







## Carbon Steel Electrode

GB/T5117

AWS A5.1

Description: When selecting welding electrodes, one should do according to the requirements of their chemical composition, mechanical properties, crack-resistance performance and, at the same time, analyze comprehensively all kinds of factors like welding structures, steel plate thickness, working conditions, stress status, welder performance, etc. If necessary, do some welding experiments, work out corresponding technical measures, and then decide and select the right kinds of welding electrodes.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD.



**WH · J421**

**GB/T 5117 E4313  
AWS A5.1 E6013**

**Description:** WH·J421 is a kind of carbon steel electrode with titania type coating. AC/DC. All-position welding. It has excellent welding performance, excellent operating performance, easy reignition, stable arc and beautiful appearance of weld.

**Application:** For welding low-carbon steel structures, especially suitable for welding on thin plates and cosmetic welding which requires the weld beads to be beautiful and glossy.

## Chemical Composition of Deposited Metal(%)

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	0.3~0.6	≤0.35	≤0.035	≤0.040
Typical value	0.07	0.4	0.25	0.019	0.025

## Mechanical Properties of Deposited Metal

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 17$	(normal temperature)	--(0℃)
Typical value	460~540	≥ 340	18~26	50-80	≥ 47

## Diameter, Length & Recommended Current (AC/DC)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300	300	350	400	400
Current(A)	40~70	50~90	90~130	130~210	170~230

## X-ray Inspection: II

## Certification

Ship Classification Society: ABS , CCS



**WH · J421Fe16**

**GB/T 5117 E4324  
AWS A5.1 E6024**

**Description:** WH·J421Fe16 is a kind of carbon steel electrode with iron powder titania type coating. AC/DC. Suitable for downhand welding and flat fillet welding. It has easy reignition, fewer spatters, spatters, good slag detachability and beautiful appearance of weld. The deposition efficiency can reach approximately 160%.

**Application:** Used for downhand welding and flat fillet welding on general low-carbon steel structures.

**Chemical Composition of Deposited Metal(%)**

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	0.30~0.60	≤0.35	≤0.035	≤0.040
Typical value	0.07	0.41	0.23	0.022	0.025

**Mechanical Properties of Deposited Metal**

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 17$	--(normal temperature)
Typical value	450~510	≥ 340	18~25	60~100(normal temperature)

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

	φ3.2	φ4.0	φ5.0		
Dia(mm)	φ3.2	φ4.0	φ5.0		
Length(mm)	350	400	400		
Current(A)	110~160	160~240	210~270		

**X-ray Inspection: II**

**Certification**

Ship Classification Society:



**WH · J421Fe18**

**GB/T 5117 E4324  
AWS A5.1 E6024**

**Description:** WH·J421Fe18 is a kind of carbon steel electrode with iron powder titania type coating. AC/DC. Suitable for downhand welding and flat fillet welding. It has easy reignition, fewer spatters, good slag detachability and beautiful appearance of weld. The deposition efficiency can reach approximately 180%.

**Application:** Used for downhand welding and flat fillet welding on general low-carbon steel structures.

**Chemical Composition of Deposited Metal(%)**

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	0.30~0.60	≤0.35	≤0.035	≤0.040
Typical value	0.08	0.37	0.25	0.021	0.026

**Mechanical Properties of Deposited Metal**

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 17$	—(normal temperature)
Typical value	450~510	≥ 340	18~25	60~100(normal temperature)

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

	φ3.2	φ4.0	φ5.0		
Dia(mm)	φ3.2	φ4.0	φ5.0		
Length(mm)	350	400	400		
Current(A)	110~160	160~240	210~270		

**X-ray Inspection: II**

**Certification**

Ship Classification Society: GL

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD.



**WH · J422**

**GB/T 5117 E4303  
AWS A5.1 E6013**

**Description:** WH·J422 is a kind of carbon steel electrode with lime-titania type coating. AC/DC. All-position welding. It has excellent welding performance, excellent mechanical properties, stable arc, fewer spatters, good slag detachability, easy reignition and beautiful appearance of weld. The ripples can be wide, narrow, thin and thick. Welding is easy and efficient.

**Application:** Used for welding key low-carbon steel structures and low-alloy structures with low strength, such as Q235, 09MnV, 09Mn2, etc.

## Chemical Composition of Deposited Metal(%)

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	0.3~0.6	≤0.25	≤0.035	≤0.040
Typical value	0.07	0.4	0.25	0.02	0.025

## Mechanical Properties of Deposited Metal

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 22$	$\geq 27(0^\circ\text{C})$	$\geq 47(-20^\circ\text{C})$
Typical value	440~500	$\geq 340$	22~32	70~115(0°C)	60~90(-20°C)

## Diameter, Length & Recommended Current (AC/DC)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300	300	350	400	400
Current(A)	40~70	60~100	80~140	140~220	180~240

## X-ray Inspection: II

## Certification

Ship Classification Society: GL, BV, CCS



WH · J426

GB/T 5117 E4316

AWS A5.1 E6016

**Description:** WH·J426 is a kind of carbon steel electrode with low-hydrogen potassium type coating. AC/DC.All-position welding. The deposited metal has excellent mechanical properties,crack-resistance and good low temperature impact toughness.

**Application:** Used for welding key low-carbon steel and low-alloy steel structures,such as shipbuilding, bridges, pressure vessels, etc.

#### Chemical Composition of Deposited Metal(%)

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	≤0.125	≤0.90	≤0.035	≤0.040
Typical value	0.08	0.097	0.48	0.017	0.023

#### Mechanical Properties of Deposited Metal

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 22$	$\geq 27$ (-30℃)	
Typical value	460-540	$\geq 340$	25-34	100-240	

#### Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)

#### Diameter, Length & Recommended Current (AC/DC)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300	350	400	400	
Current(A)	60~100	80~140	110~210	160~230	

#### X-ray Inspection: II

#### Instruction

- ①The electrodes must be baked under 300~350℃ for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③ When welding, short arc must be used and stringer bead is suitable..

#### Certification

Ship Classification Society: CCS



**WH · J427**

**GB/T 5117 E4315**  
**AWS A5.1 E6015**

**Description:** WH·J427 is a kind of carbon steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The deposited metal has excellent mechanical properties, crack-resistance and good low temperature impact toughness.

**Application:** Used for welding key steel structures under pressure and loads, low-carbon steel thick plate structures and low-alloy steel structures, such as machinery, shipbuilding bridges, pressure vessels, etc.

**Chemical Composition of Deposited Metal(%)**

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	≤1.25	≤0.90	≤0.035	≤0.040
Typical value	0.07	1.05	0.58	0.016	0.025

**Mechanical Properties of Deposited Metal**

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
Guaranteed value	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 22$	--(-20°C)	$\geq 27(-30^\circ\text{C})$
Typical value	460~540	$\geq 340$	25~35	110~260(-20°C)	100~240(-30°C)

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300	350	400	400	
Current(A)	60~100	80~140	110~210	160~230	

**X-ray Inspection: II**

**Instruction**

- ① It should be baked at 300~350°C for 60 minutes if the products are affected with damp.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③ When welding, short arc must be used and stringer bead is suitable.

**Certification**

Ship Classification Society:



WH · J427Ni

GB/T 5117 E4315

AWS A5.1 E6015

**Description:** WH·J427Ni is a kind of carbon steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. One of its characteristics is that the weld metal has excellent low temperature impact toughness.

**Application:** Used for welding key low-carbon steel structures and key low-alloy steel structures with corresponding strength, such as ship steel (A, B, D and E of Q235 series), boilers, bridges, pressure vessels, other structures under moving loads and low temperatures, etc.

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni				
GV	≤0.12	0.50~0.90	≤0.50	≤0.035	≤0.040	≤0.70				
Typical	0.08	0.54	0.37	0.021	0.019	0.42				

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	
GV	$\sigma_b \geq 420$	$\sigma_s \geq 330$	$\delta_5 \geq 22$	$\geq 27$	
Typical	440~520	340~400	26~35	110~220	

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	350mm	400mm	400mm	
Current(A)	60~100	80~140	110~210	160~230	

**Instruction**

- ①The electrodes must be baked under 350~400°C for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, single pass welding is suitable, and weaving is not suitable.

**Certification**

Ship Classification Society:



**WH · J501Fe18**

**GB/T 5117 E5024**

**AWS A5.1 E7024**

**Description:** WH·J501Fe18 is a kind of high efficiency carbon steel electrode with iron powder titania type coating. The deposition efficiency is approximately 180%. AC/DC. Suitable for fillet welding in the downhand position, downhand welding and flat fillet welding. It has excellent welding performance, stable arc, easy operation, fewer spatters, good slag detachability, deeper penetration, no undercut and beautiful appearance of weld.

**Application:** Used for welding carbon steel and low-alloy structures, such as A, B and D steel, ships, locomotive vehicles, boilers of 16Mn type, etc.

#### Chemical Composition of Deposited Metal(%)

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	≤1.25	≤0.9	≤0.035	≤0.040
Typical value	0.07	1.06	0.5	0.021	0.025

#### Mechanical Properties of Deposited Metal

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	
Guaranteed value	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 17$	$\geq 27(0^\circ\text{C})$	
Typical value	500~580	410~480	17~28	50~100	

#### Diameter, Length & Recommended Current (AC/DC)

Dia(mm)	φ4.0	φ4.5	φ5.0	φ5.5	φ6.0
Length(mm)	400	400	400	400	400
Current(A)	140~200	150~210	160~220	180~240	210~280

#### X-ray Inspection: II

#### Instruction

- ① The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ② The electrodes must be baked under 180~200°C for an hour before welding if they have been stored for a long period of time.

#### Certification

Ship Classification Society: GL, LR

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD.



**WH · J502**

**GB/T 5117 E5003**  
**AWS A5.1**

**Description:** WH·J502 is a kind of carbon steel electrode with lime-titania type coating. All-position welding. It has excellent welding performance and mechanical properties, stable arc, fewer spatters, good slag detachability and beautiful appearance of weld.

**Application:** Mainly used for welding 490MPa tensile strength low-alloy steel structures, such as welding on deformed steel bars for construction and other steel of 16Mn type, etc.

## Chemical Composition of Deposited Metal(%)

Test Item	C	Mn	Si	S	P
Guaranteed value	≤0.12	≤1.60	≤0.3	≤0.035	≤0.040
Typical value	0.07	1.26	0.2	0.024	0.028

## Mechanical Properties of Deposited Metal

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	
Guaranteed value	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 20$	$\geq 27(0^\circ\text{C})$	
Typical value	520~580	$\geq 410$	20~30	60~110	

## Diameter, Length & Recommended Current (AC/DC)

Diameter(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	350mm	400mm	400mm	
Current(A)	60~100	80~140	140~220	180~240	

## X-ray Inspection: II

## Certification

Ship Classification Society: CCS



WH · J506

GB/T 5117 E5016  
AWS A5.1 E7016

**Description:** WH·J506 is a kind of electrode with low-hydrogen potassium type coating. AC/DC.All-position welding. It has excellent welding performance stable arc, fewer spatters and good slag detachability. The deposited metal has excellent mechanical properties.crack-resistance and good low good low temperature impact toughness.

**Application:** Used for welding medium-carbon steel and low-alloy steel structures,such as 16Mn, 09Mn2Si and A, B, D and E steel for ships, and also used for welding on thick plates and hard-to-weld carbon steel structures

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	V
GV	≤0.12	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08
Typical	0.07	0.96	0.45	0.015	0.011	0.04	0.03	0.06	0.04

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
GV	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 22$	$\geq 47 (-20^\circ\text{C})$	$\geq 27 (-30^\circ\text{C})$
Typical	520-580	$\geq 410$	25-33	110-250	100-240

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current(A)	60~100	80~140	110~210	160~230

**Instruction**

- ①The electrodes must be baked under 300~350°C for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, short arc must be used and stringer bead is suitable.

**Certification**

Ship Classification Society: GL, CCS



**WH · J506X**

**GB/T 5117 E5016**

**AWS A5.1 E7016**

**Description:** WH·J506X is a kind of carbon steel electrode with low-hydrogen potassium type coating specially used for vertical downward fillet weld. AC/DC. Mainly vertical downward welding. It has excellent welding performance. During the process of welding, the manipulation of electrodes should be top-down. It has stable arc, good slag detachability, regular ripples and beautiful appearance of weld.

**Application:** Suitable for welding vertical downward fillet weld of carbon steel and low-alloy steel structures.

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	V
GV	≤0.12	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08
Typical	0.08	1.26	0.37	0.013	0.017	0.03	0.04	0.05	0.04

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 22$	$\geq 27 (-30^\circ\text{C})$
Typical	520-580	$\geq 410$	22~30	80~150

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0
Length(mm)	350mm	400mm	400mm
Current(A)	80~130	110~180	160~210

**Instruction**

- ①The electrodes must be baked under 350℃ for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, short arc must be used, directly downwards, generally with no weaving or just a little weaving.

**Certification**

Ship Classification Society:



**WH · J506Fe**

**GB/T 5117 E5018  
AWS A5.1 E7018**

**Description:** WH·J506Fe is a kind of carbon steel electrode with iron powder low-hydrogen potassium type coating. AC/DC. The deposition efficiency can be improved due to the iron powder in the coating. It has stable arc, fewer spatters, good slag detachability and excellent welding performance. The deposited metal has excellent mechanical properties. All-position welding.

**Application:** Used for welding carbon steel and low-alloy steel structures, such as 16Mn, etc

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

	C	Mn	Si	S	P	Ni	Mo	Cr	V	
GV	≤0.12	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08	
Typical	0.07	1.25	0.47	0.018	0.021	0.24	0.17	0.13	0.04	

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	
GV	$\sigma_b \geq 490$	$\sigma_s \geq 390$	$\delta_5 \geq 22$	$\geq 27 (-30^\circ\text{C})$	
Typical	520~580	$\geq 410$	24~30	80~200	

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Chromatography)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	350mm	400mm	400mm	
Current (A)	60~100	80~140	110~210	160~230	

**Instruction**

- ① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as backing is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③ When welding, short arc must be used and stringer bead is suitable.

**Certification**

Ship Classification Society: ABS, GL, BV



**WH · J506Fe18**

**GB/T 5117 E5028  
AWS A5.1 E7028**

**Description:** WH·J506Fe18 is a kind of high efficiency carbon steel electrode with iron powder low-hydrogen potassium type coating. The deposition efficiency can reach approximately 180%. AC/DC. The deposited metal has excellent mechanical properties. It has stable arc, fewer spatters, good slag detachability and beautiful appearance of weld. Suitable for downhand welding and flat fillet welding.

**Application:** Used for downhand welding and flat fillet welding on carbon steel and low-alloy steel structures, such as 16Mn, 09Mn2Si and A, B, D and E steel for ships, etc.

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	V
GV	≤0.10	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08
Typical	0.08	1.23	0.57	0.019	0.021	0.24	0.16	0.13	0.05

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 22$	$\geq 27 (-20^\circ\text{C})$
Typical	520~580	$\geq 410$	$\geq 23$	$\geq 50$

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Chromatography)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ4.0	φ5.0
Length(mm)	400mm	400mm
Current(A)	180~240	210~280

**Instruction**

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as backing is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, short arc must be used and weaving is not suitable.

**Certification**

Ship Classification Society:



WH · J507

GB/T 5117 E5015

AWS A5.1 E7015

**Description:** WH·J507 is a kind of carbon steel electrode with low-hydrogen sodium type coating. DCRP(Direct Current Reversed Polarity). All-position welding. It has excellent welding performance, stable arc, fewer spatters and good slag detachability. The deposited metal has excellent mechanical properties, crack-resistance and low temperature impact toughness.

**Application:** Used for welding key medium-carbon steel and low-alloy steel structures (under pressure and moving loads), such as 16Mn, 09Mn2Si, 09Mn2V and A, B, D and E steel for ships, etc., and also used for welding on thick plates and hard-to-weld carbon steel structures

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	V
GV	≤0.12	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08
Typical	0.08	1.26	0.37	0.013	0.017	0.03	0.04	0.05	0.04

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
GV	σ <sub>b</sub> ≥490	σ <sub>s</sub> ≥ 400	δ <sub>5</sub> ≥ 22	≥ 47 (-20℃)	≥ 27 (-30℃)
Typical	520-580	≥410	25~33	110~250	100~240

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current(A)	60~100	80~140	110~210	160~230

**Instruction**

- ①The electrodes must be baked under 300~350℃ for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, short arc must be used and stringer bead is suitable.

**Certification**

Ship Classification Society: ABS, GL, LR, DNV, NK, CCS



**WH · J507X**

**GB/T 5117 E5015**

**AWS A5.1 E7015**

**Description:** WH·J507X is a kind of carbon steel electrode with low-hydrogen sodium type coating specially used for vertical downward fillet weld. DCRP (Direct Current Reversed Polarity). Mainly vertical downward welding. It has excellent welding performance. In top-down vertical downward welding, the arc is stable, the slags do not fall off and it has good slag detachability, regular ripples and beautiful appearance of weld.

