K-7018NP

COVEREDE ELECTRODE
FOR 490MPa GRADE STEEL

KISWEL

Rev.0

■ Description

- K-7018NP is a thick coated basic type electrode, with a stable arc and low spatter, the slag is easy to remove
- This electrode equivalent to AWS A5.1 E7018-1 H4R and offers superb notch toughness at -50℃
- Excellent mechanical properties and radiographic soundness
- Stables arc performance in almost welding current
- Redry the electrode at 300~400℃ for 1~2hours prior to use

■ Classification

- AWS A5.1 : E7018-1 H4R
- JIS Z 3214 : E4918 A U H5
- EN ISO 2560-A : E 42 4 B 32 H5
- EN ISO 2560-B : E 4918-1 A U H5

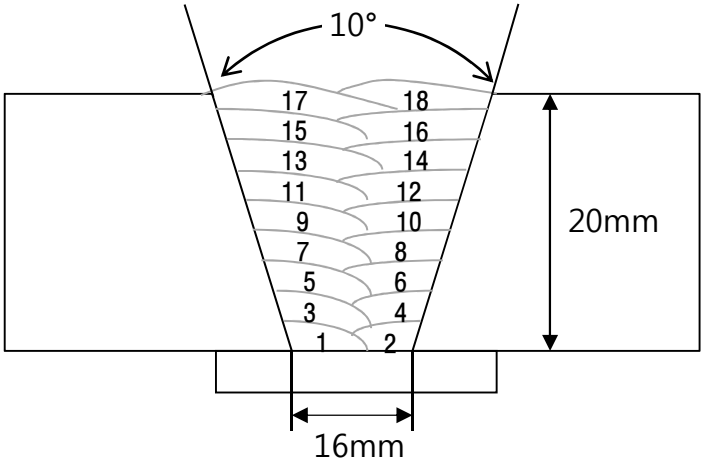
■ Welding Position



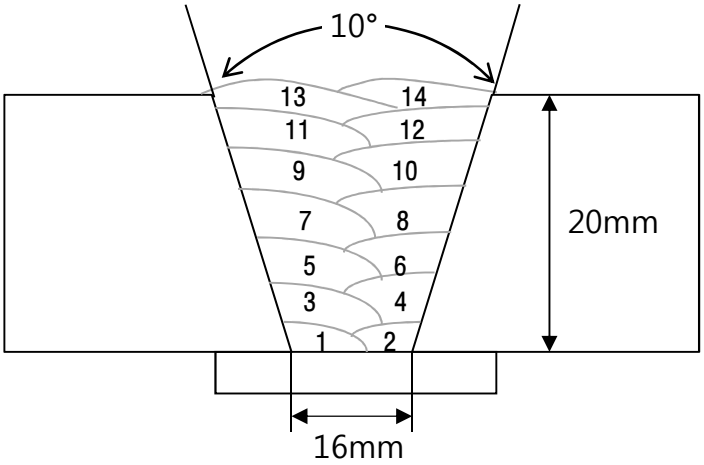
■ Base Materials

Industry	Steel Grades	Type
General structural	EN 10025	S185, S235, S275, S355
Ship	ASTM A131	A, B, D, AH32 to EH40
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
Fine grained steel	EN 10025	S275, S355, S420

■ All Weld Metal Test Specimen



Base metal	A36
Size	4.0*400mm
Polarity / Current	DC+ / 160~165A
Welding Position	PA / 1G
Heat Input	13.8~16.4 kJ/cm



Base metal	A36
Size	4.0*400mm
Polarity / Current	DC+ / 125~130A
Welding Position	PF / 3G
Heat Input	17.5~20.3 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 @ -45℃	A.W	1G
K-7018NP	490	580	31	130 @ -50℃	A.W	
	460	550	32	110 @ -50℃	610℃ 2Hrs	
	440	510	33	105 @ -50℃	610℃ 10Hrs	
	500	590	32	100 @ -50℃	A.W	3G
	470	570	32	100 @ -50℃	610℃ 8Hrs	

■ 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
K-7018NP	0.05	0.25	1.35	0.015	0.005	0.02

■ Weldability

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

■ Bead Appearance



3G, 3.2*350mm, DC+ 110~115A



5G, 2.5*350mm, DC+ 95~100A



6G, 3.2*350mm, DC+ 115~120A

■ Welding Efficiency

Nominal electrode efficiency (%)	Deposition efficiency (%)
115~120	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

■ Diffusible Hydrogen Content

Class.	1	2	3	4	Avr.
Result	3.73	3.78	3.92	3.84	3.8

* Test Method : Reference to EN ISO 3690
* Test Equipment : Gas Chromatograph

■ Recommended Welding Parameter (AC or DC+)

Diameter (mm)	2.5	3.2	4.0	5.0
Length (mm)	350	350 / 450	400 / 450	450
Flat, Fillet	60~90	90~140	150~190	180~230
V-Up	50~80	80~120	120~160	-

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■ Packaging and Available sizes



Diameter (mm)		2.5	3.2	4.0	5.0
Length (mm)		350	350 / 450	400 / 450	450
Carton	Inner	5Kg			
	Out	20Kg (5Kg x 4EA)			
Vacuum	Inner	2Kg / 5Kg			
	Out	10Kg (2Kg x 5EA) / 20Kg (5Kg x 4EA)			

* Identification Imprint : E7018-1 H4R

* Tip Color : None

■ Approval

ABS	BV	DNV • GL	LR
3YH5	3YH5	3YH5	3Ym H5

* Remark : 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
E7018-1 H4R	30±10℃ Humidity max. 50%	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)
Iron powder, low hydrogen	300~400	60~120

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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

