



PROFESSIONAL IN WELDING

# MASTER TIG-250AC

**Reliability, Powerful and Precise TIG welding**

AC/DC TIG & MIX TIG



**Good choice for light industries**

Such as Pipe, Tube, Pressure Vessel, Stainless Steel Product and Aluminum Ship Repair etc.

## Quick Specs

Input Voltage	1PH ~ 230V $\pm 15\%$ 3PH ~ 380V $\pm 15\%$
Output Range	5A ~ 250A
Rated Output(40°C) 60%	250A / 20V
Net Weight	23kg

### Machines Processes

DC TIG (GTAW)  
AC TIG (GTAW)  
MIX TIG (GTAW)  
Pulsed TIG (GTAW-P)  
Stick (SMAW)

### Industrial Applications

Precision fabrication  
Heavy fabrication  
Pipe and tube fabrication  
Aerospace  
Aluminum ship repair  
Anodized aluminum fabrication



## Advanced Features

### • DC TIG

With pulse function, precise control of welding arc, heat input and penetration.

### • AC TIG

With 2 kinds of AC waveforms (square wave and sine) wave) and 3 kinds of AC waveform control (Balance, Frequency and Amplitude).

### • MIX TIG

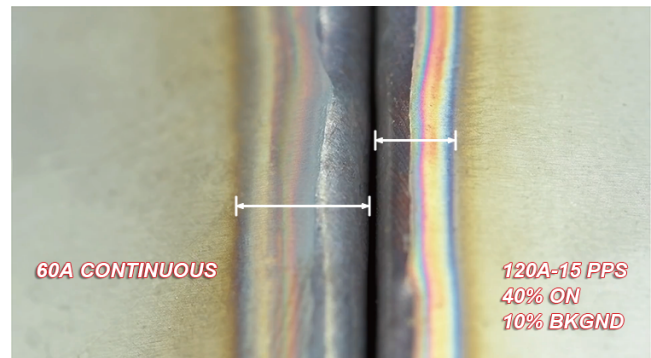
With both AC current and DC current in one duty cycle, better arc concentration and deeper penetration.

### • Reliable and Powerful Design

250A@60% duty cycle, capable for workshop jobs.

## Advanced Pulse Controls

The Pulse TIG function switches the current intensity from high (peak) to low (background) at a set rate (PPS). Pulses can reduce heat input by lowering average amperage and increasing control over weld puddle, penetration and distortion.



## AC Waveshape Options

### • Standard Square Wave



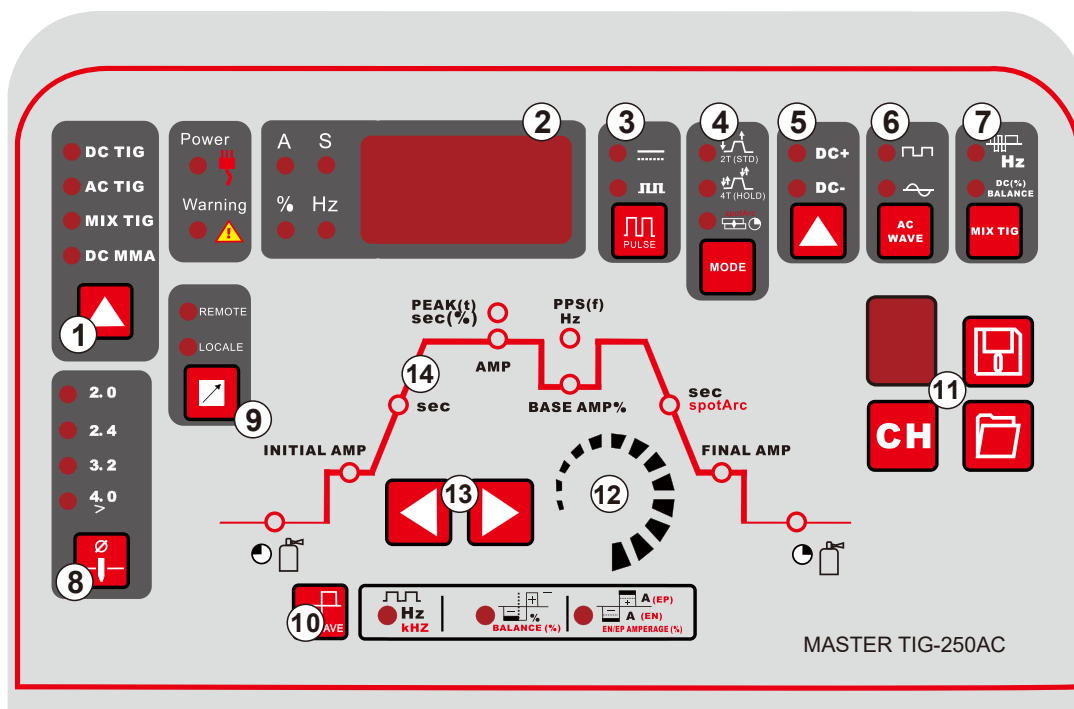
The Standard square wave provides fast transitions between EN and EP for responsive, dynamic and focused arcs with better directional control. It forms a fast-freezing puddle with deep penetration and fast travel speeds.

