Nickel-Chromium Alloy Welding Wire

Nickel-Chromium
Alloy Welding Wire

AWS A 5.14.ERNiCr-4

DA YANG
OCEAN WELDING

Characteristics：

INCONEL72 welding wire is mainly used for gas tungsten arc welding to coat INCONE671 alloy on the surface of INCO-CLAD and 671/800HT pipes. It can also be used for surfacing on carbon steel and stainless steel surfaces to form a corrosion-resistant surface layer of nickel-chromium alloy. The high chromium component makes it have excellent high-temperature corrosion resistance, including resistance to corrosion in fuel dust atmospheres containing sulfur and vanadium.

Application：

1. Mainly used for welding nickel-chromium-molybdenum alloys, such as for welding corrosion-resistant alloy pipes in the fields of petrochemicals and marine engineering.
2. Suitable for welding dissimilar metals, such as the connection between nickel alloys and stainless steel.
3. A nickel-chromium alloy layer can be welded on the surface of carbon steel or low-alloy steel to enhance the corrosion resistance and wear resistance of equipment components.

Power polarity:DC-

Chemical composition.

Item	Ni	Cr	Ti	Fe	S	Si	Cu
AWS Standard	55	44	0.6	0.2	0.008	0.1	0.2

Mechanical properties.

Mechanical properties	Yield strength MPa	Tensile strength MPa	Elongation %
AWS Standard	**496**	**731**	**30**

Welding Requirements.

1. Clean the dirt, prepare materials, and make grooves before welding.
2. Choose the right welding method, adjust the parameters, protect the gas, and control the temperature.
3. Clean the seam, check the appearance, and perform inspection and heat treatment as needed after welding.

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Nickel-Chromium Alloy Welding Wire

AWS A5.14.ERNiCr-3

DA YANG OCEAN WELDING

Characteristics：

MIG welding wire is suitable for welding a variety of materials, such as nickel-based alloys, heat-resistant low-temperature materials, etc. It can form high-quality joints, covering low-alloy, difficult-to-weld steels and dissimilar joints. It has a wide temperature range from -196° C to +550° C pressure vessel structure. It is also resistant to thermal shock, with high quality of welding wire and weld metal and suppressed carbon diffusion.

Application：

1. AWS A5.14 ERNiCr - 3 is commonly used for welding nickel-based alloys, such as Inconel 600 series materials. In the aerospace field, it is used for the manufacture of engine components to ensure the integrity of the structure under high temperature environments.
2. In the chemical industry, it is suitable for the welding of corrosion-resistant pipelines and reactors, and can cope with the erosion of various strong acid and alkali media to ensure the long-term stable operation of the device.
3. In marine engineering, it is used to connect seawater desalination equipment components. With its excellent corrosion resistance and mechanical properties, it can resist seawater erosion and salt corrosion and extend the service life of the equipment.

Power polarity:DC-

Chemical composition.

Item	C	Si	Mn	Cr	Ni	Ti	Nb	Fe
AWS Standard	0.02	0.1	3.1	20.5	bal	+	2.6	≤1.0

Mechanical properties.

Mechanical properties	Yield strength MPa	Tensile strength MPa	Elongation %
AWS Standard	**420**	**680**	**40**

Welding Requirements.

1. Before welding: thoroughly clean the impurities on the weldment and welding wire surface, and polish the groove to make it bright.
2. During welding: GTAW or GMAW can be selected, adjust the current and voltage according to the situation, use appropriate protective gas and control the flow rate, and strictly control the interpass temperature at 100-150℃.
3. After welding: clean slag and spatter, check the appearance, and perform non-destructive testing and heat treatment as needed.

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Nickel-Chromium Alloy Welding Wire

AWS A5.14. ERNiCr-6

DA YANG OCEAN WELDING

Characteristics：

1.ERNiCr-6 welding wire has excellent corrosion resistance, especially in environments containing chloride ions, and can effectively resist pitting and crevice corrosion. Its high chromium and nickel content further improves the corrosion resistance in fluorine-containing acidic environments.

2.ERNiCr-6 welding wire has excellent welding process, stable arc, beautiful shape, less spatter, and is suitable for a variety of welding processes.

3.ERNiCr-6 welding wire has high yield strength and tensile strength, and can withstand large mechanical loads.

Application：

1. Suitable for the manufacture of pressure vessels with an operating temperature range of -196℃ to +650℃, and anti-oxidation peeling within +1200℃ (sulfur-free conditions).

2. Suitable for welding of nickel-based alloys, high-temperature creep-resistant steels, heat-resistant steels and low-temperature steels, dissimilar steels, etc.

3. Widely used in industries such as petrochemicals, metallurgy, atomic energy, marine development, aviation, and aerospace to solve engineering corrosion problems that cannot be solved by general stainless steel and other metal and non-metal materials.

Power polarity:DC+

Chemical composition.

Item	C	Mn	Fe	p	S	Si	Cu	Ni	Cr
AWS Standard	0.08max	2.0-2.7	8.0max	0.03max	0.015max	0.35max	0.5max	67.0min	14.0-17.0
Item	Ti								
AWS Standard	2.5-3.5								

Mechanical properties.

Mechanical properties	Yield strength MPa	Tensile strength MPa	Elongation %
AWS Standard	≥479 MPa	≥234 MPa	≥21%

Welding Requirements.

1. The arc length is generally controlled at about 4-6 mm.
2. When the wind speed is greater than 0.5 m/s, wind protection measures should be adopted.
3. It is recommended to use high-purity argon (more than 99.99%) as the shielding gas, and the shielding gas flow rate should be 15-25 L/min.

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