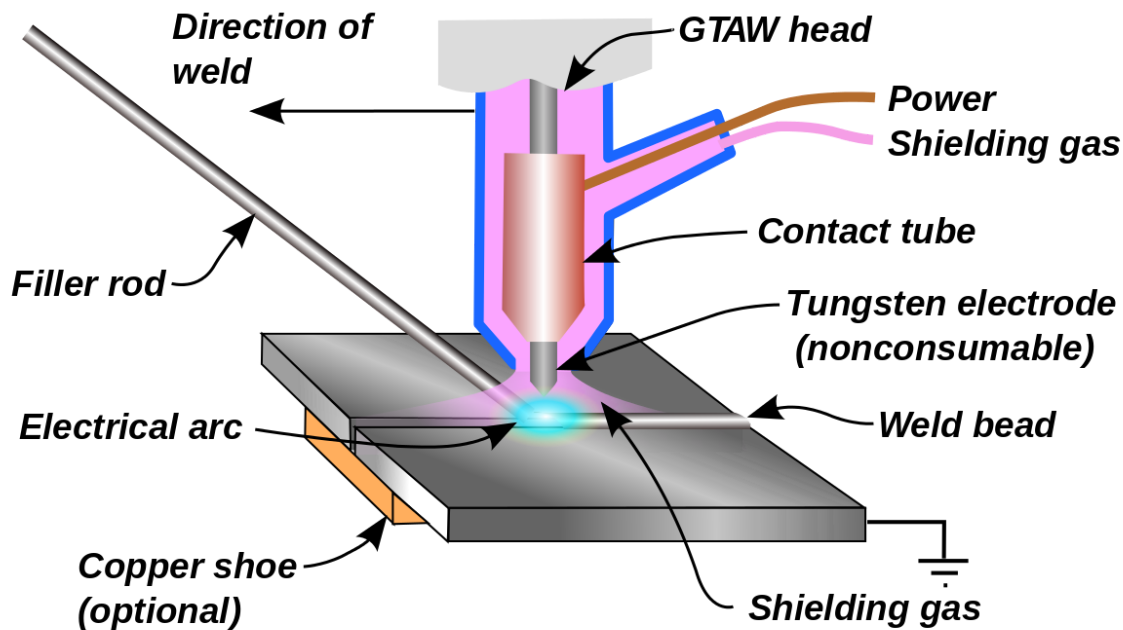


GTAW Electrode Characteristics and Types

- Unlike all other arc welding electrodes, GTAW (tig) electrodes are **non-consumable**
 - Tungsten's melting point is extremely high (6,170 degrees F) so it will not melt easily like consumable electrodes
 - The tungsten's only purpose is to conduct electricity to the arc, which supplies the heat needed to weld
 - Tungsten electrodes range from .10 to .25 inches in diameter and are usually about 7 inches long



3 Most Common Types of Tungsten Electrodes

- **Pure tungsten electrodes** - contain at least 99.5% tungsten
 - Have the lowest conductivity and low resistance to contamination but they are cheaper than others
- **Thoriated tungsten electrodes** - contain tungsten and small amount of thorium
 - Most common is 2% thoriated, but 1% are also available

- More durable than pure tungsten and have higher conductivity
- **Zirconiated tungsten electrodes** - contain tungsten and small amount of zirconium oxide, most often used with alternating current (AC) welding because they combine the desirable characteristics of pure tungsten with the starting characteristics of thoriated electrodes

Less Common Types

- **Ceriated** - used at lower amperage settings and last a long time for both AC and DC applications
- **Lanthanated** - similar to ceriated, they are non-radioactive and maintain a sharp tip quite well
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