

Applications of Tungsten Electrodes

Type	Brand	Color	Chemical Composition (%)			Sizes(m m)	Surface	Features
			Rare Earth	Impurities	W			
Pure Tungsten Electrode	WP	Green	—	≤0.05	the rest	0.8~15	D,E G,S	Non-radioactive; suitable for AC welding of aluminum, magnesium, and their alloy
Thoriated Tungsten Electrode	WTh10	Yellow	0.9~1.1ThO ₂	≤0.05	the rest	0.8~15	D,E G,S	Excellent electron emission and overall performances; high current-carrying capacity; radioactivity; suitable for DC welding of carbon steel, stainless steel, nickel alloy and titanium alloy.
	WTh20	Red	1.8~2.2ThO ₂	≤0.05	the rest	0.8~15		
Lanthanum Tungsten Electrode	WLa10	Black	0.8~1.2La ₂ O ₃	≤0.05	the rest	0.8~15	D,E G,S	Non-radioactive; excellent electric conductivity and welding capacity; high current-carrying capacity; minimum ratio of burnt area; substitute for thoriated tungsten electrode; mainly used in DC welding.
	WLa15	Golden Yellow	1.3~1.7 La ₂ O ₃	≤0.05	the rest	0.8~15		
	WLa20	Blue	1.8~2.2 La ₂ O ₃	≤0.05	the rest	0.8~15		
Cerium Tungsten Electrode	WCe10	Pink	0.8~1.2CeO ₂	≤0.05	the rest	0.8~15	D,E G,S	Non-radioactive; easier arc initiation under low current circumstances, and low arc-maintaining current; suitable for the welding of pipelines, small components and discontinuous welding.
	WCe15	Orange	1.3~1.7CeO ₂	≤0.05	the rest	0.8~15		
	WCe20	Grey	1.8~2.2CeO ₂	≤0.05	the rest	0.8~15		
Yttrium Tungsten Electrode	WY20	Sky Blue	1.8~2.2Y ₂ O ₃	≤0.05	the rest	0.8~15	D,E G,S	Non-radioactive; long and slim arc beam with high compression; deeper burning groove under medium and high current circumstances.
Compound Tungsten Electrode Tri-compound Tungsten Electrode	WMX	Cyan	1.0~5.0MO _x	≤0.05	the rest	0.8~15	D,E G,S	Compound rare-earth tungsten electrode; different additives contributing to better performance of tungsten electrode

Note: D—As Drawn E—Electrolytic Polished G—Ground S—Swaged