



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 / Aluminum Ship Repair

Quick Specs

Input Voltage	1PH ~ 230V ±15% 3PH ~ 380V ±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


▪ Unique MIX TIG

MIX TIG is TOPWELL unique technology with both AC and DC current in one duty cycle, the AC current can get a very good clearance, and DC current can get a deeper penetration. Use the MIX TIG we can get an excellent Arc Concentration, can be carried out the excellent welding performance from thin to thick plate.

- 1) Nice weld appearance, deep penetration.
- 2) Excellent Arc Concentration.
- 3) Substantially reduce the electrode consumption.

▪ 2 AC Waveforms

 **Standard squarewave**, fast freezing puddle, deep penetration and fast travel speeds.

 **Sine wave**, for customers that like a traditional arc. Quiet with good wetting.

▪ Gas lens with the torch

- 1) More gas coverage, gas is more concentrated.
- 2) Less turbulence in the gas.
- 3) Allows the tungsten to stick out further for better visibility and getting into tight spaces.
- 4) A cleaner gas and a cleaner weld.

▪ Completed AC Waveshape Controls

Balance control provides adjustable oxide removal which is essential for creating the highest quality aluminum welds. This machine provides extended ranges.

Frequency controls the width of the arc cone and can improve directional control of the arc.

Amplitude/amperage control allows EP and EN amperages to be set independently to precisely control heat input to the work and electrode.

▪ Advanced Pulse Controls

Exceptionally smooth and precise arc for welding exotic materials.

▪ Fan-On-Demand

Power source cooling system operates only when needed, reducing noise, energy use and the amount of contaminants pulled through the machine.

▪ 10 Independent Memory

Features ten independent memories that maintain/save your parameters. It is convenient to restore the previous settings, making the operation much easier and more efficient (equals more time savings).

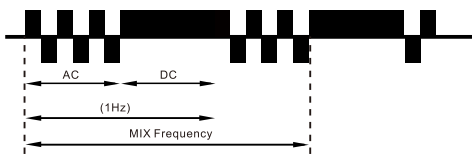
Unique MIX TIG

MIX TIG is TOPWELL unique 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 Controls

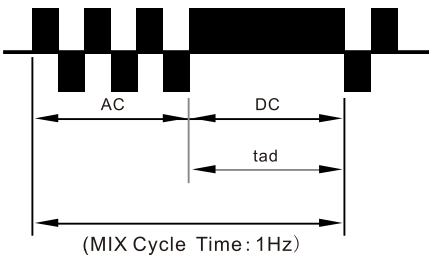
• MIX TIG Frequency (Hz):

The cycle time of MIX TIG in 1 second.
Adjustable range: 1-5Hz.



• MIX TIG Balance (DC) %:

DC Balance (%) = $(t_{ad}/T_{mix}) \times 100$

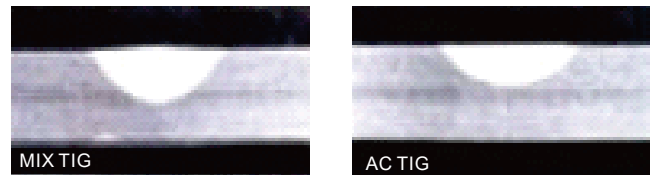


MIX TIG Advantage

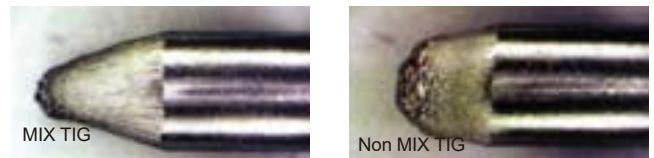
- Nice weld appearance, deep penetration.



- Excellent Arc Concentration.



- Substantially reduce the electrode consumption.



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.



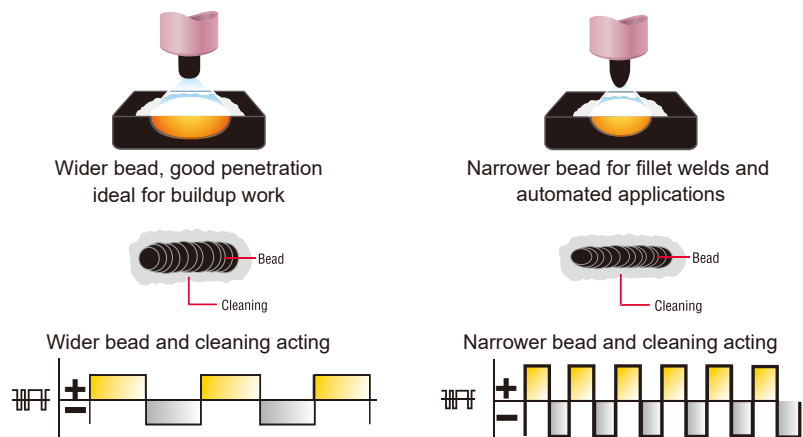
Complete AC Waveshape Controls

AC Frequency control

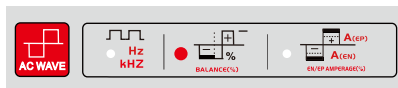


Controls the width of the arc cone. Increasing the AC Frequency provides a more focused arc with increased directional control.

