

# TECHNICAL INFORMATION

# RECOMMENDED TUNGSTEN ELECTRODES & SHIELDING GASES FOR TIG WELDING

## Tungsten Electrode Tip Preparation

### General Purpose

DCSP (EN) or DCRP (EP)

FLAT: 1/4 TO  
1/2 X DIA.



### General Purpose

ACHF



Ball tip by arcing on clean metal at low current on DCRP (EP), then slowly increase current to form desired ball diameter. Return setting to AC

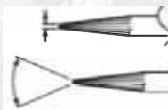
## Tungsten Electrode Grinding Preparation

Shape by grinding longitudinally, never radially! Remove the sharp point to leave a truncated point with a flat spot. Diameter off at spot determines the amperage capacity (see below).



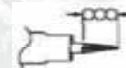
Use a medium (<60grit) aluminum oxide wheel.

The included angle determines weld bead shape and size. Generally, as the included angle increases, penetration increases and bead width decreases.



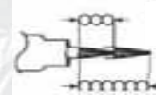
## Tungsten Electrode Tip Extension

### Standard Parts



General purpose  
3X dia

### With Gas Lens Cup Parts



General purpose  
3X dia

max 6x dia

In draft free areas

## Tungsten Electrode Tip Shapes and Current Ranges

Thoriated, ceriated and lanthanated tungsten electrodes maintain a point much better than the pure or zirconiated tungsten electrodes, which have a tendency to ball up when heated, and for this reason are typically used for DCSP welding. If used on AC, thoriated and lanthanated electrodes often split. Regardless of the electrode tip geometry selected, it is important that a consistent tip configuration be used once a welding procedure is established. Changes in electrode geometry can have a significant influence not only on the weld bead width and depth of penetration, but also on the electrical characteristics of the arc. Below is a guide for electrode tip preparation for a range of sizes with recommended current ranges.

	Electrode Diameter		Diameter at Tip		Constant Included Angle Degrees	Current Range Amps	Pulsed Current Range Amps
	MM	IN	MM	IN			
	1.0	0.040	0.125	0.005	12	5-15	5-25
	1.0	0.040	0.250	0.010	20	5-30	15-60
	1.6	1/16"	0.500	0.020	25	15-50	20-100
	1.6	1/16"	0.800	0.030	30	20-70	30-140
	2.3	3/32"	0.800	0.030	35	25-90	35-180
	2.3	3/32"	1.100	0.045	45	30-150	35-250
	3.2	1/8"	1.100	0.045	60	35-200	40-300
	3.2	1/8"	1.500	0.060	90	40-250	40-350