**Application:** Suitable for welding vertical downward fillet weld of carbon steel and low-alloy steel structures.

**Chemical Composition of Deposited Metal(%)**

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	V
GV	≤0.12	≤1.60	≤0.75	≤0.035	≤0.040	≤0.30	≤0.30	≤0.20	≤0.08
Typical	0.08	1.26	0.37	0.013	0.017	0.03	0.04	0.05	0.04

**Mechanical Properties of Deposited Metal**

※GV=Guarantee Value

Test Item	Rm (Mpa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 490$	$\sigma_s \geq 400$	$\delta_5 \geq 22$	$\geq 27 (-30^\circ\text{C})$
Typical	520-580	$\geq 410$	22~30	80~150

**Diffusible Hydrogen Content in Deposited Metal: ≤8.0ml/100g(Glycerine Hydrogen Test)**

**Diameter, Length & Recommended Current (AC/DC)**

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0
Length(mm)	350mm	400mm	400mm
Current(A)	80~140	110~180	160~210

**Instruction**

- ①The electrodes must be baked under 350℃ for an hour before welding and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③When welding, short arc must be used, directly downwards, generally with no weaving or just a little weaving.

**Certification**

Ship Classification Society:



## Low Alloy Steel Electrode

**GB/T 5118**  
**AWS A5.5**

Description: Low-alloy steel electrode refers to low-alloy high strength steel electrode whose tensile strength is over 500MPa and which is used for structural welding. When selecting welding electrodes, one should do according to the requirements of their chemical composition, mechanical properties, crack-resistance performance and, at the same time, consider comprehensively all kinds of factors like shapes of welded structures, working conditions, stress status and so on. If necessary, do some welding experiments and take some technical measures so as to guarantee welding quality.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J507R

**GB/T 5118 E5015-G**

**AWS A5.5 E7015-G**

**Description:** WH·J507R is a kind of high toughness low-alloy steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. It has excellent mechanical properties and higher low temperature impact toughness.

**Application:** Suitable for welding low temperature high toughness materials, such as some key structures like oil production platforms, ships, high pressure vessels, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.10	≤1.50	≤0.5	≤0.030	≤0.030	≤0.70			
Typical	≤0.08	≈1.20	≤0.40	≤0.015	≤0.020	≤0.70			

### Mechanical Properties of Deposited Metal (620℃×10h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	Akv (J)
GV	≥490	≥390	≥22	(-20℃)	≥47(-40℃)
Typical	500~600	420~450	23~30	100~150	100~200

### Diffusible Hydrogen Content in Deposited Metal: ≤4.1ml/100g(Chromatography)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	90~120	140~180	180~230	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as backing is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J506RH

**GB/T 5118 E5016-G**  
**AWS A5.5 E7016-G**

**Description:** WH·J506RH is a kind of high toughness super low hydrogen low-alloy steel electrode with low-hydrogen potassium type coating. It has excellent welding performance, stable arc and good slag detachability. The weld metal has excellent plasticity, toughness and crack-resistance. AC/DC. All-position welding.

**Application:** Suitable for welding key low-alloy steel structures like E36, D36, A537 and so on, such as ocean platforms, ships, pressure vessels, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.10	≤1.60	≤0.5	≤0.025	≤0.025	0.35~0.80			
Typical	≤0.08	≈1.20	≤0.30	≤0.020	≤0.020	≈0.40			

### Mechanical Properties of Deposited Metal(550℃~650℃)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥490	≥410	≥22	≥34(-40℃)	
Typical	500~600	420~450	23~30	100~150	

### Diffusible Hydrogen Content in Deposited Metal: ≤4.1ml/100g(Chromatography)

### Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~120	130~180	170~240	

### X-ray Inspection: I

### Instruction

- ① The electrodes must be baked under 350-430℃ for an hour before welding, put into a can and taken as soon as they are needed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③ When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J507RH

GB/T 5118 E5015-G

AWS A5.5 E7015-G

**Description:** WH·J507RH is a kind of high toughness super low hydrogen low-alloy steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). It has excellent welding performance, stable arc and good slag detachability. The weld metal has excellent plasticity, toughness and crack-resistance. All-position welding.

**Application:** Suitable for welding key low-alloy steel structures like E36, D36, A537 and so on, such as ocean platforms, ships, pressure vessels, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.10	≤1.60	≤0.5	≤0.025	≤0.025	0.35~0.80			
Typical	≤0.08	≈1.20	≤0.30	≤0.020	≤0.020	≈0.40			

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥490	≥410	≥22	≥34(-40℃)	
Typical	500~600	420~450	23~30	100~150	

### Diffusible Hydrogen Content in Deposited Metal: ≤4.1ml/100g(Chromatography)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~120	130~180	170~240	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-430℃ for an hour before welding, put into a can and taken as soon as they are needed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J506R**

**GB/T 5118 E5016-G**

**AWS A5.5 E7016-G**

**Description:** WH·J506R is a kind of low-alloy high toughness electrode with low-hydrogen sodium type coating. AC/DC. All-position welding. It has excellent mechanical properties and higher low temperature impact toughness.

**Application:** Suitable for welding low temperature high toughness materials, such as some key structures like oil production platforms, ships, high pressure vessels, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.10	≤1.50	≤0.5	≤0.030	≤0.030	≤0.70			
Typical	≤0.08	≤1.20	≤0.40	≤0.015	≤0.020	≤0.70			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥490	≥390	(-20℃)	≥53(-40℃)	
Typical	500~580	400~480	120~200	100~200	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	90~130	140~180	180~230	

## X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J556**

**GB/T 5118 E5516-G**  
**AWS A5.5 E8016-G**

**Description:** WH·J556 is a kind of low-alloy steel electrode with low-hydrogen potassium type coating. AC/DC. All-position welding.

**Application:** Suitable for welding medium-carbon steel and low-alloy steel structures like 15MnTi, 15MnV, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P				
GV	≤0.12	≥1.00	0.3~0.7	≤0.035	≤0.035				

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥540	≥440	≥17	≥27(-30℃)	
Typical	550~620	≥450	22~32	80~200	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.1ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	110~210	160~230	

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J556RH

**GB/T 5118 E5516-G**  
**AWS A5.5 E8016-G**

**Description:** WH·J556RH is a kind of high toughness electrode with low-hydrogen potassium type coating specially used on pressure vessels. The deposited metal has excellent plasticity, toughness and crack-resistance. AC/DC. DCRP (Direct Current Reversed Polarity) is suggested. All-position welding.

**Application:** Suitable for welding key low-alloy steel structures like pressure vessels, offshore oil platforms, ships, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.12	≥1.00	≤0.7	≤0.035	≤0.035	≤0.85			

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥540	≥440	≥17	≥34(-40℃)	
Typical	550~620	≥450	22~32	120~180	

### Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Chromatography)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	130~180	170~240	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-400℃ for an hour before welding, put into a 100-150℃ insulation can and taken as soon as they are needed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J557**

**GB/T 5118 E5515-G**  
**AWS A5.5 E8015-G**

**Description:** WH·J557 is a kind of low-alloy steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Suitable for welding medium-carbon steel and low-alloy steel structures like 15MnTi, 15MnV, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P				
GV	≤0.12	≥1.00	0.3~0.7	≤0.035	≤0.035				

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥540	≥440	≥17	≥27(-30℃)	
Typical	550~620	≥450	22~32	80~200	

## Diffusible Hydrogen Content in Deposited Metal: ≤6.0ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	110~210	160~230	

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J606**

**GB/T 5118 E6016-D1**

**AWS A5.5 E9016-D1**

**Description:** WH·J606 is a kind of low-alloy high strength steel electrode with low-hydrogen potassium type coating. AC/DC. All-position welding. When welding with AC, its performance stability is a little worse than that when welding with DC.

**Application:** Used for welding medium-carbon steel and low-alloy high strength steel structures with corresponding strength, such as 15MnVN, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.12	1.25~1.75	≤0.60	≤0.035	≤0.035	0.25~0.45			
Typical	≤0.10	≈1.40	≤0.40	≤0.030	≤0.025	≈0.30			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥590	≥490	≥15	≥27(-30℃)	
Typical	620~680	≥500	20~28	≥47	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	110~210	160~230	

## X-ray Inspection: I

### Instruction

- ① The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③ When welding, short arc must be used and stringer bead is suitable.
- ④ If the weldments are very thick, they should be preheated under over 150℃ and cooled slowly after welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J607**

**GB/T 5118 E6015-D1**

**AWS A5.5 E9015-D1**

**Description:** WH·J607 is a kind of low-alloy high strength electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Used for welding medium-carbon steel and low-alloy high strength steel structures with corresponding strength, such as 15MnVN, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.12	1.25~1.75	≤0.60	≤0.035	≤0.035	0.25~0.45			
Typical	≤0.10	≈1.40	≤0.40	≤0.030	≤0.025	≈0.30			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥590	≥490	≥15	≥27(-30℃)	
Typical	620~680	≥500	20~28	≥47	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	110~210	160~230	

## X-ray Inspection: I

### Instruction

- ① The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③ When welding, short arc must be used and stringer bead is suitable.
- ④ If the weldments are very thick, they should be preheated under over 150℃ and cooled slowly after welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J707

**GB/T 5118 E7015-D2**

**AWS A5.5 E10015-D2**

**Description:** WH·J707 is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. If necessary, weldments should be preheated before welding and tempered after welding.

**Application:** Mainly used for welding low-alloy steel structures with corresponding strength. Some after-welding structures like 15MnMoV, 14MnMoVB, 18MnMoNb, etc. can work under as-welded or tempering (550-650°C) conditions.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.15	1.65~2.00	≤0.60	≤0.035	≤0.035	0.25~0.45			
Typical	≤0.10	≈1.70	≤0.40	≤0.025	≤0.025	≈0.30			

### Mechanical Properties of Deposited Metal(Backfire 550°C~650°C)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥690	≥590	≥15	≥27(-30°C)	
Typical	710~780	600~660	16~26	35~55	

### Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Glycerine Hydrogen Test)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	110~210	160~230	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J707Ni

**GB/T 5118 E7015-G**

**AWS A5.5 E10015-G**

**Description:** WH·J707Ni is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The deposited metal has excellent low temperature toughness and crack-resistance.

**Application:** Used for welding low-alloy high strength steel structures at corresponding strength grade, such as 14MnMoVB, WEL-TEN70, HW56 from Japan, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo		
GV	≤0.10	≥1.00	≤0.60	≤0.030	≤0.030	1.80~2.20	0.40~0.60		
Typical	≤0.08	≥1.00	≤0.40	≤0.025	≤0.025	≈2.0	~0.50		

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥690	≥590	≥15	≥27(-30℃)	
Typical	710~780	600~660	16~26	35~55	

### Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Glycerine Hydrogen Test)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~140	130~210	160~230	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-380℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J707RH

GB/T 5118 E7015-G

AWS A5.5 E10015-G

**Description:** WH·J707RH is a kind of super low hydrogen high toughness electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. It has excellent welding performance. The deposited metal has excellent plasticity and toughness.

**Application:** Used for welding hull structures, and also used for welding key high strength steel structures with  $\sigma_{0.2} \geq 590\text{MPa}$ .

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	
GV	$\leq 0.10$	1.2~1.6	0.3~0.6	$\leq 0.020$	$\leq 0.020$	1.40~2.00	0.25~0.60	0.08~0.20	
Typical	$\leq 0.08$	$\approx 1.3$	$\leq 0.40$	$\leq 0.015$	$\leq 0.015$	$\approx 1.5$	$\approx 0.30$	$\leq 0.10$	

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	$\geq 690$	$\geq 590$	$\geq 15$	$\geq 34(-50^\circ\text{C})$	
Typical	$\geq 720$	$\geq 600$	22~26	$\geq 34$	

**Diffusible Hydrogen Content in Deposited Metal:  $\leq 4.1\text{ml}/100\text{g}$ (Glycerine Hydrogen Test)**

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$	
Current (A)	80~120	130~180	170~240	

### X-ray Inspection: I

#### Instruction

- ① The electrodes must be baked under about  $400^\circ\text{C}$  for 2 hours before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③ When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J757**

**GB/T 5118 E7015-G**  
**AWS A5.5 E10015-G**

**Description:** WH·J757 is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding low-alloy high strength steel structures with tensile strength of about 740MPa.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.20	≥1.00	≤0.60	≤0.030	≤0.030	≤1.00			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥740	≥640	≥13	—(normal temperature)	
Typical	780~880	≥650	15~21	≥27	

**Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Glycerine Hydrogen Test)**

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~110	130~170	160~230	

## X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under about 400℃ for 2 hours before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J757Ni**

**GB/T 5118 E7515-G**

**AWS A5.5 E11015-G**

**Description:** WH·J757Ni is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. The deposited metal has excellent mechanical properties, and especially higher low temperature impact toughness and excellent crack-resistance.

**Application:** Mainly used for steel at corresponding strength grade, such as 14MnMoNbB, WEL-TEN80, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	
GV	≤0.10	≥1.00	≤0.60	≤0.030	≤0.030	2.00~2.60	0.40~0.70	≤0.20	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥740	≥640	≥13	≥27(-40℃)	
Typical	820	690	22	88	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Glycerine Hydrogen Test)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current (A)	60~90	80~130	140~180	180~240

## X-ray Inspection: I

### Instruction

- ① The electrodes must be baked under about 350-380℃ for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before
- ③ When welding, short arc must be used and stringer bead is suitable.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J857**

**GB/T 5118 E8515-G**

**AWS A5.5 E12015-G**

**Description:** WH·J857 is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding low-alloy high strength steel structures with tensile strength of about 830MPa.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.15	≥1.00	0.4~0.8	≤0.035	≤0.035	0.60~1.20			
Typical	≤0.10	≈1.50	≤0.70	≤0.020	≤0.020	≈0.90			

## Mechanical Properties of Deposited Metal(Backfire 600℃~650℃)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥830	≥740	≥12	—(normal temperature)	
Typical	860~950	≥750	12~20	≥27	

## Diffusible Hydrogen Content in Deposited Metal: ≤5.0ml/100g(Chromatography)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current (A)	60~90	80~110	130~170	160~200

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under 350-400℃ for an hour before welding, put into an insulation can and taken as soon as they are needed.
- ②The stains on the weldments like rust must be cleared away, and the weldments must be preheated to about 200℃.
- ③Weldments can be tempered under 600-650℃ after welding so as to eliminate internal stress.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J857Cr**

**GB/T 5118 E8515-G**

**AWS A5.5 E12015-G**

**Description:** WH·J857Cr is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding pressure vessels made of low-alloy high strength steel with tensile strength of about 830MPa and some other structures, such as 14CrMnMoVB, 30CrMo, 35CrMo, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo	Cr	V	
GV	≤0.15	≥1.00	≤0.60	≤0.035	≤0.035	0.50~1.00	0.7~1.00	0.05~0.15	
Typical	≤0.10	≈1.60	≤0.40	≤0.020	≤0.020	≈0.60	≈0.80	≈0.05	

## Mechanical Properties of Deposited Metal(Backfire 600℃~650℃)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥830	≥740	≥12	—(normal temperature)	
Typical	860~950	≥750	12~18	≥27	

## Diffusible Hydrogen Content in Deposited Metal: ≤5.0ml/100g( Mercury Method)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current (A)	60~90	80~110	130~170	160~200

## X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-400℃ for an hour before welding, put into an insulation can and taken as soon as they are needed.
- ②The stains on the weldments like rust must be cleared away, and the weldments must be preheated to about 200℃.
- ③Weldments can be tempered under 600-650℃ after welding so as to eliminate internal stress.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



## WH · J107

## GB/T 5118 E10015-G

**Description:** WH·J107 is a kind of low-alloy high strength steel electrode with low-hydrogen sodium coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Suitable for welding low-alloy high strength steel structures with tensile strength of about 980MPa.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo			
GV	≤0.20	≥1.00	0.3~0.8	≤0.035	≤0.035	0.30~0.60			

### Mechanical Properties of Deposited Metal(Backfire 500℃)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥980	≥880	≥12	—(normal temperature)	
Typical	990~1080	≥900	12~20	≥27	

### Diffusible Hydrogen Content in Deposited Metal: ≤5.0ml/100g( Mercury Method)

### Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	90~120	140~180	170~220	

### X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-400℃ for an hour before welding, put into an insulation can and taken as soon as they are needed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.
- ③Weldments can be tempered under 600-650℃ after welding so as to eliminate internal stress.
- ④Weldments should be preheated under 200-300℃ before welding and tempered under 500℃ after welding so as to eliminate internal stress.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J107Cr**

**GB/T 5118 E10015-G**

**Description:** WH·J107Cr is a kind of low-alloy high strength steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Suitable for welding low-alloy high strength steel structures with tensile strength of over 980MPa, such as 30CrMnSi, 35CrMo, etc.

