

## Thoriated Tungsten Electrodes

Thoriated Tungsten Electrode is the most commonly used electrodes today, it is often been used for DC welding of carbon steel, stainless steel and titanium alloys.

The comprehensive performance of Thoriated Tungsten Electrode is very good. The electron emission is strong and the electron work function is 2.7eV, it can facilitate the arc starting, increase arc stability and improve current-carrying capacity of the rod. Furthermore, thoriated tungsten electrode can bear long time working with high current load ability and stable arc.

The only disadvantage of Thoriated Tungsten Electrode is slight radioactive pollution.



## SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impuritiars(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Thoriated Tungsten Electrodes	WT20/EWTh-2	1.0-10mm*150/175mm	ThO <sub>2</sub>	1.70-2.20	≤0.10	The rest	18.15	2.0-3.0	Red

## Pure Tungsten Electrode

The Pure Tungsten Electrode is not typical for DC welding because it does not provide the strong arc starting comparing with Thoriated Tungsten Electrode. It is suitable for AC welding of Magnesium, aluminum and aluminum alloys.

The original Green Pure Tungsten Electrode contain at least 99.5% tungsten and have the highest consumption rate of all electrodes. It has very high melting point and billing point, its evaporation and burning loss are less than other tungsten electrodes too.



## SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impuritiars(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Pure Tungsten Electrodes	WP/EWP	1.0-10mm*150/175mm	/	/	≤0.10	The rest	19.1-19.2	4.5	Green

## Lanthanum Tungsten Electrode

The Lanthanum Tungsten Electrode becomes very popular in the welding because of its good welding performance. Its current conduction is most similar to Thoriated Tungsten Electrode but it has no radioactive pollution. So, the Lanthanum Tungsten Electrode is the best tungsten electrode to replace Thoriated Tungsten Electrode without any changes about welding process. It is very good used for both DC and AC welding and it is suitable for welding of non alloy steels and alloys of aluminum, steel, titanium, nickel, copper and magnesium, it is also to be used in micro-plasma welding.



### SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impurities(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Lanthanated Tungsten Electrodes	WL15/EWLa-1.5 WL10/EWLa-1	1.0-10mm*150/175mm	La <sub>2</sub> O <sub>3</sub>	0.8-1.70	≤0.10	The rest	18.40-18.80	2.6-3.0	Gold Black
	WL20/EWLa-2			1.80-2.20			18.4-18.6	2.8-3.2	Sky Blue

## Zirconiated Tungsten Electrode

Zirconiated Tungsten Electrode has nice welding performance under AC welding process. It retains a balled end during welding with good permeation and good corrosion resistance. The arc is more stable than Pure Tungsten electrodes, specially under high current load welding condition. It can not be replaced by another tungsten electrodes in terms of its excellent performance. This electrode is suitable for magnesium, aluminum and their alloy.



### SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impurities(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Zirconiated Tungsten Electrodes	WZ8/EWZr-8 WZ3/EWZr-1	1.0-10mm*150/175mm	ZrO <sub>2</sub>	0.15-0.90	≤0.10	The rest	18.4-18.8	2.5-3.0	White Brown

## Yttriated Tungsten Electrode

Yttriated Tungsten Electrode produces a slim arc and a level of compression during welding, specially under medium and high current welding. It is mainly applied in military and astronautic industries.



## SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impurities(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Yttriated Tungsten Electrodes	WY20/EWY-2	1.0-10mm*150/175mm	Y <sub>2</sub> O <sub>3</sub>	1.80-2.20	≤0.10	The rest	18.4-18.6	2.0-3.9	Blue

## Ceriated Tungsten Electrode

Ceriated Tungsten Electrode is a non-radioactive tungsten electrode alloyed with cerium oxide, it can improve the circumstance of labor protection. The compression strength of arc beam is narrower, more concentrated and more stable. It is very easy to generate arc and keep arc stable with low current. So Ceriated Tungsten Electrode is very popular with low current welding, specially used for orbital tube, pipe and small article welding, intermittent welding and quantitative welding.



## SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impurities(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Ceriated Tungsten Electrodes	WC20/EWCe-2	1.0-10mm*150/175mm	CeO <sub>2</sub>	1.80-2.20	≤0.10	The rest	18.20-18.30	2.6-2.8	Grey

## Multi-compound Tungsten Electrode

The performance of the new type of tungsten electrodes in welding can be improved very much by adding two or more rare earth oxides. The composite electrode has superior arc starting and better ignition than 2% Thoriated Tungsten Electrode, it starts faster and maintains a stable arc. This electrode can be used in both AC and DC welding process, and it runs colder and extend tip life, it is a good choice for the environment and safer for the work condition because it is a non-radioactive tungsten electrode.



## SPECIFICATIONS

Model	Mark	Specification	Added Oxide	Mass Percent(%)	Impurities(%)	Tungsten(%)	Density	Work Function(eV)	Color Code
Multi-compound Tungsten Electrodes	WX WE3/EWG WXR3	1.0-10mm*150/175mm	CeO <sub>2</sub> La <sub>2</sub> O <sub>3</sub> Y <sub>2</sub> O <sub>3</sub> ZrO <sub>2</sub> /etc	0.8-4.2	≤0.10	The rest	18.3-18.5	2.4-3.0	Turquoise Purple Grass Green