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

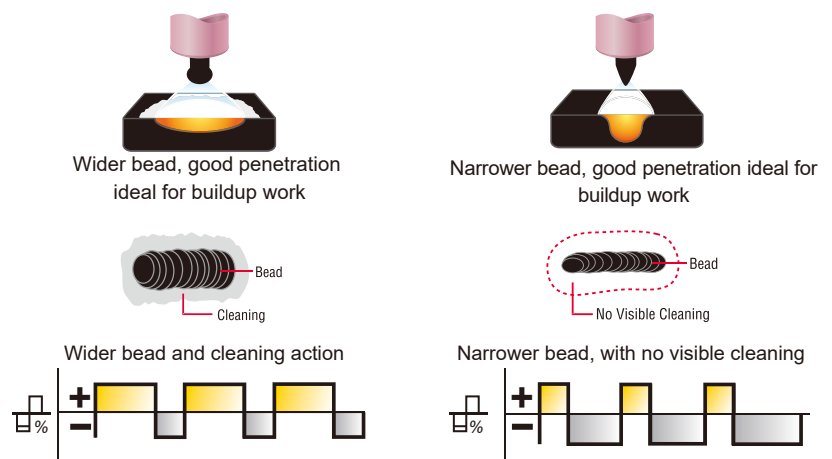


AC Balance Control

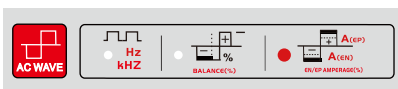


Controls the arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etched area around the weld.

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.

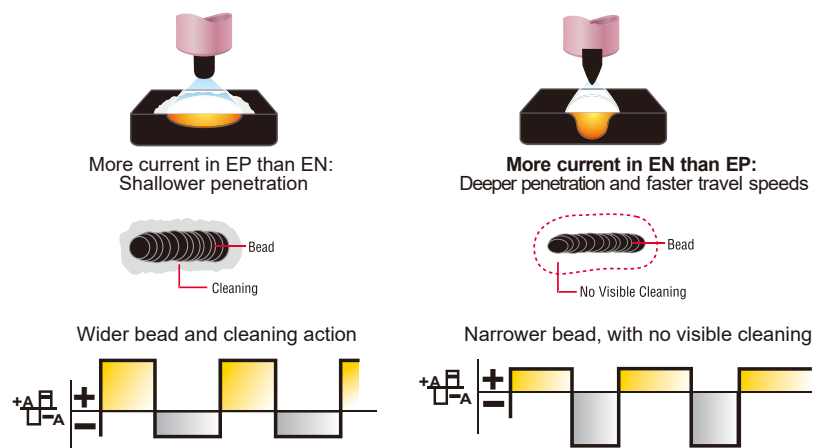


Amplitude Control

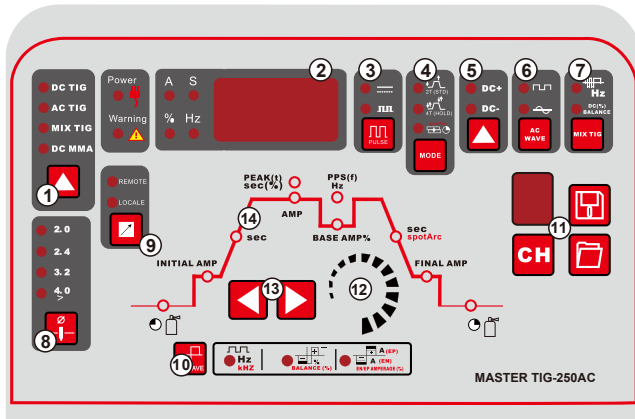


Precisely adjust the ratio of EN to EP amperage Controls heat input to workpiece and electrodes.

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



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

Specifications

Item No	Master tig-250AC
Rated Input Voltage	1PH ~ 230V ±15%/3PH ~ 380V ±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

Optional Accessories



Argon regulator: BK-169B



Pyrex Gas-lens kit



Premium Goatskin Gloves:
BK2205



Water cooler: WC-100



Foot pedal: BK4101



Hand controller: BK4102



Premium Tungsten:
WT20/WL20/WZ8/WP/WC20



Premium welding helmet:
BK1101



Welding Jacket: BK2102



Welding Apron: BK2101



Welding Doo Rag: BK2301



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