## Chemical Composition of Deposited Metal(%) (880°C Oil hardening, Backfire 520°C)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Mo	Cr	V	
GV	≤0.15	≥1.00	0.3~0.7	≤0.035	≤0.035	0.40~0.80	1.50~2.20	0.08~0.16	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥980	≥880	≥12	—(normal temperature)	
Typical	990~1080	≥900	15~23	≥27	

## Diffusible Hydrogen Content in Deposited Metal: ≤5.0ml/100g( Mercury Method)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	80~130	130~180	160~200	

## X-ray Inspection: I

### Instruction

- ①The electrodes must be baked under 350-400°C for an hour before welding, put into an insulation can and taken as soon as they are needed.
- ②The stains on the weldments like rust must be cleared away, and the weldments must be preheated to about 300°C.
- ③Thermal refining should be done to the weldments after welding, through 880°C oil quenching and 520°C tempering and air cooling, so as to eliminate the stress in the weldments and facilitate the homogenization of the structures.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J507Ni**

**GB/T 5118 E5015-G**  
**AWS A5.5 E7015-G**

**Description:** WH·J507Ni is a kind of low-alloy steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. It has lower diffusible hydrogen content and excellent low temperature impact toughness.

**Application:** Suitable for welding medium-carbon and low-carbon pressure vessels, such as 16MnDR, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.08	0.8~1.3	≤0.5	≤0.030	≤0.030	1.20~2.00			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥490	≥390	≥22	≥53(-40℃)	
Typical	500~600	400~490	24~32	100~170	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g (Mercury Method)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	90~120	120~180	160~210	

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · J507FeNi**

**GB/T 5118 E5018-G**

**AWS A5.5 E7018-G**

**Description:** WH·J507FeNi is a kind of low-alloy steel electrode with iron powder low-hydrogen type coating. DCRP (Direct Current Reversed Polarity). All-position welding. It has lower diffusible hydrogen content and excellent low temperature impact toughness.

**Application:** Suitable for welding medium-carbon and low-carbon pressure vessels, such as 16MnDR, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.08	0.8~1.3	≤0.5	≤0.030	≤0.030	1.20~2.00			

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)	
GV	≥490	≥390	≥22	≥53(-40℃)	
Typical	500~600	400~490	24~32	100~170	

## Diffusible Hydrogen Content in Deposited Metal: ≤4.0ml/100g(Glycerine Hydrogen Test)

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current (A)	200~250	120~180	160~210	

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before



## Heat-resistant Steel Electrode

GB/T 983  
AWS A5.5

**Description:** Heat-resistant steel has chemical stability, enough strength and gas corrosion-resistance. Heat-resistant steel can be divided into pearlitic steel, martensitic steel, ferritic steel and austenitic steel according to its chemical composition and microstructure.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R107**

**GB/T 5118 E5015-A1**  
**AWS A5.5 E7015-A1**

**Description:** WH · R107 is a kind of Mo0.5% pearlitic heat-resistant steel electrode with low-hydrogen type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding boiler pipes below 510°C (such as 15Mo). Also used for welding general low-alloy high strength steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo		
GV	≤0.12	0.5~0.9	≤0.50	≤0.035	≤0.035	0.4~0.65		

## Mechanical Properties of Deposited Metal (620°C×1h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 490$	$\sigma_s \geq 390$	$\delta_5 \geq 22$	$\geq 47$ (normal temperature)
Typical	490~590	$\geq 400$	$\geq 22$	$\geq 60$

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia (mm)	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$	
Length (mm)	300	350	400	400	
Current (A)	60~90	90~120	140~180	170~210	

## Instruction

- ① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R202**      **GB/T 5118 E5503-B1**

**Description:** WH · R202 is a kind of Cr0.5%-Mo0.5% pearlitic heat-resistant steel electrode with lime-titania type coating. It has excellent welding performance and easy slag removal. AC/DC. All-position welding.

**Application:** Used for welding nodular troostite heat-resistant steel below 510 °C (such as 12CrMo), etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Cr	Mo	
GV	≤0.12	≤0.9	≤0.50	≤0.035	≤0.035	0.4~0.65	0.4~0.65	

## Mechanical Properties of Deposited Metal (620 °C×1h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 16$	
Typical	550~650	≥450	≥20	

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	
Length(mm)	300mm	350mm	400mm	
Current (A)	60~100	100~130	150~200	

## Instruction

- ①The weldments should be preheated before welding according to their structural features.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R207**

**GB/T 5118 E5515-B1**  
**AWS A5.5 E8015-B1**

**Description:** WH · R207 is a kind of Cr0.5%-Mo0.5% pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding CrMo pearlitic heat-resistant steel structures below 510°C (such as 12CrMo), chemical vessels under high temperature and high pressure, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Cr	Mo	
GV	0.05~0.12	≤0.9	≤0.60	≤0.035	≤0.035	0.4~0.65	0.4~0.65	

## Mechanical Properties of Deposited Metal (620°C×1h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	
Typical	550~650	$\geq 450$	$\geq 18$	

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~100	100~130	150~200	170~210

## Instruction

- ① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R302**

**GB/T 5118 E5503-B1  
AWS A5.5 E8003-B2**

**Description:** WH · R302 is a kind of Cr1%-Mo0.5% pearlitic heat-resistant steel electrode with lime-titania type coating. It has excellent welding performance and easy slag removal. AC/DC. All-position welding.

**Application:** Used for welding nodular troostite heat-resistant steel below 510 °C (such as 12CrMo), etc.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

	C	Mn	Si	S	P	Cr	Mo	
GV	0.05~0.12	≤0.9	≤0.60	≤0.035	≤0.035	1.0~1.5	0.40~0.65	

## Mechanical Properties of Deposited Metal (690 °C×1h)

※ GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 16$		
Typical	550~650	$\geq 460$	$\geq 22$		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia (mm)	φ2.5	φ3.2	φ4.0		
Length (mm)	300mm	350mm	400mm		
Typical	60~90	90~130	160~210		

## Instruction

- ① The electrodes must be baked under about 200 °C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R307**

**GB/T 5118 E5515-B2**  
**AWS A5.5 E8015-B2**

**Description:** WH · R307 is a kind of Cr1%-Mo0.5% pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding Cr1%-Mo0.5% heat-resistant steel below 520°C, such as boiler pipes, high pressure vessels, equipment for petroleum refining, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Cr	Mo	
GV	0.05~0.12	≤0.9	≤0.50	≤0.035	≤0.035	0.8~1.5	0.4~0.65	

## Mechanical Properties of Deposited Metal (690°C×1h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	550~650	$\geq 450$	$\geq 18$	$\geq 60$

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	350mm	400mm	400mm	
Typical	60~90	90~120	130~180	160~210	

## Instruction

① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.

② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R317**

**GB/T 5118 E5515-B2-V**

**Description:** WH · R317 is a kind of Cr1%-Mo0.5% pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding pearlitic heat-resistant steel below 540 °C (such as 12CrMoV), such as high temperature high pressure boiler pipes, equipment for petroleum cracking, chemical equipment for high temperature synthesis, etc.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	V
GV	0.05~0.12	≤0.9	≤0.50	≤0.035	≤0.035	0.4~0.65	0.8~1.5	0.10~0.35

## Mechanical Properties of Deposited Metal (730 °C×2h)

※ GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	
Typical	550~650	≥450	≥18	

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Typical	60~90	90~120	140~180	170~210

## Instruction

- ① The electrodes must be baked under about 350 °C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R327**

**GB/T 5118 E5515-B2-VW**

**Description:** WH · R327 is a kind of Cr1%-Mo0.5% pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding pearlitic heat-resistant steel below 570°C, such as 15CrMoV, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	W	V
GV	0.05~0.12	0.7~1.1	≤0.50	≤0.035	≤0.035	0.7~1.0	0.25~0.5	0.1~0.35

## Mechanical Properties of Deposited Metal (730°C×5h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	550~650	$\geq 450$	$\geq 18$	$\geq 100 \sim 140$

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

## Instruction

- ①The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R337**

**GB/T 5118 E5515-B2-VNb**

**Description:** WH · R337 is a kind of CrMoVNb pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according their structural features.

**Application:** Used for welding pearlitic heat-resistant steel below 570 °C, such as 15CrMoV, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	Nb
GV	0.05~0.12	0.7~1.1	≤0.50	≤0.035	≤0.035	0.7~1.0	0.10~0.25	0.10~0.25

## Mechanical Properties of Deposited Metal (730°C×5h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	600~680	$\geq 450$	$\geq 18 \sim 22$	$\geq 100 \sim 140$

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	
Length(mm)	300mm	350mm	400mm	
Current (A)	600~680	90~120	140~180	

## Instruction

- ① The electrodes must be baked under about 350 °C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R347**

**GB/T 5118 E5515-B3-VWB**

**Description:** WH · R347 is a kind of CrMoVNb pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according their structural features.

**Application:** Used for welding pearlitic heat-resistant steel structures below 620 °C, such as high temperature high pressure turbogenerator unit, boiler pipes, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	B	Cr	Mo	V/W
GV	0.05~0.12	≤1.0	≤0.50	≤0.035	≤0.035	0.001~0.003	1.50~2.50	0.30~0.80	0.2~0.6

## Mechanical Properties of Deposited Metal (760 °C×2h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	600~680	$\geq 450$	$\geq 18 \sim 22$	$\geq 60$

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

## Instruction

- ① The electrodes must be baked under about 350 °C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R407**

**GB/T 5118 E6015-B3**

**AWS A5.5 E9015-B3**

**Description:** WH · R407 is a kind of Cr2.5%-Mo1% pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according their structural features.

**Application:** Used for welding pearlitic heat-resistant steel structures below 620 °C, such as high temperature high pressure turbogenerator unit, boiler pipes, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	
GV	0.05~0.12	≤0.90	≤0.60	≤0.035	≤0.035	0.9~1.2	2.0~2.5	

## Mechanical Properties of Deposited Metal (690°C×1h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 590$	$\sigma_s \geq 490$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	600~720	$\geq 500$	$\geq 18 \sim 22$	$\geq 60$

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

## Instruction

- ① The electrodes must be baked under about 350 °C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R417**

**GB/T 5118 E5515-B3-VNb**

**Description:** WH · R417 is a kind of CrMoVNb pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according their structural features.

**Application:** Used for welding 12Cr3MoVSiTbB pearlitic heat-resistant steel structures below 620 °C, such as high temperature high pressure boiler pipes, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	Nb
GV	0.05~0.12	≤0.1	≤0.60	≤0.6	≤0.035	0.7~1.0	2.0~2.5	0.35~0.65

## Mechanical Properties of Deposited Metal (730 °C×4h)

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Akv (J)
GV	$\sigma_b \geq 540$	$\sigma_s \geq 440$	$\delta_5 \geq 17$	$\geq 47$ (normal temperature)
Typical	600~680	$\geq 500$	$\geq 18 \sim 21$	$\geq 47$

## Diameter, Length & Recommended Current (DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	350mm	400mm	400mm	
Current (A)	60~90	90~120	140~180	170~210	

## Instruction

- ①The electrodes must be baked under about 350 °C for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · R507

GB/T 5118 E5515-B3-VNb

AWS A5.5 E501-15

**Description:** WH · R507 is a kind of Cr5%-Mo-V pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. It has high temperature hydrogen corrosion-resistance. DCRP (Direct Current Reversed Polarity). Short arc. All-position welding. The weldments should postweld heat treatment according to their structural features.

**Application:** Used for welding Cr5Mo pearlitic heat-resistant steel structures, such as 400°C high temperature hydrogen corrosion-resistant pipes.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	V
GV	≤0.12	0.5~0.9	≤0.50	≤0.035	≤0.035	0.4~0.7	4.5~6.0	0.1~0.35

### Mechanical Properties of Deposited Metal (740°C×4h)

※GV=Guarantee Value

Test Item	Rm(MPa)	A(%)		
GV	$\sigma_b \geq 540$	$\delta_5 \geq 14$		
Typical	$\geq 550$	$\geq 16$		

### Diameter, Length & Recommended Current (DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

### Instruction

- ① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

### Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R707**

**GB/T 5118 E9Mo-15**  
**AWS A5.5 E505-15**

**Description:** WH · R707 is a kind of Cr9Mo pearlitic heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). Short arc. All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding Cr9Mo heat-resistant steel structures, superheater pipes, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	Cr	
GV	≤0.15	0.5~1.0	≤0.50	≤0.03	≤0.035	0.7~1.0	8.5~10.0	

## Mechanical Properties of Deposited Metal (730℃×4h)

※GV=Guarantee Value

Test Item	Rm(MPa)	A(%)		
GV	$\sigma_b \geq 590$	$\delta_5 \geq 16$		
Typical	$\geq 600$	$\geq 18$		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

## Instruction

- ① The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · R717**

**GB/T 5118**  
**AWS A5.5 E505-15**

**Description:** WH · R717 is a kind of Cr9%-Mo1%-Ni0.8%-V bainite-martensite heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding Cr9MoNiV (such as T91) heat-resistant steel structures, superheater pipes, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	V	Cr	Ni
GV	≤0.12	0.6~1.2	≤0.50	≤0.5	≤0.035	0.7~1.0	0.15~0.4	8.5~10	0.4~1.0

## Mechanical Properties of Deposited Metal (840℃×2h)

※GV=Guarantee Value

Test Item	Rm(MPa)	A(%)		
GV	σ <sub>b</sub> ≥590	δ <sub>5</sub> ≥ 16		
Typical	≥600	≥ 18		

## Diameter, Length & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	130~170	170~210

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding, and used as soon as baking is completed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · R807 GB/T 5118 E11MoVNi-15

**Description:** WH · R807 is a kind of Cr11MoNiV heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding Cr11MoV heat-resistant steel structures below 565°C, such as speed blades of high pressure steam turbines, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	V	Cr	Ni
GV	≤0.12	0.5~1.0	≤0.50	≤0.03	≤0.035	0.6~0.9	0.2~0.4	9.5~11.5	0.6~0.9

### Mechanical Properties of Deposited Metal (730°C×4h)

※GV=Guarantee Value

Test Item	Rm(MPa)	A(%)		
GV	$\sigma_b \geq 730$	$\delta_5 \geq 15$		
Typical	$\geq 750$	$\geq 18$		

### Diameter, Length & Recommended Current (DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

### Instruction

①The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.

②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

### Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · R817 GB/T 5118 E11MoVNi-15

**Description:** WH · R817 is a kind of Cr11MoNiV heat-resistant steel electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). All-position welding. The weldments should be given preheating and postweld heat treatment according to their structural features.

**Application:** Used for welding Cr11MoNiVW steel structures below 580°C, such as refractory steel superheaters, steam pipes, etc.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Mn	Si	S	P	Mo	V	Cr	Ni
GV	≤0.19	0.5~1.0	≤0.50	≤0.03	≤0.035	0.8~1.1	0.2~0.4	9.5~11.5	0.4~1.1

### Mechanical Properties of Deposited Metal (730°C×4h)

※GV=Guarantee Value

Test Item	Rm(MPa)	A(%)		
GV	$\sigma_b \geq 730$	$\delta_5 \geq 15$		
Typical	$\geq 750$	$\geq 18$		

### Diameter, Length & Recommended Current (DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	350mm	400mm	400mm
Current (A)	60~90	90~120	140~180	170~210

### Instruction

- ① The electrodes must be baked under about 350°C for an hour before welding, and used as soon as baking is completed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

### Certification

Ship Classification Society:



## Cr Stainless Steel Electrode

GB/T 983  
AWS A5.4

**Description:** Cr stainless steel has corrosion-resistance (oxidizing acid, organic acid and atmospheric corrosion), heat-resistance and wear-resistance. Generally it is used for materials of some equipment of power stations, chemical industry, petroleum, etc. Cr stainless steel has bad weldability, so the heat treatment conditions of welding technology should be noticed and appropriate electrodes should be selected.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · G202**

**GB/T 983 E410-16**  
**AWS A5.4 E410-16**

**Description:** WH·G202 is a kind of stainless steel welding electrode with lime-titania type coating .It operates on AC/DC.

