

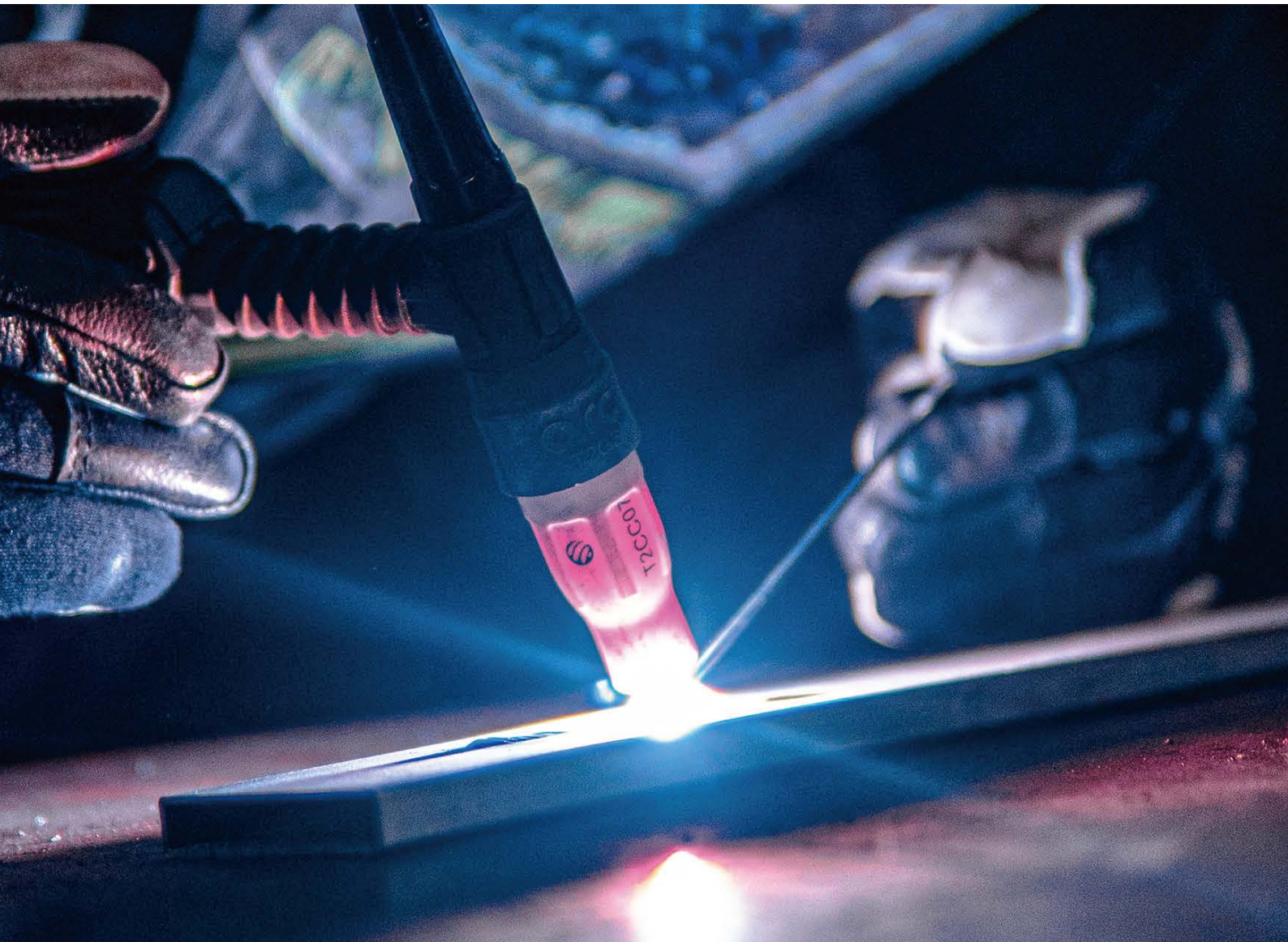


PROFESSIONAL IN WELDING

# ALUTIG

**Reliability, Powerful and Precise TIG welding**

AC/DC TIG & MIX TIG



**Good for heavy industries of Aluminum & Magnesium**

Suitable for Maintenance on site / Car industry / Shipbuilding / Aerospace industry / Chemical industry