### • Sine Wave



The Sine Wave a soft arc with the feel of a conventional power source. It provides good wetting action and actually sounds quieter than other waves. Its fast transition through the zero amperage point also eliminates the need for continuous high frequency.

## General View of Control Panel



#### 1.Welding Process

DC TIG/AC TIG/MIX TIG/DC MMA

#### 2.Ammeter/Voltmeter Display

#### 3.Pulser Control

Pulse ON/OFF selection.

#### 4.Mode

2T(STD)/4T(HOLD)/Spot Arc

#### 5.Arc Ignition Polarity

#### 6.AC Waveshape types

Advanced Squarewave

Sin Wave

#### 7.MIX TIG

MIX Frequency: 0.1Hz~5Hz

DC Balance: (%)20~80

#### 8.Tungsten Electrode Dia.

From 2.0mm to >4.0mm

#### 9.Remote: used for foot pedal or remote torch.

Local: adjusted Currents by face panel

#### 10. AC Waveshape

AC Frequency Range 20Hz~200Hz

AC Clean Width (AC Balance) +40~-40

AC Clean Ratio (ACBias) % +30~-50

#### 11.Memory

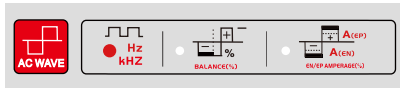
#### 12.Encoder Control

#### 13.Select welding parameters button



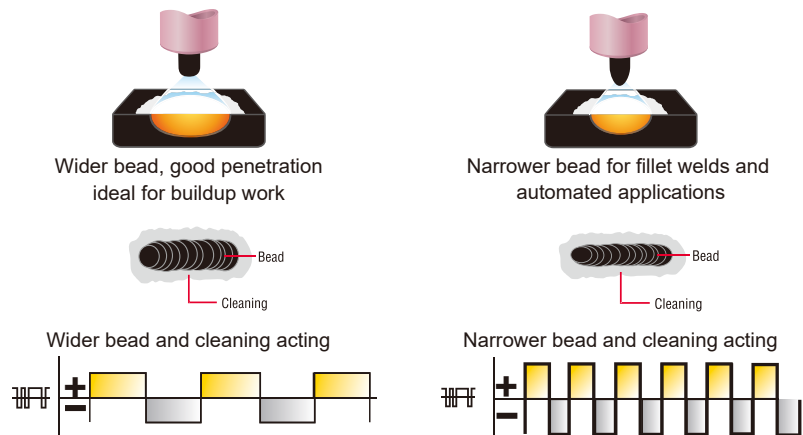
# Complete AC Waveshape Controls

## ▪ AC Frequency control

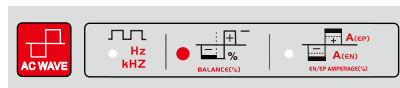


Controls the width of the arc cone. Increasing the AC Frequency provides a more focused arc with increased directional control.

*Note: Decreasing the AC Frequency softens the arc and broadens the weld puddle for a wider weld bead.*

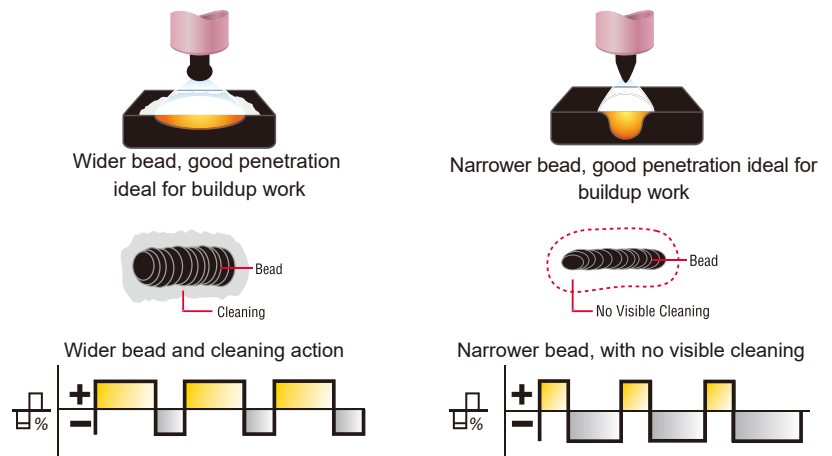


## ▪ AC Balance Control

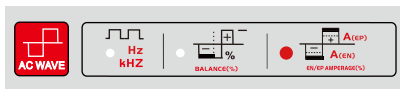


Controls the arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etched area around the weld.