**Application:** Used for welding 0Cr13 and 1Cr13 stainless steel structures, and also used for corrosion-resistant and wear-resistant surface overlaying.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.12	≤1.0	≤0.90	≤0.030	≤0.040	≤0.75	≤0.75	11.0~13.5	≤0.75	
Typical	0.056	0.15	0.46	0.014	0.026	0.15	0.016	12.32	0.032	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 450$	-	$\delta_5 \geq 20$		
Typical	495	-	30		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	-	300mm	350mm	400mm	
Current (A)	-	-	80~120	100~160	150~200	

## Instruction

- ①It should be baked at 250℃ for 1 hour before welding.
- ②The weldments should be preheated to 250-350℃ before welding, and tempered under 700-730℃ after welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · G207**

**GB/T 983 E410-15**  
**AWS A5.4 E410-15**

**Description:** WH·G207 is a kind of Cr stainless steel electrode with basic coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding 0Cr13 and 1Cr13 stainless steel structures, and also used for corrosion-resistant surfacing welding. All-position welding.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.12	≤1.0	≤0.90	≤0.030	≤0.040	≤0.75	≤0.75	11.0~13.5	≤0.75	
Typical	0.061	0.57	0.49	0.007	0.024	0.31	0.011	12.27	0.032	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 450$	-	$\delta_5 \geq 20$		
Typical	546	-	30		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	250mm	300mm	350mm	400mm	
Current (A)	-	50~80	80~120	100~160	150~200	

## Instruction

- ① It should be baked at 250°C for 1 hour before welding.
- ② The weldments should be preheated to 250-350°C before welding, and tempered under 700-730°C after welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · G217

**GB/T 983 E410-15**  
**AWS A5.4 E410-15**

**Description:** WH·G217 is a kind of Cr13 stainless steel electrode with basic coating. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** for welding 0Cr13, 1Cr13 and 2Cr13 stainless structures, such as repair welding and butt welding on blades of steam turbines. Also used for corrosion-resistant and wear-resistant surface overlaying.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.12	≤1.0	≤0.90	≤0.030	≤0.040	≤0.75	≤0.75	11.0~13.5	≤0.75	
Typical	0.065	0.67	0.59	0.009	0.025	0.32	0.012	12.28	0.034	

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 450$	-	$\delta_5 \geq 20$		
Typical	548	-	29		

### Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	250mm	300mm	350mm	350mm	
Current (A)	-	50~80	80~120	100~160	150~200	

### Instruction

- ① It should be baked at 250°C for 1 hour before welding.
- ② The weldments should be preheated to 250-350°C before welding, and tempered under 700-730°C after welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · G307**

**GB/T 983 E430-15**  
**AWS A5.4 E430-15**

**Description:** G302 is a kind of Cr17 stainless steel electrode with titania type coating. It operates on AC/DC.

**Application:** Used for welding nitric acid corrosion-resistant and heat-resistant Cr17 stainless steel structures.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.10	≤1.0	≤0.90	≤0.030	≤0.040	≤0.6	≤0.75	15.0~18.0	≤0.75	
Typical	0.062	0.57	0.76	0.009	0.025	0.14	0.012	16.95	0.034	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 450$	-	$\delta_5 \geq 20$		
Typical	552	-	22		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	-	300mm	350mm	350mm	
Current (A)	-	-	80~120	100~160	150~200	

## Instruction

- ① It should be baked at 250-300°C for 1 hour before welding.
- ② The weldments should be preheated to 250-350°C before welding, and tempered under 700-750°C after welding.



## Cr-Ni Stainless Steel Electrode

GB/T 983  
AWS A5.4

**Description:** Cr-Ni austenitic stainless steel electrode has excellent corrosion-resistance and oxidation-resistance. It is widely used in the production of equipment of chemical industry, petroleum, chemical fertilizers, food machinery, medical instrumentation, etc. When welding on Cr-Ni stainless steel, carbide precipitation, which will decrease its corrosion-resistance and mechanical properties, will appear if it is heated repetitively. Therefore, electrodes should be selected according to the working conditions of the equipment (working temperatures, types of medium, etc.).

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A002**

**GB/T 983 E308L-16**  
**AWS A5.4 E308L-16**

**Description:** WH·A002 is a ultra-low-carbon stainless steel welding electrode with lime-titania type coating which is used with DC/AC.The weld metal shows very good resistance to inter-crystal corrosion for the carbon content in it is  $\leq 0.04\%$ .All positions welding are good.

**Application:** Used for welding ultra-low-carbon Cr19Ni10 stainless steel structures, and also used for 0Cr19Ni11Ti corrosion-resistant stainless steel structures whose working temperature is lower than 300°C. 0Cr19Ni11Ti corrosion-resistant stainless steel structures whose working temperature is lower than 300°C.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	$\leq 0.04$	0.5~2.5	$\leq 0.90$	$\leq 0.030$	$\leq 0.040$	9.0~11.0	$\leq 0.75$	18.0~21.0	$\leq 0.75$	
Typical	0.03	0.82	0.61	0.014	0.022	9.8	0.075	19.5	0.11	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 35$		
Typical	568	-	45		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)		$\phi 2.0$	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$	
Length(mm)		300mm	300mm	350mm	400mm	400mm	
WA(A)	F	30~50	60~80	85~120	115~160	160~200	
	V OH	30~50	50~70	75~105	95~130		

## Instruction

- ①It should be baked at 300-350°C for 1 hour before welding.
- ②The weldment must be clear away impurities,such as oil,rust,moisture etc.before welding.
- ③Small current and short arc should be used in welding ,and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A022**

**GB/T 983 E316L-16**  
**AWS A5.4 E316L-16**

**Description:** WH·A022 is a lime-titanium type electrode for extra-low carbon stainless. The weld metal shows very good resistance of heat, corrosion and cracking due to the carbon content in it is  $\leq 0.04\%$ .

**Application:** Used for welding equipment of urea, synthetic fiber, etc. and stainless steel structures of the same types, and also used for Cr stainless steel which does not need heat treatment after welding, and also used for Cr stainless steel which does not need heat treatment after welding, composite steel, dissimilar steel, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	$\leq 0.04$	0.5~2.5	$\leq 0.90$	$\leq 0.030$	$\leq 0.040$	11.0~14.0	2.0~3.0	17.0~20.0	$\leq 0.75$	
Typical	0.03	0.82	0.61	0.014	0.022	11.82	2.50	18.50	0.13	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 490$	-	$85 \geq 30$		
Typical	570	-	45		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	$\phi 2.0$	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$	
Length(mm)	300mm	300mm	350mm	400mm	400mm	
Current (A)	F	30~50	60~85	85~120	115~160	160~200
	V OH	30~50	50~70	75~105	95~130	

## Instruction

- ① It should be baked at 300-350°C for 1 hour before welding.
- ② The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.
- ③ Small current and short arc should be used in welding, and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A032**

**GB/T 983 E317L-16**  
**AWS A5.4 E317L-16**

**Description:** WH·A032 is a kind of ultra-low-carbon Cr19Ni13Mo2Cu stainless steel electrode with lime-titania type coating. It has excellent heat-resistance, corrosion-resistance, crack-resistance, blowhole resistance and welding performance. It operates on AC/DC.

**Application:** Due to Mo and Cu in the weld metal, it has higher corrosion-resistance in sulphuric acid medium. Used for welding equipment of synthetic fiber, etc. and the same types of low-carbon stainless steel structures working in dilute or medium concentration sulphuric acid medium.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.04	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	3.0~4.0	18.0~21.0	≤0.75	
Typical	0.029	0.88	0.56	0.013	0.032	12.51	3.42	19.32	0.21	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 25$		
Typical	595	-	44		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~220

## Instruction

- ① It should be baked at 250°C for 1 hour before welding.
- ② DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A042**

**GB/T 983 E309MoL-16**  
**AWS A5.4 E309MoL-16**

**Description:** WH·A042 is a kind of ultra-low-carbon Cr23Ni13Mo2 stainless steel electrode with lime-titania type coating.AC/DC. Due to the appropriate quantity of Mo added into the weld, it increases the crack- resistance and the corrosion-resistance of the weld metal.

**Application:** Welding of ultra-low-carbon stainless steel materials of the same types (such as urea synthesis tower lining) and dissimilar steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.04	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	2.0~3.0	22.0~25.0	≤0.75	
Typical	0.029	0.88	0.62	0.013	0.021	13.21	2.42	23.10	0.17	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 540$	-	$\delta_5 \geq 25$		
Typical	635	-	36		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	-	300mm	350mm	400mm	400mm
Current (A)	-	50~70	80~110	130~160	160~220

## Instruction

- ①It should be baked at 300~350°C for 1 hour before welding.
- ②DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A062**

**GB/T 983 E309L-16**  
**AWS A5.4 E309L-16**

**Description:** WH·A062 is a kind of ultra-low-carbon Cr23Ni13 stainless steel electrode with lime-titania type coating. AC/DC. Due to the low carbon content, it can still resist intercrystalline corrosion led to by carbide precipitation without any stabilizers like Nb, Ti, etc.

**Application:** Used for stainless steel structures of the same types, composite steel, dissimilar steel, etc.in the production of equipment of synthetic fiber,petrochemical industry, etc.and also used for surfacing on nuclear reactors and transition layers of pressure vessel inner inner surfaces and welding inner parts of synthesis towers.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.04	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	≤0.75	22.0~25.0	≤0.75	
Typical										

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$85 \geq 25$		
Typical	565	-	40		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	-	300mm	350mm	400mm	400mm
Current (A)	-	50~70	80~110	130~160	160~220

## Instruction

- ①It should be baked at 300~350°C for 1 hour before welding.
- ②DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A102**

**GB/T 983 E308-16**  
**AWS A5.4 E308-16**

**Description:** WH·A102 is a kind of Cr19Ni10 stainless steel electrode with lime-titania type coating. The weld metal has excellent mechanical properties and intercrystalline corrosion-resistance. It has excellent welding performance and blowhole-resistance. The coating is red-resistant and crack-resistant. It can be used in all position with AC/DC.

**Application:** Used for welding corrosion-resistant 0Cr19Ni9 and 0Cr19Ni11Ti stainless steel structures below 300°C.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	9.0~11.0	≤0.75	18.0~21.0	≤0.75	
Typical	0.046	0.85	0.65	0.019	0.028	9.7	0.15	19.62	0.22	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 35$		
Typical	585	-	42		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	300mm	300mm	350mm	400mm	400mm	
Current (A)	F	30~50	60~85	85~120	115~160	160~200
	V OH	30~50	50~70	75~105	95~130	

## Instruction

- ① It should be baked at 300-350°C for 1 hour before welding.
- ② The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.
- ③ Small current and short arc should be used in welding, and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A107**

**GB/T 983 E308-15**  
**AWS A5.4 E308-15**

**Description:** WH·A107 is a kind of Cr19Ni10 stainless steel electrode with basic coating. The weld metal has excellent mechanical properties and intercrystalline corrosion-resistance. It is performed on DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding corrosion-resistant 0Cr19Ni9 stainless steel structures below 300°C, and also used for weld some steel with worse weldability ( such as high-chrome steel, etc.) and surfacing welding on the surface layers of stainless steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	9.0~11.0	≤0.75	18.0~21.0	≤0.75	
Typical	0.056	1.28	0.48	0.009	0.024	9.8	0.13	19.78	0.18	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 35$		
Typical	595	-	42		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	350mm	400mm	400mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

- ①It should be baked at 250°C for 1 hour before welding.
- ②The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A132**

**GB/T 983 E347-16**  
**AWS A5.4 E347-16**

**Description:** WH·A132 is a kind of Cr19Ni10Nb stainless steel electrode containing Nb stabilizer with lime-titania type coating. It has excellent intercrystalline corrosion-resistance, mechanical properties, welding performance and blowhole-resistance. The coating is red-resistant and crack-resistant. Operates on AC/DC.

**Application:** Used for welding key corrosion-resistant 0Cr19Ni11Ti and 06Cr18Ni11Ti stainless steel containing Ti stabilizer.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	Nb
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	9.0~11.0	≤0.75	18.0~21.0	≤0.75	8xC-1.00
Typical	0.043	1.18	0.51	0.009	0.024	9.8	0.13	19.78	0.12	0.511

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 25$		
Typical	595	-	32		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)		φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)		300mm	300mm	350mm	400mm	400mm
Current (A)	F	30~50	60~85	85~120	115~160	160~200
	V OH	30~50	50~70	75~105	95~130	

## Instruction

- ①It should be baked at 300-350°C for 1 hour before welding.
- ②The weldment must be clear away impurities,such as oil,rust,moisture etc.before welding.
- ③Small current and short arc should be used in welding ,and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A137**

**GB/T 983 E347-15**  
**AWS A5.4 E347-15**

**Description:** WH·A137 is a kind of Cr19Ni10Nb stainless steel electrode containing Nb stabilizer with basic coating. It has excellent intercrystalline corrosion-resistance. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding key corrosion-resistant 0Cr19Ni11Ti stainless steel containing Ti stabilizer.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	Nb
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	9.0~11.0	≤0.75	18.0~21.0	≤0.75	8xC-1.00
Typical	0.063	1.48	0.48	0.008	0.023	9.78	0.12	19.88	0.15	0.61

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 25$		
Typical	610	-	34		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	115~160	160~200

## Instruction

- ① It should be baked at 250°C for 1 hour before welding.
- ② The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A202**

**GB/T 983 E316-16**  
**AWS A5.4 E316-16**

**Description:** WH·A202 is a kind of low-carbon Cr18Ni12Mo2 stainless steel electrode with lime-titania type coating. Due to Mo added to the weld metal, it has excellent corrosion-resistance, heat-resistance heat-resistance and crack-resistance, especially suitable for chloride ion pitting corrosion-resistance. Operate on AC/DC. It has excellent welding performance.

**Application:** Used for welding 0Cr18Ni12Mo2 stainless steel equipment working in organic acid and mineral acid (non-oxidizing acid) medium, and also used for welding dissimilar steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	11.0~14.0	2.0~3.0	17.0~20.0	≤0.75	
Typical	0.037	0.82	0.63	0.014	0.022	11.88	2.50	18.55	0.19	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 35$		
Typical	575	-	45		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)		φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)		300mm	300mm	350mm	400mm	400mm
Current (A)	F	30~50	60~85	85~120	115~160	160~200
	V OH	30~50	50~70	75~105	95~130	

## Instruction

- ① It should be baked at 300-350°C for 1 hour before welding.
- ② The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.
- ③ Small current and short arc should be used in welding, and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A207**

**GB/T 983 E316-15**  
**AWS A5.4 E316-15**

**Description:** WH·A207 is a kind of low-carbon Cr18Ni12Mo2 stainless steel electrode with basic coating. due to Mo added to the weld metal, it has excellent corrosion-resistance, heat-resistance and crack-resistance, especially suitable for chloride ion pitting corrosion-resistance. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding low-carbon 0Cr18Ni12Mo2 stainless steel equipment, and also used for welding high-chrome steel (such as Cr13 and Cr17), which can not be given heat treatment after welding, and welding dissimilar steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	11.0~14.0	2.0~3.0	17.0~20.0	≤0.75	
Typical	0.051	1.32	0.51	0.009	0.022	12.2	2.40	18.75	0.14	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$85 \geq 30$		
Typical	580	-	43		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Diam(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Lenth(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

①It should be baked at 250°C for 1 hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · A212

**GB/T 983 E318-16**  
**AWS A5.4 E318-16**

**Description:** WH·A212 is a kind of low-carbon Cr18Ni12Mo2Nb stainless steel electrode containing Nb stabilizer with lime-titania type coating. The deposited metal has better intercrystalline corrosion-resistance than that of A202 and A207. It has excellent welding performance. AC/DC.

**Application:** Used for welding key 0Cr18Ni12Mo2, 00Cr17Ni14Mo2, etc. stainless steel, such as urea synthesis towers, vinylon equipment, etc., which work in strong corrosive mediums.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	Nb
GV	≤0.08	0.5~2.5	≤0.90	≤0.030	≤0.040	11.0~14.0	2.0~3.0	≤0.75	≤0.75	6xC~1.0
Typical	0.042	1.38	0.43	0.01	0.024	12.3	2.42	18.55	0.19	0.69

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 25$		
Typical	608	-	35		

### Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~180	160~200

### Instruction

- ①It should be baked at 250°C for 1 hour before welding.
- ②DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A302**

**GB/T 983 E309-16**  
**AWS A5.4 E309-16**

**Description:** is a kind of Cr23Ni13 stainless steel electrode with lime-titania type coating. The deposited metal has excellent crack-resistance and oxidation-resistance. AC/DC. It has excellent welding performance. In order to increase the crack-resistance and corrosion-resistance of the deposited metal, the Mo content is increased properly, 1% higher than that of GB/T983-1995 E309-16. The other elements all accord with the international standard.

**Application:** Used for welding the same types of stainless steel, stainless steel lining, dissimilar steel (Cr19Ni9 is the same as low-carbon steel), high-chrome steel, high-manganese steel, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.15	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	≤0.75	22.0~25.0	≤0.75	
Typical	0.068	0.97	0.65	0.015	0.028	12.85	0.25	24.25	0.21	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 25$		
Typical	590	-	39		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	300mm	350mm	400mm	400mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

- ① It should be baked at 300-350°C for 1 hour before welding.
- ② The weldment must be clear away impurities, such as oil, rust, moisture etc. before welding.
- ③ Small current and short arc should be used in welding, and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A307**

**GB/T 983 E309-15**  
**AWS A5.4 E309-15**

**Description:** WH·A307 is a kind of Cr23Ni13 stainless steel electrode with basic coating. The deposited metal has excellent crack-resistance and oxidation-resistance. DCRP (Direct Current Reversed Polarity). All-position welding.

**Application:** Used for welding the same types of stainless steel, dissimilar steel, high-chrome steel, high-manganese steel, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.15	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	≤0.75	22.0~25.0	≤0.75	
Typical	0.077	1.46	0.56	0.009	0.025	12.9	0.13	23.50	0.20	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 25$		
Typical	590	-	39		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

① It should be baked at 250°C for 1 hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



## WH · A312

**GB/T 983 E309Mo-16**  
**AWS A5.4 E309Mo-16**

**Description:** WH·A312 is a kind of Cr23Ni13Mo2 stainless steel electrode with lime-titania type coating. Due to the higher Mo content in the weld, it has better corrosion-resistance, crack-resistance and oxidation- resistance than those of A302. AC/DC. It has excellent welding performance.

