

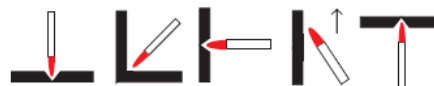
Electrode: Nickel Based Alloy

WE-N647



Welding Position

Classification	AWS A5.11M ENiCrCu-7
	EN E Ni 4060



Application and Properties:

WE-N647 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 66%Ni, 30%Cu, 3%Mn, 1%Fe, and nickel-copper alloy. It provides stable arc, good appearance, little spatter, easy slag removal, excellent porosity resistance, and stable mechanical property of deposited metal. It is suitable for nickel-copper alloy, dissimilar metals welding of joining steel to nickel-copper alloy and surfacing on the steel.

Notes on Usage:

1. Dry the stick electrode at 350 – 400°C for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cu	Ni	Fe	P	S	Ti
AWS	0.15	4.0	1.5	27.0-34.0	≥62	2.5	0.02	0.015	1.0
Type Value	0.036	3.20	0.61	29.3	65.3	0.54	0.011	0.008	0.18

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	480	30	-
Type Value	-	520	44	-

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6×350	3.2×350	4.0×350
Current/Amp	F	60-90	80-115	110-150
	V, OH	55-85	75-100	-

Electrode: Nickel Based Alloy



WE-N653

Welding Position

Classification	AWS A5.11M ENiCrMo-3
	EN E Ni 6625



Application and Properties:

WE-N653 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 60%Ni, 22%Cr, 9%Ni, 5%Fe, 3.5%Nb+Ta, and provides stable arc, good appearance, little spatter, easy slag removal, excellent porosity resistance, and consistent mechanical property of deposited metal. It is suitable for the equipment of nuclear project and vitriol, nitric acid, and hydrofluoric acid.

Notes on Usage:

1. Dry the stick electrode at 350 – 400°C for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.
7. Keep short arc length when welding. To avoid blowholes when striking arc, please use backstep method welding technique during welding process.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	Nb+Ta	Mo
AWS	0.10	2.0	0.8	20.0-23.0	≥55	7.0	0.02	0.015	3.0-4.2	8.0-10.0
Type Value	0.06	0.80	0.28	20.38	61.52	4.26	0.012	0.009	3.21	8.55

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	760	30	-
Type Value	-	780	38	70/-196

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6×350	3.2×350	4.0×350
Current/Amp	F	60-90	70-115	95-145

Electrode: Nickel Based Alloy

WE-N654



Welding Position

Classification	AWS A5.11M ENiCrMo-4
	EN E Ni 6276



Application and Properties:

WE-N654 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 57%Ni, 15.5%Cr, 5.5%Fe, 4%W, low carbon, and provides excellent mechanical property, good heat resistance, good porosity resistance, and good corrosion resistance. Excellent performance in good bead appearance, less spatter, easy slag removal, and stable arc are obtainable. It is suitable for the welding of NiCrMo-alloy steel.

Notes on Usage:

1. Dry the stick electrode at 350 – 400°C for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	W	Mo
AWS	0.02	1.0	0.2	14.5-16.5	≥50	4.0-7.0	0.02	0.015	3.0-4.5	15.0-17.0
Type Value	0.013	0.71	0.15	16.52	Bal.	5.51	0.013	0.011	3.34	16.51

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	690	25	-
Type Value	-	730	40	-

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6×350	3.2×350	4.0×350
Current/Amp	F	60-90	70-115	90-145

Electrode: Nickel Based Alloy

WE-N656



Welding Position

Classification	AWS A5.11M ENiCrMo-6
	EN E Ni 6620



Application and Properties:

WE-N656 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 65%Ni, 14.5%Cr, 7%Mo, 7%Fe, 3%Mn, 1.5%W, 1.5%Nb+Ta, and provides good appearance, less spatter, easy slag removal, excellent porosity resistance, stable mechanical property of deposited metal. It is suitable for 9%Ni steel.