*Note: Set the AC Balance control for adequate arc cleaning action at the sides and in front of the weld puddle. AC Balance should be fine tuned according to how heavy or thick the oxides are.*

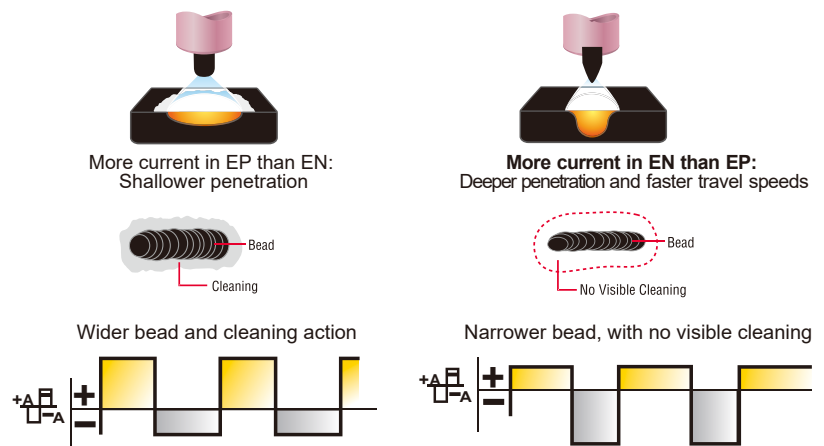


## ▪ Amplitude Control



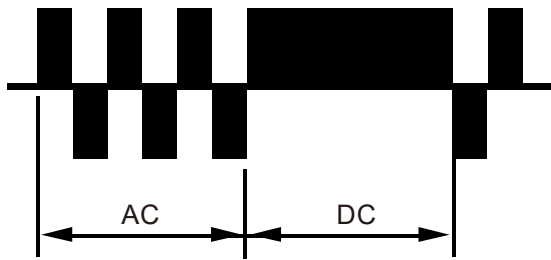
Precisely adjust the ratio of EN to EP amperage Controls heat input to workpiece and electrodes.

*Note: EN amperage controls the level of penetration, while EP amperage dramatically effects the arc cleaning action along with the AC Balance control.*



## Unique MIX TIG

MIX TIG is a TOPWELL exclusive technology that contains AC current and DC current in one duty cycle, thus maintaining the advantage and reducing the disadvantage of each other. The excellent arc concentration obtained with the MIX TIG technology allows for excellent welding performance, especially for thick plates.

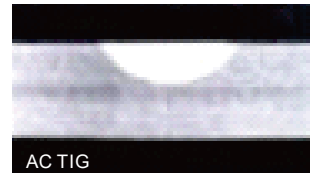
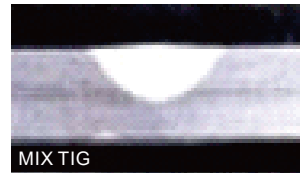


## MIX TIG Advantage

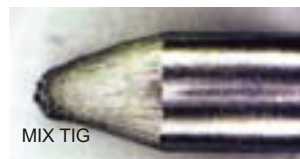
- Nice weld appearance, deep penetration.



- Excellent Arc Concentration.



- Substantially reduce the electrode consumption.



## Specifications

Item No	Master tig-250AC
Rated Input Voltage	1PH ~ 230V $\pm 15\%$ /3PH ~ 380V $\pm 15\%$
Max. Load Power Capacity	TIG: 6.3KVA MMA: 7.1KVA
Rated Duty Cycle(40 °C) 60%	TIG: 250A/20V MMA: 200A/28V
100%	TIG: 200A/18V MMA: 160A/26.4V
Welding Current/Voltage Range	TIG: 5A/10.2V~250A/20V MMA: 20A/20.8V~200A/28V
Open Circuit Voltage	70V
Power Factor	0.73
Efficiency	80%
Dimension (LxWxH)	490x230x440mm
Weight (KG)	23KG



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### Web & Mail

www.cn-topwell.com  
sales@topwellwelders.com

### Phone

(+86)571-88231791  
(+86)571-88231792