**Application:** Used for welding the same types of stainless vessels which resist sulphuric acid medium (sulphur ammonia), and also used for welding stainless steel lining, composite steel plates and dissimilar steel.

### Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	≤0.12	0.5~2.5	≤0.90	≤0.030	≤0.040	12.0~14.0	2.0~3.0	22.0~25.0	≤0.75	
Typical	0.056	0.98	0.63	0.016	0.028	13.16	2.42	0.23	0.19	

### Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 25$		
Typical	620	-	35		

### Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	300mm	300mm	350mm	400mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~200

### Instruction

- ①It should be baked at 300~250°C for 1 hour before welding.
- ②DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A402**

**GB/T 983 E310-16**  
**AWS A5.4 E310-16**

**Description:** WH·A402 is a kind of Cr26Ni21 pure austenitic stainless steel electrode with lime-titania type coating. The weld metal has excellent oxidation-resistance under high temperatures of 900~1100°C. It operates on AC/DC. It has excellent welding performance.

**Application:** for welding the same types of heat-resistant stainless steel working under high temperatures, and also used for welding Cr steel with high hardenability (such as Cr5Mo, Cr9Mo, Cr13, Cr28, etc.) and dissimilar steel.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	0.08~0.20	1.0~2.5	≤0.75	≤0.030	≤0.040	20.0~22.5	≤0.75	25.0~28.0	≤0.75	
Typical	0.12	1.98	0.4	0.009	0.021	21.44	0.13	27.01	0.10	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 25$		
Typical	650	-	38		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

- ① It should be baked at 300~250°C for 1 hour before welding.
- ② DCEP had better be used and the current should not be too strong.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · A407**

**GB/T 983 E310-15**  
**AWS A5.4 E310-15**

**Description:** WH-A407 is a kind of Cr26Ni21 pure austenitic stainless steel electrode with basic coating. The weld metal has excellent oxidation-resistance under high temperatures of 900~1100 °C. DCRP (Direct Current Reversed Polarity). All-position welding. Because the weld is pure austenite, the heat-resistance and crack-resistance are not better than those of dual-phase structures.

**Application:** for welding the same types of heat-resistant stainless steel, stainless lining and dissimilar steel, and also used for welding steel with high hardenability, such as Cr5Mo, Cr9Mo, Cr13, Cr28, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Mo	Cr	Cu	
GV	0.08~0.20	1.0~2.5	≤0.75	≤0.030	≤0.030	20.0~22.5	≤0.75	25.0~28.0	≤0.75	
Typical	0.135	1.66	0.46	0.009	0.019	21.3	0.12	23.50	0.09	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 520$	-	$\delta_5 \geq 25$		
Typical	600	-	39		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	250mm	250mm	300mm	350mm	350mm
Current (A)	25~50	50~80	80~110	110~160	160~200

## Instruction

①It should be baked at 250°C for 1 hour before welding.



## Cast Iron Electrode

GB/T 10044

AWS A5.15

**Description:** Due to the high carbon content, the heterogeneous structures, the low strength and the bad plasticity, cast iron electrode has bad weldability and cracks can easily form in welding. The cooling speed after welding is extremely fast and white structure can easily form, which leads to difficult machine work.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Z308**

**GB/T 10044 EZNi-1  
AWS A5.15 ENi-C1**

**Description:** WH·Z308 is a kind of cast iron electrode with pure nickel core wire and strong reducibility graphite type coating. When welding, the preheating of the weldments can be left out. It has excellent crack-resistance and machinability. Due to the expensive nickel, it can only be selected when other kinds of electrodes are not suitable. It operates on AC/DC.

**Application:** Used for repair welding on thin cast iron pieces and machined surfaces, such as some key gray cast iron pieces like engine bearers, guide rails of machine tools, pinion stands, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	Ni	Fe	other			
GV	≤2.0	≤1.0	≤2.50	≤0.030	≤90	≤8.0	≤1.0			
Typical	0.585	0.07	1.5	0.004	97	0.022	-			

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	350mm	355mm	405mm	-	
Current (A)	-	60~90	90~110	120~150	-	

## Instruction

- ①The electrodes must be baked under about 150℃ for an hour before welding.
- ②By hammering the weld, the stress in the welded areas can be eliminated and cracks can be avoided.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Z408**

**GB/T 10044 EZNiFe-1**  
**AWS A5.15 EZNiFe-1**

**Description:** WH·Z408 is a kind of cast iron electrode with Ni-Fe alloy core wire and strong reducibility graphite type coating. It has some characteristics like high strength, good plasticity, low coefficient of linear expansion, etc. It operates on AC/DC.

**Application:** for repair welding on key high strength gray cast iron and spheroidal graphite cast iron, such as cylinders, engine bearers, gears, rollers, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	Ni	Fe	Al	other		
GV	≤2.0	≤2.5	≤4.0	≤0.030	45~60	balance	≤1.0	≤1.0		
Typical	0.585	0.07	1.5	0.004	54	43	0.055	-		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	345mm	345mm	395mm	-	
Current (A)	-	50~80	80~100	110~140	-	

## Instruction

①The electrodes must be baked under about 150°C for an hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Z508**

**GB/T 10044 EZNiCu-1  
AWS A5.15 ENiCu-B**

**Description:** WH·Z508 is a kind of cast iron electrode with Ni-Cu alloy (Monel) core wire and strong reducibility graphite type coating. Both the welding performance and the machinability are quite similar with those of Z308. However, due to the higher shrinkage rate, the crack-resistance is worse. The welded joint has lower strength, so it is not suitable for welding force-bearing parts. It can be used for welding gray cast iron under normal temperature or preheated a little (to about 300 °C). AC/DC.

**Application:** Used for repair welding on gray cast iron pieces not requiring strength too much.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	Ni	Fe	Cu	other		
GV	0.35~0.55	≤2.30	≤0.75	≤0.025	60~70	3.0-6.0	25~35	≤1.00		
Typical	0.45	1.07	0.42	0.004	65	4.0	28.5	-		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	340mm	340mm	390mm	390mm	
Current (A)	-	50~80	90~110	120~150	160-190	

## Instruction

①The electrodes must be baked under about 150°C for an hour before welding.

②When welding, stringer bead is suitable in the manipulation of electrodes. Every time, the weld length is suitable when lower than 50mm. The welded places should be hammered lightly immediately after welding so as to eliminate the stress in the welded areas and avoid cracks.



## Surfacing Electrode

GB/T 984  
AWS A 5.13

**Description:** Surfacing welding refers to a kind of welding technology that a metal layer parts, resisting wear, corrosion, heat, etc. is deposited on the surface or the edge of a work piece. It has notable economic benefit on repairing extending the service life of parts, using materials properly, improving the performance of products and reducing costs.

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D 102**

**GB/T 984 - 2001**  
**EDP Mn2-03**

**Description:** WH·D102 is a kind of ordinary manganese surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc and good slag detachability.

**Application:** Used for surfacing welding or repairing of the surfaces of worn-out low-carbon, medium-carbon and low-alloy steel parts, such as axles, gears, blades of mixers, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn			
Guaranteed value	≤0.20	≤3.50			
Typical	0.090	2.80			

## Hardness of Surfacing Layer: HB≥220

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	300	350	400	400	
Current (A)	60~80	90~110	140~180	180~220	

## Instruction

- ① The electrodes must be baked under 300-350°C for an hour before welding.
- ② Large work pieces should be preheated to about 200°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D107**

**GB/T 984 - 2001**  
**EDP Mn2-15**

**Description:** WH·D107 is a kind of ordinary manganese surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Used for surfacing welding or repairing of the surfaces of worn-out low-carbon, medium-carbon and low-alloy steel parts, such as axles, gears, blades of mixers, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn			
Guaranteed value	≤0.20	≤3.50			
Typical	0.089	2.80			

## Hardness of Surfacing Layer: HB≥220

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	300	350	400	400	
Current (A)	60~80	90~110	140~180	180~220	

## Instruction

- ① The electrodes must be baked under 300-350°C for an hour before welding.
- ② Large work pieces should be preheated to about 200 °C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D112**

**GB/T 984-2001  
EDP CrMo-A1-03**

**Description:** WH·D112 is a kind of CrMo surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc and good slag detachability.

**Application:** Used for welding the surfaces of worn-out low-carbon, medium-carbon and low-alloy parts, especially suitable for surfacing welding and repairing of mining machinery and agricultural machinery.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo	Total Quantity of Other Elements
Guaranteed value	≤0.25	≤2.00	≤1.50	≤2.00
Typical	0.15	1.20	0.65	—

## Hardness of Surfacing Layer: HB≥220

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	300	350	400	400	
Current (A)	60~80	90~110	140~180	180~220	

## Instruction

- ①The electrodes must be baked under about 150°C for an hour before welding.
- ②Large work pieces should be preheated to about 200°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D 127**

**GB/T 984-2001  
EDP CrMo-A1-03**

**Description:** WH·D127 is a kind of ordinary manganese surfacing electrode with low-hydrogen type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Used for surfacing welding on the surfaces of worn-out low-carbon, medium-carbon and low-alloy steel, such as axles, gears, driving wheels, blades of mixers, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn			
Guaranteed Value	≤0.20	≤4.50			
Typical Value	0.11	3.60			

## Hardness of Surfacing Layer: HRC≥30

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	300	350	400	400	
Current (A)	60~80	90~110	140~180	180~220	

## Instruction

- ①The electrodes must be baked under about 300-350°C for an hour before welding.
- ②Large work pieces should be preheated to about 300°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D 132**

**GB/T 984-2001  
EDP CrMo-A2-03**

**Description:** WH·D132 is a kind of CrMo surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc and good slag detachability.

**Application:** Used for welding the surfaces of worn-out low-carbon, medium-carbon and low-alloy parts, especially suitable for surfacing welding and repairing of the surface of worn-out parts of mining machinery and agricultural machinery.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo		
Guaranteed Value	≤0.50	≤3.00	≤1.50		
Typical Value	0.29	2.00	0.74		

## Hardness of Surfacing Layer: HRC≥30

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~120	150~180	150~230		

## Instruction

- ①The electrodes must be baked under about 150°C for an hour before welding.
- ②Large work pieces should be preheated to about 300°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D172**

**GB/T 984-2001  
EDP CrMo-A3-03**

**Description:** WH·D172 is a kind of CrMo surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc, good slag detachability and better welding performance.

**Application:** Used for surfacing welding on worn-out parts of gears, dredge buckets, tractor blades, deep digging blade ploughs, mining machinery, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo		
Guaranteed value	≤0.50	≤2.50	≤2.50		
Typical	0.34	2.30	1.90		

## Hardness of Surfacing Layer: HRC≥40

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~120	150~180	190~230		

## Instruction

- ①It should be dried at 150°C for one hour if the products are affected with damp.
- ②Large work pieces should be appropriately preheated to about 300°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D207**

**GB/T 984-2001**  
**EDP CrMnSi-A1-15**

**Description:** WH·D207 is a kind of CrMnSi surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Used for surfacing welding on worn-out parts of bulldozer blades, airscrews, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

	C	Si	Mn	S	P	Cr	Total Quantity of Other Elements
GV	0.5~1.0	≤1.00	≤2.50	≤0.035	≤0.035	≤3.50	≤1.00
Typical	0.80	0.67	2.00	0.007	0.025	3.000	—

## Hardness of Surfacing Layer: HRC≥50

## Diameter, Length & Recommended Current (AC/DC)

※WC(A)=Welding Current (A)

Diam(mm)	φ3.2	φ4.0	φ5.0		
Length(mm)	350mm	400mm	400mm		
WC(A)	90~120	150~180	190~230		

## Instruction

- ① It should be dried at 300°C ~ 350°C for one hour if the products are affected with damp.
- ② Large work pieces should be appropriately preheated to about 200°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D212**

**GB/T 984-2001  
EDP CrMo-A4-03**

**Description:** WH·D212 is a kind of CrMo surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc and good slag detachability.

**Application:** Used for single layer or multi-layer surfacing welding on the surfaces of all kinds of worn-out parts, such as gears, buckets, mining machinery, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo		
Guaranteed value	0.30~0.60	≤5.00	≤4.00		
Typical	0.45	2.00	1.30		

## Hardness of Surfacing Layer: HRC≥50

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~120	150~180	190~230		

## Instruction

- ①The electrodes must be baked under about 150°C for an hour before welding.
- ②Large work pieces should be preheated to about 300°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D237**

**GB/T 984-2001  
EDP CrMoV-A1-15**

**Description:** WH·D237 is a kind of CrMo surfacing electrode with lime-titania type coating. AC / DC are alternative. It has stable arc and good slag detachability.

**Application:** Used for welding the surfaces of worn-out low-carbon, medium-carbon and low-alloy parts, especially suitable for surfacing welding and repairing of the surface of worn-out parts of mining machinery and agricultural machinery.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo	V	others
Guaranteed value	0.30~0.60	8.00~10.00	≤3.00	0.50~1.00	≤4.00
Typical	0.52	9.80	2.50	0.65	—

## Hardness of Surfacing Layer: HRC≥50

## Diameter, Length & Recommended Current (AC/DC)

	φ2.5	φ3.2	φ4.0	φ5.0	
Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	300	350	400	400	
Current (A)	60~80	90~110	140~180	190~220	

## Instruction

- ①The electrodes must be baked under about 250°C for an hour before welding.
- ②Large work pieces should be preheated to about 300°C before surfacing welding, and the rust and the oil stains on the surfaces of the welded parts should be cleared away.

## Certification

Ship Classification Society;

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D256**

**GB/T EDMn-A-16**  
**AWS EFeMn-A**

**Description:** WH·D256 is a kind of high-manganese steel surfacing electrode with low-hydrogen potassium type coating. AC/DC (the open circuit voltage should be higher than 70V when using AC). In surfacing welding, weak current and stringer bead should be used, and it should be hammered or given water quenching immediately when it turns red to decrease crack tendency. The surfacing metal is austenitic high-manganese steel. It can be given work hardening, and it has toughness and wear-resistance.

**Application:** Used for surfacing welding on parts of all kinds of crushers, high-manganese steel rails, buckets, bulldozers, etc., which may easily be worn out due to impact.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn	Si	Total Quantity of Other Elements
Guaranteed Value	≤1.10	11.0~16.0	≤1.30	≤5.00
Typical Value	0.95	13.30	0.50	—

## Hardness of Surfacing Layer: HB≥170

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	70~90	100~140	150~180		

## Instruction

- ①The electrodes must be baked under 300-350°C for an hour before welding.
- ②For surfacing welding on worn-out high-manganese steel work pieces, in advance, the worn-out parts should be cleared away, or given water toughening, or given backing weld with Cr-Mn steel electrodes, such as D277.
- ③There is thick smoke in surfacing welding, so please keep ventilated and stand windward to operate.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D266**

**GB/T EDMn-B-16**  
**AWS EFeMn-B**

**Description:** WH·D266 is a kind of high-manganese steel surfacing electrode with low-hydrogen potassium type coating. AC/DC (the open circuit voltage should be higher than 70V when using AC). In surfacing welding, weak current and stringer bead should be used, and it should be hammered or given water quenching immediately when it turns red to decrease crack tendency. The surfacing metal is austenitic high-manganese steel. It can be given work hardening, and it has toughness and wear-resistance. The difference between D266 and D256 is that Mo is added to the weld metal to increase crack-resistance and wear-resistance.

**Application:** Used for surfacing welding on parts of all kinds of crushers, high-manganese steel rails, buckets, bulldozers, etc., which may easily be worn out due to impact.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn	Si	Mo	others
Guaranteed Value	≤1.10	11.0~18.0	0.30~1.30	≤2.50	≤1.00
Typical Value	0.95	13.30	0.50	2.00	0.65

## Hardness of Surfacing Layer: HB≥170

## Diameter, Length & Recommended Current (AC/DC)

	φ3.2	φ4.0	φ5.0		
Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	70~90	100~140	150~180		

## Instruction

- ①The electrodes must be baked under 300-350 °C for an hour before welding.
- ②For surfacing welding on worn-out high-manganese steel work pieces, in advance, the worn-out parts should be cleared away, or given water toughening, or given backing weld with Cr-Mn steel electrodes, such as D277.
- ③There is thick smoke in surfacing welding, so please keep ventilated and stand windward to operate.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D276**

**GB/T 984-2001  
EDCrMn-B-16**

**Description:** WH·D276 is a kind of high Cr-Mn steel atmospheric corrosion-resistant surfacing electrode with low-hydrogen type coating. AC/DC (the open circuit voltage should be higher than 70V when using AC). The weld metal can be given work hardening, and it has toughness, atmospheric corrosion-resistance and excellent crack-resistance.

