of electrodes tested
* M_S : total mass of the stub ends

■ Recommended Welding Parameter (AC or DC+)

Diameter (mm)	2.6	3.2	4.0	5.0
Length (mm)	350	350	400 / 450	400 / 450
Flat, Fillet	60~100	80~130	130~180	160~220
V-Up	50~80	80~110	90~140	120~190

KK-50LF

■ Packaging and Available sizes



Diameter (mm)		2.6	3.2	4.0	5.0
Length (mm)		350	350	400 / 450	400 / 450
Carton	Inner	5Kg			
	Out	20Kg (5Kg x 4EA)			
Vacuum	Inner	2Kg / 5Kg			
	Out	10Kg (2Kg x 5EA) / 20Kg (5Kg x 4EA)			

* Identification Imprint : E7016 KISWEL

* Tip Color : Yellow

■ Approval

ABS	BV	DNV • GL	LR	NK
3Y H10	3Y HH	3Y H10	3Ym H15	KMW53H

* Remark : KS, JIS, CE

■ Control Instruction

1. Storage

1) On principle covered electrodes should be in their original packaging until used. If possible the packs of electrodes should be taken out of storage in the sequence in which they were received in warehouse.
2) The covered electrodes must be stored in dry rooms to protect them against damage caused by moisture. The room must be fitted out with pallets or shelves since storage directly on the floor or against the walls is not recommended.
3) Opened packs of electrodes should also be stored in dry and, if necessary, heated rooms so that there is no likelihood of the temperature dropping below the dew point.

AWS Classification	Store Condition (Opened packs of electrode)	
	Ambient Air	Holding Oven
E7016	Not recommended	High 30~140℃ than room temperature

2. Re-drying

1) Where electrodes have become damp it is recommended that re-drying is carried out immediately prior to welding in accordance with the temperature details specified in the following table.
2) Electrodes that have been in direct contact with water, grease or oil should not be used for welding fabrication.

Type of coating	Re-drying temp. (℃)	Re-Drying time (min)
Low hydrogen	300~400	60~120

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

