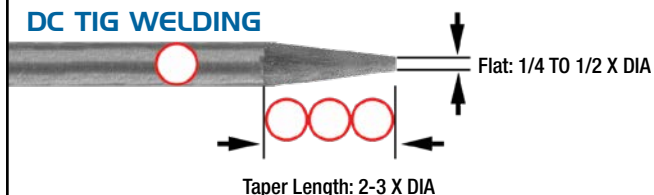
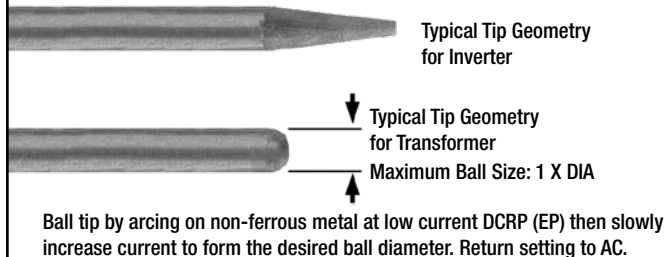


TUNGSTEN TIP PREPARATION

DC TIG WELDING

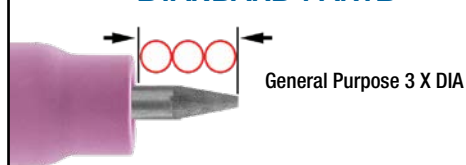


AC TIG WELDING

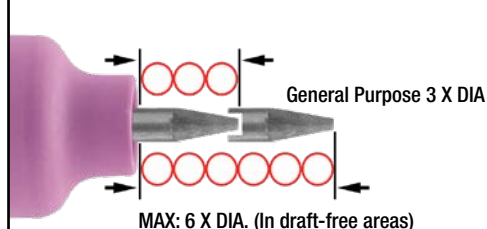


TUNGSTEN EXTENSION

STANDARD PARTS



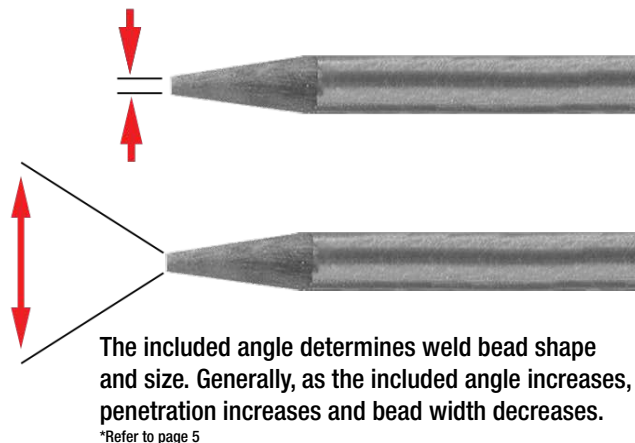
GAS LENS PARTS



TUNGSTEN GRINDING



- Grind longitudinally (never radially)
- Truncate (blunt) end
- Diameter of flat spot determines amperage capacity










*Refer to page 5

COLOR CODE FOR TUNGSTEN ELECTRODES

Designation		Chemical Composition Impurities $\leq 0.1\%$		TIP COLOR	
ISO 6848	AWS A5.12	OXIDE ADDITIVE	TUNGSTEN		
WT20	EWTh-2	ThO ₂ : 1.70–2.20%	2% THORIATED	Red	
WP	EWP	~~~~~	PURE	Green	
WL15	EWL _a -1.5	LaO ₂ : 1.30–1.70%	1.5% LANTHANATED	Gold	
WC20	EWCe-2	CeO ₂ : 1.80–2.20%	2% CERIATED	Gray	
WL20	EWL _a -2	La ₂ O ₃ : 1.80–2.20%	2% LANTHANATED	Blue	
WZ8	EWZr-8	ZrO ₂ : 0.70–0.90%	0.8% ZIRCONIATED	White	
LaYZr™	EWG	La ₂ O ₃ : 1.3–1.7%; Y ₂ O ₃ : 0.06–0.10%; ZrO ₂ : 0.6–1.0%	1.5% LANTHANATED 0.8% YTTRIATED 0.8% ZIRCONIATED	Chartreuse	

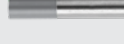


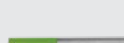







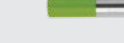



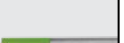


TUNGSTEN ELECTRODE CHARACTERISTICS



















Tungsten	Color Code	Characteristics
Pure	 Green	Provides good arc stability for AC welding. Reasonably good resistance to contamination. Lowest current carrying capacity. Least expensive. Maintains a balled end. Used on transformer based machines only.
2% Ceriated	 Gray	Similar performance to thoriated tungsten. Easy arc starting, good arc stability, long life. Possible replacement for thoriated.
2% Thoriated	 Red	Easier arc starting. Higher current capacity. Greater arc stability. High resistance to weld pool contamination. Difficult to maintain balled end on AC.
1.5% Lanthanated	 Gold	Similar performance to thoriated tungsten. Easy arc starting, good arc stability, long life, high current capacity. 1.5% possible replacement for thoriated. 2% possible replacement for Pure.
2% Lanthanated	 Blue	Similar performance to thoriated tungsten. Easy arc starting, good arc stability, long life, high current capacity. 1.5% possible replacement for thoriated. 2% possible replacement for Pure.
.8% Zirconiated	 White	Excellent for AC welding due to favorable retention of balled end, high resistance to contamination, and good arc starting. Preferred when tungsten contamination of weld is intolerable. Possible replacement for Pure.
LaYZr™	 Chartreuse*	Best for use on automated or robotic applications. Runs cooler than 2% Thoriated with longer life. Low to medium amperage range.

*Substitute for Purple (Same oxide blend).

TUNGSTEN ELECTRODE CURRENT RANGES

Tungsten Diameter in inches (mm)	Gas Cup (Inside Diameter)	TYPICAL CURRENT RANGE				
		Direct Current, DC	Alternating Current, AC			
		DCEN	70% Penetration		(50/50) Balanced Wave, AC	
		Ceriated  Thoriated  Lanthanated  LaYZr™ 	Zirconiated 	Ceriated  Thoriated  Lanthanated  LaYZr™ 	Zirconiated  Pure  LaYZr™ 	Ceriated  Thoriated  Lanthanated  LaYZr™ 
.040" (1.0mm)	#6 (3/8")	15–80 amps	20–60 amps	15–80 amps	10–30 amps	20–60 amps
1/16" (1.6mm)	#6 (3/8")	70–150 amps	50–100 amps	70–150 amps	30–80 amps	60–120 amps
3/32" (2.3mm)	#8 (1/2")	150–250 amps	100–160 amps	140–235 amps	60–130 amps	100–180 amps
1/8" (3.2mm)	#8 (1/2")	250–400 amps	150–200 amps	225–325 amps	100–180 amps	160–250 amps

All values are based on the use of Argon as a shielding gas. Other current values may be employed depending on the shielding gas, type of equipment, and application. DCEN = Direct Current Electrode Negative (Straight Polarity)

WELD PENETRATION PROFILE			
Gas Type	 30° Angle .005" FLAT	 60° Angle .010" FLAT	 90° Angle .020" FLAT
100Ar 100% Argon			
75Ar-25He 75% Argon 25% Helium			
50Ar-50He 50% Argon 50% Helium			
25Ar-75He 25% Argon 75% Helium			
100He 100% Helium			
95Ar-5H₂ 95% Argon 5% Hydrogen	