**Application:** Suitable for surfacing welding on parts of water turbines worn-out by atmospheric corrosion, such as blades and water blades of water turbines, etc. At the same time, it is also suitable for surfacing welding on high-manganese steel parts requiring high wear-resistance and toughness, such as railway switches, screw conveyers, bulldozer blades, grab buckets, crushing blades, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Chemical Composition	C	Si	Mn	Ni	Mo	Cr	Other Elements
GV	≤0.80	≤0.80	11.0~16.0	≤2.00	≤2.00	13.0~17.0	≤4.00
Typical Value	0.58	0.65	12.56	1.25	1.50	14.20	—

## Hardness of Surfacing Layer: HB≥210

## Diameter, Length & Recommended Current (AC/DC)

	φ2.5	φ3.2	φ4.0	φ5.0	
Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	350	350	400	400	
Current (A)	60~80	70~90	100~140	150~180	

## Instruction

- ①The electrodes must be baked under 300-350℃ for an hour before welding.
- ②There is thick smoke in surfacing welding, so please keep ventilated and stand windward to operate.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D277**

**GB/T 984-2001  
EDCrMn-B-15**

**Description:** WH·D277 is a kind of high Cr-Mn steel atmospheric corrosion-resistant surfacing electrode with low-hydrogen type coating. DCRP (Direct Current Reversed Polarity). The weld metal can be given work hardening, and it has toughness, atmospheric corrosion-resistance and excellent crack-resistance.

**Application:** Suitable for surfacing welding on parts of water turbines worn-out by atmospheric corrosion, etc. At the same time, it is also suitable for surfacing welding on high-manganese steel parts requiring high wear-resistance and toughness, such as railway switches, screw conveyers, bulldozer blades, grab buckets, crushing blades, etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Chemical Composition	C	Si	Mn	Ni	Mo	Cr	Other Elements
GV	≤0.80	≤0.80	11.0~16.0	≤2.00	≤2.00	13.0~17.0	≤4.00
Typical Value	0.65	0.65	12.56	1.25	1.50	14.20	—

## Hardness of Surfacing Layer: HB≥210

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	350	350	400	400	
Current (A)	60~80	90~130	130~170	170~220	

## Instruction

- ①The electrodes must be baked under 300-350 °C for an hour before welding.
- ②There is thick smoke in surfacing welding, so please keep ventilated and stand windward to operate.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D307**

**GB/T 984-2001  
EDD-D-15**

**Description:** WH·D307 is a kind of surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Able to be used for surfacing welding on cutter blanks made of medium-carbon steel (such as 45 and 45Mn steel) to make blades so as to be used as substitute solid high speed steel, and also used for surfacing welding and repairing of worn-out cutters and other tools.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Chemical Composition	C	S	P	Cr	V	W	Other Elements
GV	0.70~1.00	≤0.035	≤0.040	3.80~4.50	1.00~1.50	17.0~19.5	≤1.50
Typical	0.90	0.015	0.018	4.10	1.25	15.80	—

## Hardness of Surfacing Layer: HRC≥55

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	100~130	130~160	170~220		

## Instruction

- ①The electrodes must be baked under 300-350°C for an hour before welding.
- ②In surfacing welding, little weldments should be preheated to 300°C and large ones 600°C.
- ③The heat treatment conditions of surfacing welding on cutters comply with the criteria for W18Cr4V high speed steel.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D317**

**GB/T 984-2001  
EDRCrMoWV-A3-15**

**Description:** WH·D317 is a kind of CrWVMo die welding electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Suitable for surfacing welding on cold-punching dies, and also used for surfacing welding on general cutting tools.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Mo	Cr	V	W	Other Elements
GV	0.70~1.00	≤0.035	≤0.040	3.00~5.00	3.00~4.00	1.50~3.00	4.50~6.00	≤1.50
Typical Value	0.90	0.012	0.022	3.90	3.25	1.00	4.20	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥50

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~120	160~190	190~230		

## Instruction

- ①The electrodes must be baked under 300-350℃ for an hour before welding.
- ②The work pieces should be preheated to over 300℃ before welding so as to avoid cracking.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D322**

**GB/T 984-2001  
EDRCrMoWV-A1-03**

**Description:** WH·D322 is a kind of CrWMoV cold-punching die surfacing electrode with lime-titania type coating. AC/DC. In surfacing welding, it has stable arc and good slag detachability.

**Application:** Used for surfacing welding on all kinds of cold-punching dies and cutting tools, and also used for repairing machinery elements requiring higher wear-resistance.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Mo	Cr	V	W	Other Elements
GV	≤0.50	≤0.035	≤0.040	≤2.50	≤5.00	≤1.00	7.0~10.0	—
Typical Value	0.41	0.010	0.023	1.85	3.25	0.86	9.20	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥55

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	80~140	160~190	190~230		

## Instruction

- ① The electrodes must be baked under 300-350°C for an hour before welding.
- ② The work pieces should be preheated to over 300°C before welding so as to avoid cracking.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D327**

**GB/T 984-2001**  
**EDRCrMoWV-A1-15**

**Description:** WH·D327 is a kind of CrWMoV cold-punching die surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

**Application:** Used for surfacing welding on all kinds of cold-punching dies and cutting tools, and also used for repairing machinery elements requiring.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Mo	Cr	V	W	Other Elements
GV	≤0.50	≤0.035	≤0.040	≤2.50	≤5.00	≤1.00	7.0~10.0	—
Typical	0.41	0.010	0.022	1.95	3.25	0.85	8.62	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥55

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	100~130	130~160	170~220		

## Instruction

- ① The electrodes must be baked under 300-350°C for an hour before welding.
- ② The work pieces should be preheated to over 300°C before welding so as to avoid cracking.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD



**WH · D337**

**GB/T 984-2001  
EDRCrW-15**

**Description:** WH·D337 is a kind of CrW hot-forging die surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity).

Application: Used for surfacing welding on cast steel or forged steel to make forging dies, and also used for repairing forging dies.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Cr	W	Total Quantity of Other Elements
GV	0.25~0.55	≤0.035	≤0.040	2.00~3.50	7.0~10.0	≤1.00
Typical Value	0.42	0.012	0.020	3.10	8.50	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥48

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~110	150~180	180~210		

## Instruction

- ①The electrodes must be baked under 300-350 °C for an hour before welding.
- ②The work pieces should be preheated to over 300-400 °C before welding, and cooled slowly after welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D502**

**GB/T 984-2001  
EDRCr-A1-03**

**Description:** WH·D502 is a kind of 1Cr13 valve surfacing electrode with lime-titania type coating. AC/DC. It has excellent welding performance. The weld metal is 1Cr13 semi-ferritic high-chrome steel. The surfacing layer can be hardened in the air. Generally it does not need heat treatment. It has uniform hardness. It can also be softened under 750-800°C. When heated to 900-1000°C, it can be hardened again by air cooling or oil quenching.

**Application:** This is a kind of universal electrode used for surface overlaying, used for surfacing welding on axles, valves, et. Made of carbon steel or alloy steel below 450°C.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Cr	Total Quantity of Other Elements
GV	≤0.15	≤0.030	≤0.040	10.0~16.0	≤2.50
Typical Value	0.12	0.010	0.020	12.50	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥40

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	350	350	400	400	
Current (A)	50~80	80~120	120~160	160~200	

## Instruction

- ①The electrodes must be baked under 150°C for an hour before welding.
- ②The work pieces should be preheated to over 300°C before welding, and different heat treatment after welding may produce corresponding hardness.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D507**

**GB/T 984-2001  
EDRCr-A1-15**

**Description:** WH·D507 is a kind of 1Cr13 valve surfacing electrode with low-hydrogen sodium type coating. DCRP (Direct Current Reversed Polarity). The weld metal is 1Cr13 semi-ferritic high-chrome steel. The surfacing layer can be hardened in the air. Generally it does not need heat treatment. It has uniform hardness. It can also be softened under 750-800°C. When heated to 900-1000°C, it can be hardened again by air cooling or oil quenching.

**Application:** This is a kind of universal electrode used for surface overlaying, used for surfacing welding on axles, valves, et. Made of carbon steel or alloy steel below 450°C.

## Chemical Composition of Deposited Metal (%)

※ GV=Guarantee Value

Chemical Composition	C	S	P	Cr	Total Quantity of Other Elements
GV	≤0.15	≤0.030	≤0.040	10.0~16.0	≤2.50
Typical Value	0.13	0.008	0.020	13.40	—

## Hardness of Surfacing Layer: (Cooled in the Air after Welding) HRC≥40

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ2.5	φ3.2	φ4.0	φ5.0	
Length (mm)	350	350	400	400	
Current (A)	50~80	80~120	120~160	160~200	

## Instruction

- ①The electrodes must be baked under 300-350°C for an hour before welding.
- ②The work pieces should be preheated to over 300°C before welding and different heat treatment after welding may produce corresponding hardness.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D577**

**GB/T 984-2001  
EDCrMn-C-15**

**Description:** WH·D577 is a kind of CrMn valve surfacing electrode with low-hydrogen sodium type coating and alloy steel core wire. DCRP (Direct Current Reversed Polarity). The surfacing metal is high Cr-Mn austenitic steel, so the effect of cold-work hardening is notable. It has excellent scratch-resistance, certain medium-temperature hardness and better thermal stability. If it is used together with D507Mo, excellent scratch-resistance can be obtained. It has excellent crack-resistance. The welding technology is simple. Neither preheating before welding nor heat treatment after welding is needed. The surfacing metal has excellent machinability.

**Application:** Used for surfacing welding on sealing faces of medium temperature high pressure valves below 510°C. When welding gate valves, its service life will be longer if used together with D507Mo.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	Si	Mn	Ni	Mo	Cr	Other Elements
GV	≤ 1.10	≤ 2.00	12.0~18.0	≤ 6.00	≤ 4.00	12.0~18.0	≤ 3.00
Typical	0.85	1.45	13.70	4.80	3.25	14.30	—

## Hardness of Surfacing Layer: HRC≥28

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0	
Length (mm)	350	400	400	
Current (A)	80~120	120~160	160~200	

## Instruction

- ① The electrodes must be baked under 300-350°C for an hour before welding.
- ② After the surfacing metal is processed, its thickness should be above 5mm so as to guarantee the uniformity of the chemical composition and the hardness.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D608**

**GB/T 984-2001  
EDZ-A1-08**

**Description:** WH·D608 is a kind of CrMo cast iron surfacing electrode with graphite type coating. AC/DC. DCRP (Direct Current Reversed Polarity) is more suitable. Because the surfacing metal is Cr and Mo carbide with cast iron structure, the surfacing layer has higher hardness, higher wear-resistance and excellent silt and ore wear-resistance.

**Application:** Used for welding parts of agricultural machinery, mining equipment, etc. which receive grit wear and slight impact.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mo	Cr		
Guaranteed value	2.50~4.50	3.00~5.00	3.00~5.00		
Typical Value	2.85	4.65	4.2		

## Hardness of Surfacing Layer: HRC $\geq$ 55

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	$\phi$ 3.2	$\phi$ 4.0	$\phi$ 5.0		
Length (mm)	350	400	400		
Current (A)	70~90	100~140	150~180		

## Instruction

- ①The electrodes must be baked under 250°C for an hour before welding.
- ②In surfacing welding, the weldments should be preheated to 400-500°C. If the surfacing thickness permits, a surfacing layer can be made with J507 at first. Then surfacing welding should be done when there is enough heat. The weldments should be cooled slowly after welding.
- ③Machine work should not be given to the surfacing layer. It can only be given grindin

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D618**

**GB/T 984-2001**

Description: WH·D618 is a kind of CrMo cast iron surfacing electrode with graphite type coating. It has higher hardness and better heat-resistance.

**Application:** Hardfacing of parts which bear light impact load and have good abrasion resistance to abrasive grain, such as hammers of coal-cracker.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Cr	Mo	V	W	
GV	≤3.00	15.0~25.0	1.00~2.00	≤1.0	10.0~20.0	
Typical Value	0.24	21.50	1.65	0.80	14.80	

## Hardness of Surfacing Layer: HRC≥58

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~130	130~180	180~230		

## Instruction

- ①The electrodes must be baked under 300℃ for an hour before welding.
- ②According to the difference of the welding surfacing and hardness, the corresponding preheating temperature and welding measures should be prepared.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D646**

**GB/T 984-2001  
EDZCr-B-16**

**Description:** WH·D646 is a kind of electrode with low-hydrogen kalium type coating . It has excellent performance of cavitation-resistance.

**Application:** Hardfacing of parts which working at general and high temperature with good resistance to abrasion and corrosion, such as vanes of water turbine, parts of high pressure pumps, hoppers of blast furnace, etc.

## Chemical Composition of Deposited Metal(%)

Chemical Composition	C	Mn	Cr	others
Guaranteed value	1.50~3.50	≤1.00	20.0~35.0	≤7.00
Typical	2.35	0.12	29.50	—

## Hardness of Surfacing Layer: HRC≥45

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0		
Length (mm)	350	400	400		
Current (A)	90~130	130~180	180~230		

## Instruction

- ①The electrodes must be baked under 300℃ for an hour before welding.
- ②According to the difference of the wedling surfacing and hardness, the corresponding preheating temperature and welding measures should be prepared.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D667**

**GB/T EDZCr-C-15  
AWS EFeCr-A1**

Description: WH·D667 is a kind of high-chrome cast iron surfacing electrode with low-hydrogen sodium type coating and high-chrome alloy cast iron core wire. DCRP (Direct Current Reversed Polarity). The surfacing layer has excellent wear-resistance, corrosion-resistance and atmospheric corrosion-resistance below 500°C. The hardness of the surfacing layer will decrease drastically over 500°C.

**Application:** Used for surfacing welding on occasions requiring intense wear-resistance, corrosion-resistance and atmospheric corrosion-resistance, such as axle bushes of centrifugal cracking pumps in petroleum industry, parts of mining crushers, valve bonnets on diesel engines, etc.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	Si	Mn	Ni	Cr	Total Quantity of Other Elements
GV	2.50~5.00	1.00~4.80	≤8.00	3.00~5.00	25.0~32.0	≤2.00
Typical Value	3.20	3.50	6.50	4.50	29.50	—

## Hardness of Surfacing Layer: HRC≥48

## Diameter, Length & Recommended Current (AC/DC)

	φ3.2	φ4.0	φ5.0	φ5.0
Diameter (mm)	φ3.2	φ4.0	φ5.0	φ5.0
Length (mm)	350	400	400	400
Current (A)	90~130	120~160	140~190	150~210

## Instruction

- ①The electrodes must be baked under 300-350°C for an hour before welding.
- ②In surfacing welding, the weldments should be preheated to 500-600°C.
- ③Every time, the surfacing length is suitable in the range of 50-70mm.
- ④After welding, the work pieces should be tempered under 600-700°C for an hour before slow cooling. They can also be put into a dry and preheated sand box or plant ash to be cooled slowly immediately after welding.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D707**

**GB/T 984-2001  
EDW-A-15**

Description: WH·D/07 is a kind of tungsten carbide surfacing electrode with low-hydrogen sodium type coating and carbon steel core wire. Its transition depends on the carbide alloy in the coating. The tungsten content in the surfacing metal is 40-50%. Due to the thicker coating, the sleeve is longer in welding. After the coating turns red, it can easily fall off in little pieces, so DCRP (Direct Current Reversed Polarity) and weaker current is suitable.

**Application:** Used for surfacing welding on intense rock wear-resistant machinery elements, such as blades of concrete mixers, blades of bulldozers and pumps, blades of dredgers, high speed sand mixing boxes, etc.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	Si	Mn	W	
GV	1.50~3.00	≤4.00	≤2.00	40.0~50.0	
Typical Value	1.7	3.20	1.70	41.50	

## Hardness of Surfacing Layer: HRC≥60

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0	
Length (mm)	350	400	400	
Current (A)	90~130	120~160	140~190	

## Instruction

- ①The electrodes must be baked under 300-350°C for an hour before welding.
- ②If the weldments are steel, the preheating temperature should be over 300°C. If the weldments are low-alloy steel, it should be 400-500°C. If the weldments are stainless steel, it should be 600-650°C.
- ③Low-alloy steel and stainless steel must be annealed under 700°C.

## Certification

Ship Classification Society:

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · D812**

**GB/T EDCoCrB-03  
AWS ECoCr-B**

Description: WH ·D812 is a kind of cobalt-chromium-tungsten alloy surfacing electrode with lime-titania type coating. AC/DC. It has super wear resistance and corrosion resistance even under 350°C environment.

**Application:** Hardfacing of high temperature and high pressure valves, axle sleeves and bushing leeves of high pressure pump, cutting knives of chemical fibred machinery, etc.

## Chemical Composition of Deposited Metal(%)

※ GV=Guarantee Value

Chemical Composition	C	Mn	Si	Fe	Cr	W	Other Elements
GV	1.00~1.70	≤2.00	≤2.00	≤5.00	25.0~32.0	7.0~10.0	≤4.50
Typical Value	1.25	1.60	1.60	3.80	28	8.5	—

## Hardness of Surfacing Layer: HRC≥44

## Diameter, Length & Recommended Current (AC/DC)

Diameter (mm)	φ3.2	φ4.0	φ5.0	
Length (mm)	350	400	400	
Current (A)	90~130	120~160	140~190	

## Instruction

- ①The electrodes must be baked under 150°C for an hour before welding.
- ②According to the size and kind of the weldments, the weldments should be preheated to 500-600°C.
- ③After welding, the work pieces should be tempered under 600-700°C for an hour before slow cooling. They can also be put into a dry and preheated sand box or plant ash to be cooled slowly immediately after welding.