Notes on Usage:

1. Dry the stick electrode at 350 – 400°C for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	W	Mo
AWS	0.10	2.0-4.0	1.0	12.0-17.0	≥55	10	0.02	0.015	1.0-2.0	5.0-9.0
Type Value	0.029	2.4	0.50	14.51	66.8	5.52	0.013	0.009	1.71	16.51

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J°C
AWS	-	620	20	-
Type Value	-	700	42	-

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6×350	3.2×350	4.0×350
Current/Amp	F	80-130	120-160	160-220
	V, OH	70-110	80-120	-

Electrode: Nickel Based Alloy



WE-N681

Welding Position

Classification	AWS A5.11M ENiCrFe-1
	EN E Ni 6062



Application and Properties:

WE-N681 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 70%Ni, 15%Cr, 8%Fe, 3.5%Mn, 2.5%Nb+Ta, and provides excellent mechanical property, good heat resistance, good corrosion resistance and good porosity resistance for service temperature from -196°C to 980°C . Excellent performance in good bead appearance, less spatter, easy slag removal and stable arc are obtainable. It is suitable for the welding of NiCrFe-alloy steel.

Notes on Usage:

1. Dry the stick electrode at $350 - 400^{\circ}\text{C}$ for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	Nb+Ta
AWS	0.08	3.5	0.75	13.0-17.0	≥ 62	11.0	0.03	0.015	1.5-4.0
Type Value	0.052	3.21	0.21	14.65	70.20	9.19	0.012	0.008	2.23

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	550	30	-
Type Value	-	620	46	80/-196

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6×350	3.2×350	4.0×350
Current/Amp	F	60-90	70-120	110-150
	V, OH	55-80	65-110	80-130

Electrode: Nickel Based Alloy

WE-N682



Welding Position

Classification	AWS A5.11M ENiCrFe-2
	EN E Ni 6133



Application and Properties:

WE-N682 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 70%Ni, 15%Cr, 8%Fe, 2%Mn, 2%Nb+Ta, 1.5%Mo, and provides excellent mechanical property, good crack resistance for service temperature from -196°C to 980°C . Excellent performance in good X-ray soundness, good bead appearance, less spatter, easy slag removal and stable arc are obtainable. It is suitable for the welding of NiCrFe-alloy steel, dissimilar metals welding of joining, and creep resistant low-alloy steel joints.

Notes on Usage:

1. Dry the stick electrode at $350 - 400^{\circ}\text{C}$ for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	Nb+Ta
AWS	0.10	1.0-3.5	0.75	13.0-17.0	≥ 62	12.0	0.02	0.015	0.5-3.0
Type Value	0.075	1.45	0.34	14.35	69.12	9.23	0.012	0.009	1.78

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	550	30	-
Type Value	-	610	41	80/-196

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6x350	3.2x350	4.0x350
Current/Amp	F	60-90	70-120	110-150
	V, OH	55-80	65-110	80-130

Electrode: Nickel Based Alloy

WE-N683



Welding Position

Classification	AWS A5.11M ENiCrFe-3
	EN E Ni 6182



Application and Properties:

WE-N683 is a Nickel base electrode for DC and the welding can be done in all position with the diameter under 3.2mm. The nominal composition of the weld includes 65%Ni, 15%Cr, 8%Fe, 7.5%Mn, 2%Nb+Ta, and provides excellent mechanical property, good heat resistance, good porosity resistance, good oxidization resistance and good corrosion resistance for service temperature from -196°C to 980°C . Excellent performance in good bead appearance, less spatter, easy slag removal and stable arc are obtainable. It is suitable for the welding of NiCrFe-alloy steel, dissimilar metals welding of joining, and creep resistant low-alloy steel joints.

Notes on Usage:

1. Dry the stick electrode at $350 - 400^{\circ}\text{C}$ for one hour before use.
2. Clean up the contaminations on the base metal and welding seam.
3. Reduce heat input as possible, and while welding with weave method, moving range should be controlled within 2.5 times of the wire's diameter
4. Notice the travel speed to prevent from slag inclusion.
5. Keep the inter-pass temperature under 100°C
6. Filling the crater after welding to avoid from crater cracks. Grinding with the Grinder if the crack exists and then continue welding.

Chemical Composition of Deposited Metal:

Element wt%	C	Mn	Si	Cr	Ni	Fe	P	S	Nb+Ta
AWS	0.10	5.0-10.0	1.0	13.0-17.0	≥ 60	10.0	0.02	0.015	1.0-2.5
Type Value	0.06	6.15	0.50	14.21	67.4	9.25	0.014	0.010	1.69

Mechanical Properties of Deposited Metal:

	Yield Stress MPa	Tensile Strength MPa	Elongation %	Charpy V-notch J/°C
AWS	-	550	30	-
Type Value	-	625	40	70/-196

Size Available and Recommended Parameter:

Diameter and Size/mm		2.6x350	3.2x350	4.0x350
Current/Amp	F	60-90	70-115	90-145
	V, OH	55-80	65-110	85-135