



# Tungsten Electrodes

**Nippon Sanso Matheson** is pleased to offer **E3 Tungsten Electrodes**. *These electrodes outperform other tungsten electrodes.*

**MATHESON Select® E3 Tungsten Electrodes** deliver superior arc starting, electrode lifetime, and overall cost-effectiveness. Users of 2% thoriated tungsten electrodes can switch to E3 Tungsten Electrodes with confidence.

### Stable Tip Geometry; Less Erosion.

When E3 Tungsten Electrodes are compared with 2% thoriated tungsten, E3 requires fewer re-grinds and provides a longer overall lifetime.



2% Thoriated

**Shown after 5 hours of controlled welding on a test fixture at 250Amp DC, the E3 Tungsten Electrode shows far less erosion.**



Each Electrode Shown After 150 Arc starts

2% Thoriated

**Shown after 150 starts each, the E3 Tungsten Electrode shows far less degradation than the thoriated tungsten electrode.**

### Improved Arc Starting

Tests have shown that ignition delay with E3 Tungsten Electrodes actually improves over time, while 2% thoriated tungsten starts to deteriorate after only 25 starts.

### Lower Operating Temperature

At equivalent energy output, E3 Tungsten Electrodes run cooler than 2% thoriated tungsten, thereby extending overall tip lifetime.



2% Thoriated

### Versatile Use

E3 Tungsten Electrodes work well on AC or DC. They can be used DC electrode positive or negative with a pointed end, or balled for use with AC power sources.

*\*It is the responsibility for every user of the various codes to review and confirm if changes in non-consumable tungsten electrodes could require requalification.*



**Tungsten Electrodes**  
Electrodos de Tungsteno

EWG



1.5% La<sub>2</sub>O<sub>3</sub> + .08% ZrO<sub>2</sub> + .08% Y<sub>2</sub>O<sub>3</sub>

**3/32X7E3-MS**

**3/32 x 7"**

(2.4 x 175mm)

10 Pcs/Pza

Annealed & Ground  
Molido y Recocido  
AWS A5.12M/A5.12:2009  
ISO 6848:2004



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### Similar Conductivity to Thoriated Electrodes

E3 Tungsten Electrodes provide conductivity similar to that of thoriated electrodes. Typically, this means that E3 Tungsten Electrodes are exchangeable with thoriated electrodes without requiring significant welding process changes.

### The AWS and ASME Code Requirements

Tungsten electrodes of all types – pure, thoriated, ceriated, lanthanated, and others – are not considered an essential variable that would require process requalification when a change in the electrode type is made\*. A change of a nonessential variable is one that may be made by updating the Welding Procedure Specifications, without the need for requalification.



**NIPPON  
SANSO**