## Certification

Ship Classification Society:



## Cu and Cu alloy Electrode

GB/T 3670

AWS A5.6

**Description:** Cu and Cu alloy electrode is used to weld copper parts and copper alloy . Such as copper heat exchanger, copper raft,seawater pipes,hardfacing of carbon steel resistance to corrosion of seawater,bronze parts,brass parts as well as inter lining of chemical machinery pipes.

### INDEX OF Cu AND Cu ALLOY ELECTRODE

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · T107**

**GB/T 3670ECu**  
**AWS A5.6 ECu**

**Description:** WH·T107 is a kind of red copper core welding electrode with low hydrogen type coating. It has good mechanical properties. The weld has reliable corrosion-resistance to the air and the sea water. It is not appropriate for welding of oxygen-bearing copper and electrolytic copper. It has good appearance performance and reliable welding arc. DCEP had better be used .

**Application:** For Welding of Copper Structures such as Conductive Copper Bar, Copper Heat-Exchanger, Sea Water Pipelines for Ship.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	Cu	Mn	Si	S	P	Ni	Fe	Pb	Ti	Pb+Zn
GV	balance	≤2.5	≤0.5	≤0.015	≤0.020	29.0~33.0	≤2.5	≤0.02	≤0.5	≤0.5

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Cold Bending Angel
GV	$\sigma_b \geq 350$	-	$\delta_5 \geq 20$	180

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	-	300mm	350mm	350mm	
Current (A)	-	-	90~120	120~150	150~180	

## Instruction

- ①The electrodes must be baked under about 350℃ for an hour before welding.
- ②The weldment must be clear away impurities,such as oil,rust,moisture etc.before welding.
- ③Small current and short arc should be used in welding ,and swaying broad less than 2.5 times of diameter of the electrode.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · T207**

**GB/T 3670ECuSi-B  
AWS A5.6 ECuSi-B**

**Description:** WH·T107 is a kind of silicon bronze core welding electrode with low hydrogen type coating. It has good mechanical properties. The weld has reliable corrosion-resistance to most of the organic acid and the sea water except nitric acid. It has good appearance performance and reliable welding arc. DCEP had better be used .

**Application:** For Welding of Copper parts and brass parts as well as inter lining of chemical machinery pipes.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

test Item	Cu	Mn	Si	S	P	Ni	Fe	Pb	Ti	Pb+Zn
GV	balance	≤0.3	2.4~4.0	-	≤0.30	-	-	≤0.02	-	-

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	Cold Bending Angel
GV	$\sigma_b \geq 176$	-	$\delta_5 \geq 20$	120

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	-	300mm	350mm	350mm	
Current (A)	-	-	120~140	150~170	180~220	

## Instruction

- ①The electrodes must be baked at about 350℃ for 1~2 hours before welding.
- ②The weldment must be clear away impurities,such as oil,rust,moisture etc.before welding.
- ③The weldment should be preheated at 450℃ for welding red copper and at 300℃for welding brass.It is not necessary to be preheated for hardfacing welding. The weld should be hited by hammer.



## Ni and Ni alloy Electrode

GB/T 13814

AWS A5.11

**Description:** Ni and Ni alloy electrode is mainly used for welding of Ni and high nickel alloy and also for welding and surfacing of dissimilar metals, the joint beveled edges size and the welding technology is similar to that of the Ni and Cr austenitic steel.

### INDEX OF Ni AND Ni ALLOY ELECTRODE

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Ni112**

**GB/T 13814 EN-0-03**  
**AWS A5.11 ENi-0**

**Description:** WH·Ni112 is a kind of pure nickel electrode with lime-titania type coating. There is good mechanical properties and heat-resistance as well as corrosion-resistance ability in the weld metal.

**Application:** Welding of Ni based metals and double metals used in chemical machinery ,food industry medical apparatus and instrumets etc.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Fe	Nb	Ti	Al
GV	≤0.06	≤2.5	≤1.5	≤0.015	≤0.015	≥92.0	≤4.5	≤2.5	≤1.5	≤0.5

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 410$	-	$\delta_5 \geq 20$		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0	
Length(mm)	-	300mm	350mm	400mm	-	
Current (A)	-	50~80	80~120	130~170	-	

## Instruction

①The electrodes must be baked under about 250℃ for an hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Ni307**

**GB/T 13814 ENiCrMo-0-15**

**AWS A5.11 ENiCrMo-0**

**Description:** WH·Ni307 is a kind of Ni70Cr15 heat-resistance alloy steel electrode with low hydrogen type coating. Due to containing Mo and Nb element, the weld metal has good crack-resistance. The DCEP is recommended.

**Application:** Welding of Ni based metals which have heat-resisting and corrosion-resisting property, welding and hardfacing of dissimilar metals and some alloys which have worse weldability.

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 620$	-	$\delta_5 \geq 20$		

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Cr	Ni	Fe	Nb	Mo	Co
GV	$\leq 0.06$	1.0~5.0	$\leq 0.75$	$\leq 0.015$	$\leq 0.04$	1.0~5.0	balance	4.0~8.0	1.5~5.5	3.0~7.5	$\leq 0.12$

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	$\phi 2.0$	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$
Length(mm)	-	-	350mm	400mm	-
Current (A)	-	-	80~100	110~150	-

## Instruction

①The electrodes must be baked under about 150°C for an hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · Ni307B**

**GB/T 13814 ENiCrFe-3-15**

**AWS A5.11 ENiCrFe-3**

**Description:** WH·Ni307B is a kind of Ni70Cr15 heat-resistance alloy steel electrode with low hydrogen type coating. Due to containing Mn and Nb element , the weld metal has good crack-resistance . The DCEP is recommended.

**Application:** Welding of Ni based metals which have heat-resisting and corrosion-resisting property,welding and hardfacing of dissimilar metals and some alloys which have worse weldability.

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 550$	-	$\delta_5 \geq 30$		

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Cr	Ni	Fe	Nb+Ta	Cu	Co
GV	$\leq 0.10$	5.0~9.5	$\leq 1.0$	$\leq 0.015$	$\leq 0.03$	13.0~17.0	$\geq 59.0$	$\leq 10$	1.0~2.5	$\leq 0.50$	$\leq 0.30$

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	$\phi 2.0$	$\phi 2.5$	$\phi 3.2$	$\phi 4.0$	$\phi 5.0$
Length(mm)	-	300mm	350mm	400mm	-
Current (A)	-	50~70	80~100	110~150	-

## Instruction

①The electrodes must be baked under about 150°C for an hour before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO.,LTD



**WH · ENiCu-7**

**GB/T 13814 ENiCu-7-03**

**AWS A5.11 ENiCu-7**

**Description:** WH·ENiCu-7 has good weldability process, used for welding of MENEL alloy and joining of MENEL alloy and low carbon steel together.

**Application:** Welding of MENEL-metal with low carbon steels.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Al	Ni	Fe	Nb	Cu	Ti
GV	≤0.15	≤4.0	≤1.5	≤0.015	≤0.02	≤0.75	62.0~69.0	≤2.5	≤2.5	balance	≤1.0

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)		
GV	$\sigma_b \geq 480$	-	$\delta_5 \geq 30$		

## Diameter, Length & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.0	φ2.5	φ3.2	φ4.0	φ5.0
Length(mm)	-	300mm	350mm	400mm	-
Current (A)	-	50~80	75~115	110~150	-

## Instruction

- ①The electrodes must be baked under about 150℃ for an hour before welding.
- ②The weldment must be clear away impurities,such as oil,rust,moisture etc.before welding.
- ③The temperature between weld layer should be kept at 100℃ to prevent over heated.



## Gas-shielded Solid Welding Wire

**GB/T 8110**  
**AWS A5.18**

Description: CO<sub>2</sub> gas-shielded welding is a kind of welding technology developed in the 1950s. During the 40 years or so, it has been developed as a kind of important melt welding method and widely applied to all kinds of fields like automotive industry, construction machinery production, shipbuilding, metallurgical equipment production, bridges, civil works, petrochemical industry, production of pressure vessels of boilers, locomotive vehicles, etc.

### INDEX OF LOW ALLOY STEEL ELECTRODE

WH·ER50-6	.....	02
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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER50-6**

**GB/T8110 ER50-6**

**AWS A5.18 ER70S-6**

**Description:** WH·ER50-6 is a coppered low alloy steel wire shielded by 100% CO<sub>2</sub> with all position welding. The wire has a very good welding performance and higher efficiency in welding. The weld metal shows lower temperature impact toughness. Strong resistance to surface scales and oil stains on the base metal. It has low blowhole sensitivity.

**Application:** it is mainly used for butt and fillet welding structures made by shipping steels and low alloy steels. Such as ships, containers, vehicles, engineering & construction machinery, bridges and so on.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Cu	
GV	0.06~0.15	1.40~1.85	0.8~1.15	≤0.030	≤0.030	≤0.15	≤0.15	≤0.15	
Typical	0.08	1.52	0.89	0.019	0.018	0.013	0.016	0.15	

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)	
GV	≥480	≥400	≥22	≥27(-30℃)	
Typical	568	461	23~30	126	

## Diameter, & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ0.8	φ0.9	φ1.0	φ1.2	φ1.6			
Current(A)	50~100	50~110	50~220	80~350	170~550			
CO <sub>2</sub> Flow Rate(L/min)	15	15	15~20	15~25	20~25			

## X-ray Inspection: I

## Instruction

①The wire and flux should be kept in dry place.

## Certification

Ship Classification Society: GL, LR, CCS, SGS

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER80S-G**

**GB/T8110 ER55-G**  
**AWS A5.28 ER80S-G**

**Description:** WH-ER80S-G is a 100% CO<sub>2</sub> gas shielded & coppered low alloy steel wire with all position welding. The wire has a very good welding performance and higher efficiency in welding. the weld metal shows lower temperature impact toughness.

**Application:** it is mainly used for 550MPa-600MPa high tensile strength low alloyed steels e.g. X70, 62CF, 15MnMo, etc. such as heavy machine equipments, bridges, vehicles and so on. The welded pieces should be tempered at 310 °C not shorter than 2 hours after welding.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Cu	Ti
GV	-	-	-	-	-	-	-	-	-
Typical	0.073	1.65	0.55	0.012	0.013	0.013	-	0.21	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	
GV	≥550	≥470	≥19	-30°C ≥27	
Typical	636	533	27	123	

## Diameter, & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ0.8	φ0.9	φ1.0	φ1.2	φ1.6			
Current(A)	50~100	50~100	50~220	80~350	170~550			
CO <sub>2</sub> Flow Rate(L/min)	15	15	15~20	15~25	20~25			

## X-ray Inspection: I

## Instruction

①The wire and flux should be kept in dry place.

## Certification

Shipping Classification Society



## Submerged Arc Welding Wire

**GB/T 5293**  
**AWS A5.17**

Description: Along with the constantly extended range of application of automatic welding equipment and the improvement of automatic welding technology, the proportion of the use of submerged-arc welding on large components has been constantly increased, and the demand for submerged-arc welding wires has been constantly rising. Furthermore, because submerged-arc welding has a series of characteristics like high welding efficiency, steady and reliable welding quality, better labor conditions for workers, etc., it has been widely used. It is used or partly used on many key welding structures, such as boilers, vessels of nuclear power stations, pressure vessels, chemical equipment, large and medium spiral tubes, bridges, ships, locomotive vehicles, etc.

In order to get excellent weld molding and excellent metallurgical reactions, appropriate submerged-arc welding wires together with corresponding welding fluxes should be selected according to the work pieces, conditions of welding equipment and welding materials, and operation should be performed with appropriate welding technology and criteria.

### INDEX OF SUBMERGED ARC WELDING WIRE

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · H08A**

**GB/T 5293 F4A2-H08MnA  
AWS A5.17 F6A2-EM12**

**Description:** It is a kind of medium-manganese and medium-silicon type welding wire. It matches with medium-manganese and medium-silicon type welding flux. It is not sensitive to the rust on the base metal. It has excellent bead molding and slag detachability. Monopole or dipole. AC/DC.

**Application:** Used together with fused flux 350 or sintered flux 101. Used for both high speed welding and filling welding on 50kg class base metals.

## Chemical Composition of Welding Wire(%)

※GV=Guarantee Value

Test item	P	Ni	Cr						
GV	≤0.030	≤0.30	≤0.20						

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	C	Mn	Si	S					
GV	≤0.10	0.8~1.1	≤0.07	≤0.030					

## Mechanical Properties of Deposited Metal

Test Items(Flux Used Together	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)	0℃	AKV(J)	-20℃
SJ301	≥490	≥410	≥22	≥80		≥34	
HJ431	500~600	420~450	23~30	≥27		-	

## Diameter & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current(A)	80~120	130~180	170~240	

## X-ray Inspection: I

## Instruction

- ①The electrodes must be baked under 350-430℃ for an hour before welding, put into a can and taken as soon as they are needed.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before

## Certification

Shipping Classification Society: CCS

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · H08MnA**

**GB/T 5293 F4A2-H08MnA**

**AWS A5.17 F6A2-EM12**

**Description:** It is a kind of medium-manganese and medium-silicon type welding wire. It matches with medium-manganese and medium-silicon type welding flux. It is not sensitive to the rust on the base metal. It has excellent bead molding and slag detachability. Monopole or dipole. AC/DC.

**Application:** Used together with fused flux 350 or sintered flux 101. Used for both high speed welding and filling welding on 50kg class base metals.

## Chemical Composition of Welding Wire(%)

※GV=Guarantee Value

Test item	P	Ni	Cr						
GV	≤0.030	≤0.30	≤0.20						

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	C	Mn	Si	S					
GV	≤0.10	0.8~1.1	≤0.07	≤0.030					

## Mechanical Properties of Deposited Metal

Test Items(Flux Used Together)	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	0℃	KV <sub>2</sub> (J)	-20℃
SJ301	≥490	≥410	≥22	≥80		≥34	
HJ431	500~600	420~450	23~30	≥27		-	

## Diameter & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ3.2	φ4.0	φ5.0	
Current(A)	80~120	130~180	170~240	

## X-ray Inspection: I

### Instruction

- ① The electrodes must be baked under 350-430℃ for an hour before welding, put into a can and taken as soon as they are needed.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before

### Certification

Shipping Classification Society: CCS

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · H10Mn2**

**GB/T 5293 F5A2-H10Mn2**

**AWS A5.17 F7A2-EH14**

**Description:** It is a kind of high-manganese type welding wire. It matches with low-manganese and low-silicon type welding flux. It is not sensitive to the rust on the base metal. It has excellent bead molding and slag detachability. Monopole or dipole. AC/DC.

**Application:** Used together with fused flux 350 or sintered flux 101. Used for both high speed welding and filling welding on 50kg class base metals. The deposited metal has very stable mechanical properties.

## Chemical Composition of Welding Wire(%)

※GV=Guarantee Value

Test item	C	Mn	Si	S	P	Ni	Cr		
GV	≤0.12	1.5~1.9	≤0.07	≤0.035	≤0.035	≤0.30	≤0.20		

## Mechanical Properties of Deposited Metal

Test Items(Flux Used Together)	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	-20℃		
SJ301	490-650	≥400	≥22	≥34			
HJ350	415-550	≥330	≥22	≥27			

## Diameter & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	400~500

## Instruction

- ① The wire and flux should be kept in dry place.
- ② The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before

## Certification

Shipping Classification Society: CCS, GL, LR, ABS

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · H10MnSi**

**GB/T 5293 F5A4-H10MnSi**  
**AWS A5.17 F7A4-EM13K**

**Description:** It is a kind of welding wire with appropriate manganese and silicon content. It matches with low-manganese and low-silicon type welding flux. It is not sensitive to the rust on the base metal. It has excellent bead molding, excellent slag detachability and high welding efficiency.

**Application:** Used together with fused flux 350 or sintered flux 101. Used for both high speed welding and filling welding on 50kg class base metals. Mostly used for welding boilers, pressure vessels, bridges, ships, etc.

## Chemical Composition of Welding Wire(%)

※GV=Guarantee Value

Test item	C	Mn	Si	S	P	Cu	Ni	Cr	
GV	≤0.14	0.8~1.1	0.6~0.9	≤0.030	≤0.040	≤0.35	≤0.30	≤0.20	

## Mechanical Properties of Deposited Metal

Test Items(Flux Used Together)	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	0℃	KV <sub>2</sub> (J)	-20℃
SJ301	410-550	≥330	≥22	≥50		≥27	
HJ431	410-550	≥330	≥22	≥27			-

## Diameter & Recommended Current (AC/DC)

※ WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	400~500

## Instruction

- ①The wire and flux should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

## Certification

Shipping Classification Society: CCS



## Argon Arc Welding Wire

**GB/T8110**  
**YB/T5091**  
**AWS A5.9**

Description: For carbon steel argon-arc welding wires, carrying out the standard GB/T8110. For stainless steel argon-arc welding wires, carrying out the standard YB/T5091.