## Quick Specs

Input Voltage	3PH ~ 400V ±15%
Output Range	20A ~ 500A
Rated Output(40 °C) 60%	ALUTIG-320CT: 320A / 22.8V ALUTIG-400CT: 400A / 26V ALUTIG-500CT: 500A / 30V
Net Weight	85kg

### 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.

### ▪ 4 AC Waveforms

-  **Standard squarewave**, fast freezing puddle, deep penetration and fast travel speeds.
-  **Soft squarewave**, for a soft butterfly arc with maximum puddle control and good wetting action.
-  **Sine wave**, for customers that like a traditional arc. Quiet with good wetting.
-  **Triangle wave**, reduces the heat input and is good on thin aluminum. Fast travel speeds.

### ▪ 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.

#### Pulse

Pulsing can increase puddle agitation, arc stability and travel speeds while reducing heat input and distortion.

### ▪ 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).

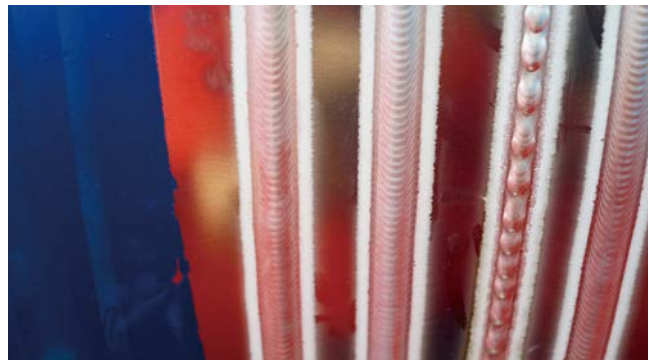
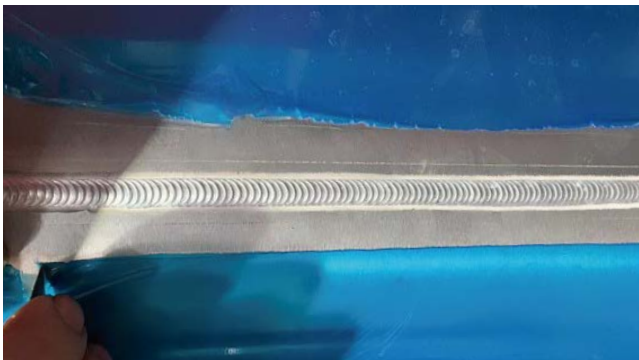
### ▪ Side-mounted torch holder

Enable a place for your torch when not in use.



## Powerful And Reliable

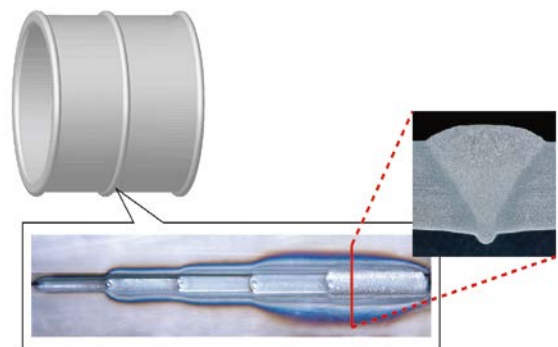
This is a three-phase TIG welder equipped with the latest IGBT modules. It also features an integrated cooling unit that provides efficient cooling for liquid-cooled torches in high-load production welding environments. The shape of the arc, weld penetration, cleaning effects and other characteristics are precisely controlled to ensure that the weld quality is always high.



## High Efficiency TIG Welding

Maximum output is up to 500A. It is capable of fast welding of thin metals and continuous welding of thick metals.

Mild steel 12mm V groove, 5 layers  
Layer 1: 300A, Layer 2: 300A, Layer 3: 280A,  
Layer 4: 280A, Layer 5: 260A



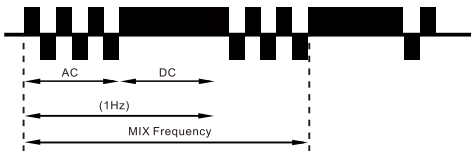
## Unique MIX TIG

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.



