KCL-10

COVEREDE ELECTRODE
FOR MILD STEEL

KISWEL

Rev.0

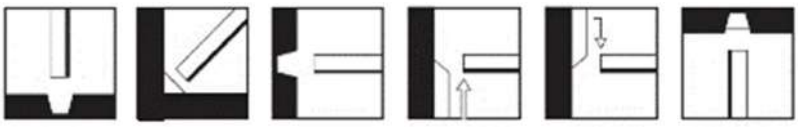
■ Description

- Covering is high cellulose type for welding of pipe, ship buildings, tanks or galvanized surfaces and steel casting repairs
- Good penetration combined with freedom from lack of fusion makes this electrodes an excellent choice for pipe welding
- Gives high ductility root weld and easy slag removal
- Stables arc performance in almost welding current

■ Classification

- AWS A5.1 : E6010
- JIS Z 3211 : E4310
- EN ISO 2560-A : E 38 0 C 22
- EN ISO 2560-B : E 43 13 A

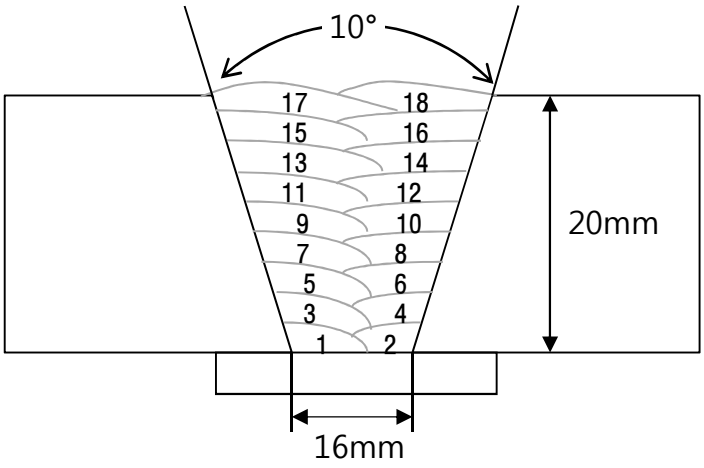
■ Welding Position



■ Base Materials

Industry	Steel Grades	Type
General structural	EN 10025	S185, S235, S275
Pipe	EN 10208	Root pass L290 up to L415
	API 5LX	X42, X46, X52, X56 Root pass up to X80
Fine grained steel	EN 10025	S275

■ All Weld Metal Test Specimen



Base metal	A36
Size	4.0*350mm
Polarity / Current	DC+ / 135~140A
Welding Position	PA / 1G
Heat Input	12.4~14.2 kJ/cm

■ Typical Mechanical Properties of Weld Metal

	Y.S (MPa)	T.S (MPa)	El. (%)	I.V (J) (J @ Temp)	PWHT	Remark
AWS Spec.	≥330	≥430	≥22	≥27 @ -30℃	A.W	1G
KCL-10	420	500	29	45 @ -30℃	A.W	

■ Typical Chemical Composition of Weld Metal (%)

	C	Si	Mn	P	S	Ni
AWS Spec.	≤0.20	≤1.00	≤1.20	-	-	≤0.30
KCL-10	0.11	0.36	0.63	0.015	0.013	0.02

■ Weldability

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

■ Bead Appearance



H-Fillet, 3.2*350mm, DC+ 90~95A

V-Down, 3.2*350mm, DC+ 120~125A

■ Welding Efficiency

Nominal electrode efficiency (%)	Deposition efficiency (%)
85~90	55~60

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

■ SSCC / HIC Test Result

SSCC	HIC
Pass (No Crack)	Pass (CLR, CTR, CSR 0%)

* SSCC TEST : Reference to NACE TM 0177
* HIC TEST : Reference to NACE TM 0284

■ Recommended Welding Parameter (DC+)

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

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■ Packaging and Available sizes



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

* Identification Imprint : 6010 KISWEL

* Tip Color : None

■ Approval

ABS	BV	DNV • GL	LR	NK
3,E6010	3	3	3m	KMW3

* Remark : 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
E6010	30±10℃ Humidity max. 50%	High 12~24℃ 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)
High cellulose	No need	No need

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