1. Argon has good protective results and high quality weld can be obtained.
2. The arc has stable burning and shallow penetration, which is quite suitable for thin plates.
3. Easy to operate. All-position welding. One-side welding with back formation.
4. Beautiful appearance of weld and no spatters.

### INDEX OF ARGON ARC WELDING WIRE

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER308L**

**AWS A5.9 ER308L**

**Description:** ER308L is a extra low carbon stainless steel wire, it is used for automatic submerged welding combining with SJ601 arc.

**Application:** for welding extra low carbon Cr18Ni8 stainless steel.such as ship hulls, bridges. Pressure vessels as well as H-beam structures.

## Chemical Composition of Welding Wire(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Cr	Ni	Mo	Cu
GV	≤0.03	1.0~2.5	0.3~0.65	≤0.030	≤0.030	19.5~22	9.0~11.0	≤0.75	≤0.75
Typical	0.023	1.76	0.51	0.019	0.018	19.92	9.56	0.1	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	
GV	≥520	-	≥35	-	
Typical	592	-	42	-	

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	80~140	250~350	350~450	400~500

## X-ray Inspection: I

### Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER309**

**AWS A5.9 ER309**

**Description:** ER309 is a stainless steel wire, it is used for automatic submerged arc welding combining with flux SJ261.

**Application:** For welding Cr24Ni13 stainless steel, the weld metal shows a good heat resistance & corrosion resistance feature. Also it is widely used in dissimilar steels.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Mo	Cu
GV	≤0.12	1.0~2.5	0.3~0.65	≤0.03	≤0.03	12.0~14.0	23.0~25.0	≤0.75	≤0.75
Typical	0.078	1.65	1.52	0.019	0.018	1月11日	24.2	0.16	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	
GV	≥550	-	≥30	-	
Typical	586	-	37	-	

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	4000~500

## X-ray Inspection: I

### Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER309L**

**AWS A5.9 ER309L**

**Description:** ER309L is a extra low carbon stainless steel wire, it is used for automatic submerged arc welding combining with flux SJ601.

**Application:** for welding extra low carbon Cr25Ni12 stainless steel . It could be used for root welding too.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Mo	Cu
GV	≤0.03	1.0~2.5	0.3~0.65	≤0.03	≤0.03	12.0~14.0	23.0~25.0	≤0.75	≤0.75
Typical	0.019	1.68	0.53	0.019	0.018	12.86	24.52	0.10	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	
GV	≥520	-	≥30	-	
Typical	592	-	38	-	

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	4000~500

## X-ray Inspection: I

## Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER316**

**AWS A5.9 ER316**

**Description:** ER316 is a stainless steel wire, it is used for automatic submerged arc welding combining with flux SJ601.

**Application:** For welding Cr18Ni12Mo2 stainless steel. The weld metal has very good heat crack resistance character.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Mo	Cu
GV	≤0.08	1.0~2.5	0.3~0.65	≤0.03	≤0.03	11.0~14.0	18.0~20.0	2.0~3.0	≤0.75
Typical	0.079	1.61	0.49	0.019	0.018	9.56	19.92	0.10	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)
GV	≥520	-	≥30	-
Typical	582	-	38	-

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	4000~500

## X-ray Inspection: I

### Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER316L**

**AWS A5.9 ER316L**

**Description:** ER316L is a extra low carbon stainless steel wire, it is used for automatic submerged arc welding combining with flux SJ601.

**Application:** For welding Cr18Ni12Mo2 stainless steel. The weld metal has very good heat crack resistance character.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Mo	Cu
GV	≤0.03	1.0~2.5	0.3~0.65	≤0.03	≤0.03	11.0~14.0	18.0~20.0	2.0~3.0	≤0.75
Typical	0.021	1.61	0.49	0.019	0.018	9.56	19.92	0.10	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)
GV	≥490	-	≥ 30	-
Typical	567	-	38	-

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	4000~500

## X-ray Inspection: I

### Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · ER310**

**AWS A 5.9 ER310**

**Description:** ER310 is a extra low carbon stainless steel wire, it is used for automatic submerged arc welding combining with flux SJ601.

**Application:** for welding extra low carbon Cr18Ni12Mo2 stainless steel. The weld metal has excellent heat crack resistance corrosion resistance character.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni	Cr	Mo	Cu
GV	0.09~0.15	1.0~2.5	0.3~0.65	≤0.03	≤0.03	20.0~22.5	25.0~28.0	-	≤0.75
Typical	0.079	1.72	0.51	0.019	0.018	20.8	26.22	-	0.11

## Mechanical Properties of Deposited Metal

※GV=Guarantee Value

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)	
GV	≥550	-	≥30	-	
Typical	576	-	36	-	

## Size & Recommended Current (AC/DC)

※WA(A)=Welding Current (A)

Dia(mm)	φ2.5	φ3.2	φ4.0	φ5.0
Current(A)	200~250	250~350	350~450	4000~500

## X-ray Inspection: I

## Instruction

- ①The wire should be kept in dry place.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before.



## Gas-shielded Flux-cored Welding Wire

**GB/T10045**  
**AWS A5.20**

Description: Gas-shielded flux-cored welding wire was gradually developed in the 1970s. Due to its high efficiency, energy saving, excellent welding performance, high quality, low comprehensive cost (only 1/2 of that of manual electrode, 1/3 of that of submerged-arc welding wire and 90% of that of CO<sub>2</sub> solid welding wire) and less spatters, it has become a new generation of welding materials in the 21st century. It is worth mentioning that the chemical composition can be adjusted according to the requirements.

### INDEX OF GAS-SHIELDED FLUX-CORED WELDING WIRE

WH·YJ501-1	.....	02
WH·YJ551Ni-1	.....	03

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · YJ501T-1**

**GB/T 10045 E501T-1  
AWS A5.20 E71T-1**

**Description:** It is a kind of gas-shielded flux-cored welding wire for low-carbon steel and 490MPa high strength steel. JQ.YJ501-1 is a kind of titania type CO<sub>2</sub> gas-shielded flux-cored welding wire. It has excellent welding performance, soft and stable arc, fewer spatters, good slag detachability and beautiful appearance of weld. Suitable for downhand welding and horizontal welding. All-position welding. It has high welding efficiency. The weld metal has been given toughening treatment by microelements, so it has excellent low temperature toughness, good crack-resistance and stable and reliable inherent quality.

**Application:** Used for welding structures made of carbon steel and low-alloy structural steel with tensile strength higher than or equal to 490MPa. Most widely used for welding some key structures like shipbuilding, mechanical manufacture, pressure vessels, boilers, petroleum machinery, chemical machinery, hoisting machinery, etc.

## Chemical Composition of Deposited Metal(%) (CO<sub>2</sub> Shielding Gas)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P				
GV	≤0.18	≤1.75	≤0.90	≤0.030	≤0.030				
Typical	≤0.05	≈1.46	≤0.42	≤0.010	≤0.017				

## Mechanical Properties of Deposited Metal

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	KV <sub>2</sub> (J)	
GV	≥480	≥400	≥22	≥27(-20℃)	
Typical	580	480	27	128	

## Diameter, Recommended Current (DC+)

Wire Diameter(mm)		φ1.2	φ1.4	φ1.6
Current (A)	Downhand Welding	120~300	150~400	180~450
	Vertical Upward Welding and Overhead Position Welding	120~260	150~270	180~280
	Vertical Down Welding and Overhead Position Welding	200~300	220~300	250~300
	Horizontal Welding	120~280	150~320	180~350

## Instruction

- ① The oil stains and rust on the weldments should be cleared away.
- ② When welding, the gas flow rate is generally 20~25L/min.
- ③ When welding with flux-cored welding wires, the extension elongation should be 15~25mm.
- ④ The humidity of the welding wire storerooms should be preserved below 60%.
- ⑤ It is not suitable for non-vacuum-packed welding wires to be stored for more than half a year, and it is not suitable for vacuum-packed welding wires to be stored for more than a year.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · YJ551Ni-1**

**GB/T 17493 E551T1-Ni1**

**AWS A5.29 E81T1-Ni1**

**Description:** It is a kind of gas-shielded flux-cored welding wire for low temperature steel and low-alloy steel. JQ.YJ551Ni-1 is a kind of titania type CO<sub>2</sub> gas-shielded flux-cored welding wire. It has excellent welding performance, soft and stable arc, fewer spatters, good slag detachability and beautiful appearance of weld. Suitable for downhand welding and horizontal welding. All-position welding. It has high welding efficiency. The weld metal has been given toughening treatment by microelements, so it has excellent low temperature toughness above -40°C and good crack-resistance.

**Application:** Used for welding structures made of low temperature steel and low-alloy structural steel. Widely used for welding some key structures like shipbuilding, mechanical manufacture, pressure vessels, storage tanks, petroleum machinery, chemical machinery, ocean structures, etc.

## Chemical Composition of Deposited Metal(%) (CO<sub>2</sub> Shielding Gas)

※GV=Guarantee Value

Test Item	C	Mn	Si	S	P	Ni			
GV	≤0.12	≤1.50	≤0.80	≤0.030	≤0.030	0.80~1.10			
Typical	0.06	≈1.18	0.38	0.009	≤0.017	≈0.90			

## Mechanical Properties of Deposited Metal

Test Item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)	AKV(J)
GV	≥550	≥470	≥19	≥27(-30°C)	-(-40°C)
Typical	590	502	27	145	120

## Diameter, Length & Recommended Current (AC/DC)

Wire Diameter(mm)		φ1.2	φ1.4	φ1.6
Current (A)	Downhand Welding	120~300	150~400	180~450
	Vertical Up Welding and Overhead Position Welding	120~260	150~270	180~280
	Vertical Down Welding and Overhead Position Welding	200~300	220~300	250~300
	Horizontal Welding	120~280	150~320	180~350

## Instruction

- ① The oil stains and rust on the weldments should be cleared away.
- ② When welding, the flow rate is generally 20~25L/min.
- ③ When welding with flux-cored welding wires, the extension elongation should be 15~25mm.
- ④ The humidity of the welding wire storerooms should be preserved below 60%.
- ⑤ It is not suitable for non-vacuum-packed welding wires to be stored for more than half a year, and it is not suitable for vacuum-packed welding wires to be stored for more than a year.



**Fused Flux**

**GB/T 12470  
AWS A5.17**

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WH·HJ431

.....02

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · HJ431**

**GB/T 12470 F4A2-H08A**

**AWS A5.17 F6A0-EL12**

**Description:** WH·HJ431 is a kind of smelting-type, red brown to light yellow colored, glassy granulated flux with high manganese and silicon but low fluorine, mesh 8-14(2.5-1.5mm), 8-40(2.5-0.45mm) and 14-40(1.5-0.45mm) and 14-40(1.5-0.45mm). Either alternating or direct current can be used and welding wires must be connected with the positive electrode when direct current is used. The welding performance is good.

**Application:** If used together with appropriate wires (such as H08A, H08MnA and H08MnSi), they can be used for low carbon steel and some low alloy steel like 16Mn and 15MnV, as well as ships, boilers and high pressure vessels. And it also can be used for electro-slag and copper welding.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	S	P	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> +MgO	CaO+MgO	CaF <sub>2</sub>
GV	≤0.06	≤0.08	40-44	35-42	7-14	3-7

## Mechanical Properties of Deposited Metal

Test item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)			
				Room Temperatur	0℃	-20℃	-40℃
Flux used together							
H08A(EL12)	410-550	≥330	≥22	≥50	≥27	-	-
H08MnA(EM12)	500-600	≥400	≥22	≥50	≥27	-	-
H08MnSi	580-680	≥440	≥20	≥50	≥27	-	-

## Instruction

- ①The fluxes should be baked under 300~350℃ for 2 hours before using.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.



## Sintered Flux

GB/T 12470  
AWS A5.17

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# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · SJ101**

**GB/T 12470-90**

**AWS A5.17 E7A0-EA2-A2**

**Description:** WH-SJ101 is a kind of fluoride-basic type sintered flux. The alkalinity is approximately 1.8. Gray round grains. The granularity is 2.0~0.28mm (10~60 meshes/inch). When welding, the arc has stable burning. It has good slag detachability and beautiful appearance of weld. The deposited metal has higher low temperature impact toughness. AC/DC. When welding with direct current, the wire should be connected to the positive terminal.

**Application:** If used together with appropriate wires (such as H08MnA, H10Mn2, H08MnMoA, H08A, H08Mn2MoA, etc.). Able to be used for welding many kinds of low-alloy structural steel, such as hulls, boiler pressure vessels, pipelines, etc., they can be used for multi-layer welding, single pass welding by both sides, multi-wire welding and narrow-gap submerged-arc welding.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	S	P	SiO <sub>2</sub> +TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> +MgO	CaO+MgO	CaF <sub>2</sub>
GV	≤0.05	≤0.05	15-20	25-30	25-30	15-20

## Mechanical Properties of Deposited Metal

Test item Flux used together	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)			
				Room Temperat	0°C	-20°C	-40°C
H08MnA(EM12)	415-550	≥330	≥22	≥27	≥110	≥27	-
H10Mn2(EH14)	480-650	≥400	≥22	≥28	≥110	≥80	≥27
H08MnMoA	550-650	≥420	≥20	≥29	≥70	≥34	-
H08A(EL12)	410-550	≥330	≥22	≥30	≥110	≥27	-
H08Mn2MoA	620-750	≥500	≥20	≥31	≥70	≥34	-

## Instruction

- ①The fluxes should be baked under 300~350°C for 2 hours before using.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · SJ301**

**GB/T 12470 F4A2-H08A**

**GB/T 12470 F5A2-H08MnA**

**AWS A5.17 F6A2-EL8 F7A2-EM12**

**Description:** WH·SJ301 is a kind of calcium-silicate type sintered flux. The alkalinity is approximately 1.0. Black round grains. The granularity is 2.0~0.28mm (10~60 meshes/inch). It has excellent welding performance, stable arc, good slag detachability and beautiful appearance of weld. One of the physical characteristics of the slags is short slags. In submerged-arc welding with short arc, the slag does not fall off, which is especially suitable for welding all kinds of circumferential seams. AC/DC. When welding with direct current, the wire should be connected to the positive terminal.

**Application:** If used together with appropriate wires (such as H08A, H08MnA and H08MnMoA), they can be used for welding general structural steel, boiler steel, pipeline steel, etc. Able to be used for multi-pass welding, single pass welding by both sides and multi-wire welding. Especially suitable for welding pipelines with all kinds of diameters.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	S	P	SiO <sub>2</sub> +TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> +MgO	CaO+MgO	CaF <sub>2</sub>
GV	≤0.06	≤0.08	25-35	30-40	15-25	5-15

## Mechanical Properties of Deposited Metal

Test item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)			
				Room Temperatu	0℃	-20℃	-40℃
Flux used together							
H08A(EL12)	415-550	≥330	≥24	≥70	≥50	≥27	-
H08MnA(EM12)	530-630	≥400	≥24	≥70	≥50	≥27	-
H08MnMoA	600-700	≥480	≥20	≥60	≥50	≥27	-

## Instruction

- ①The fluxes should be baked under 300~350℃ for 2 hours before using.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.

# ANQIU SAN KIN YIP DENG FENG WELDING MATERIAL CO., LTD.



**WH · SJ501**

**GB/T 12470 F4A0-H08A**

**AWS A5.17 F6A0-EL8**

**Description:** WH-SJ501 is a kind of aluminate-rutile type acid sintered flux. The alkalinity is approximately 0.5~0.8. Round grains. The granularity is 2.0~0.28mm (10~60 meshes/inch). It has excellent welding performance, stable arc, good slag detachability, beautiful appearance of weld and stronger blowhole-resistance. It is not sensitive to a small quantity of rust and high temperature oxide films. AC/DC. When welding with direct current, the wire should be connected to the positive terminal.

**Application:** If used together with appropriate wires (such as H08A, H08MnA and H08MnMoA), they can be used for welding low-carbon steel and low-alloy steel structures, such as ships, boilers, pressure vessels. Especially suitable for high speed welding on thin plates.

## Chemical Composition of Deposited Metal(%)

※GV=Guarantee Value

Test item	S	P	SiO <sub>2</sub> +TiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub> +MgO	CaO+MgO	CaF <sub>2</sub>
GV	≤0.06	≤0.08	25-35	50-60	-	3-10

## Mechanical Properties of Deposited Metal

Test item	Rm(MPa)	ReL(Mpa)	A(%)	AKV(J)			
				Room Temperatur	0℃	-20℃	-40℃
Flux used together							
H08A(EL12)	410-550	≥330	≥22	≥50	≥27	-	-
H08MnA(EM12)	500-600	≥400	≥22	≥50	≥27	-	-
H08MnMoA	580-680	≥440	≥20	≥50	≥27	-	-

## Instruction

- ①The fluxes should be baked under 300~350℃ for 2 hours before using.
- ②The stains on the weldments, such as rust, oil stains, moisture, etc., must be cleared away before welding.