## 4 AC Waveforms

### ▪ Standard Square Wave



The Standard Square Wave offers fast transitions between EN and EP for a responsive, dynamic, and focused arc with better directional control. It forms a fast-freezing puddle with deep penetration and fast travel speeds.

### ▪ Soft Square Wave



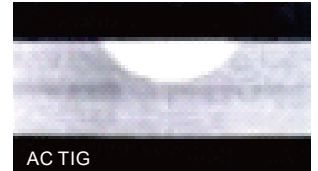
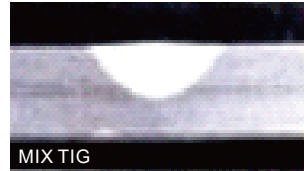
The Soft Square Wave provides a smooth, soft, "buttery" arc with a fluid puddle and good wetting action. The puddle is more fluid than with standard square wave and more controllable than with sine wave.

## MIX TIG Advantage

- Nice weld appearance, deep penetration.



- Excellent Arc Concentration.



- Substantially reduce the electrode consumption.



### ▪ Sine Wave



The Sine Wave provides 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.

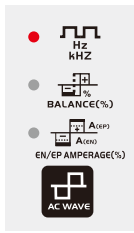
### ▪ Triangle Wave



The Triangular Wave peaks amperage while reducing overall heat input into the weld. This leads to quick puddle formation, low weld distortion, and fast travel speeds. It is especially good for welding thin aluminum.

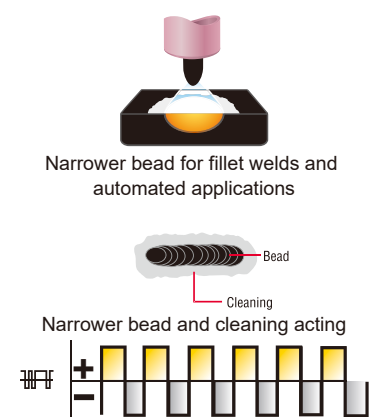
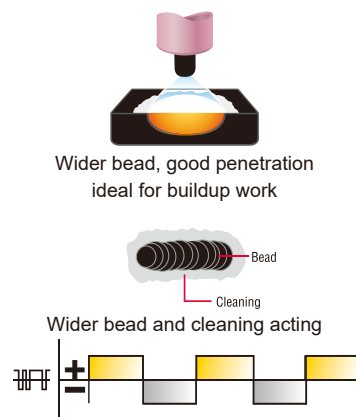
# Complete AC Waveshape Controls

## • AC Frequency control

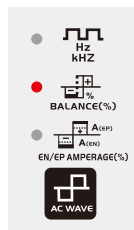


Controls the width of the arc cone. Increasing the AC Frequency provides a more focused arc with increased directional control.

*Note: Lowering the AC frequency softens the arc and widens the weld puddle for a wider bead.*

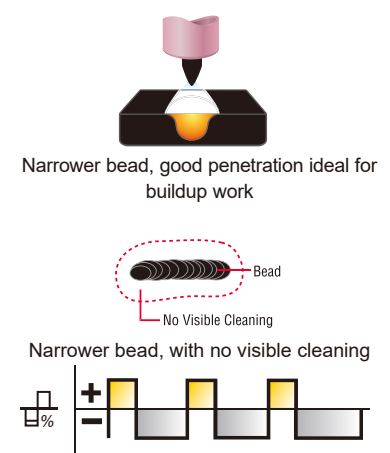
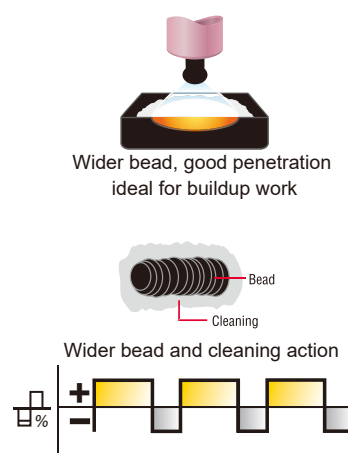


## • AC Balance Control

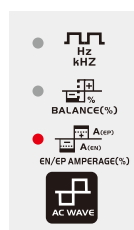


Controls arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etched area around the weld.

*Note: Set the AC balance control so that there is sufficient arc cleaning action on the sides and front of the weld puddle. The AC balance should be fine-tuned depending on how heavy or thick the oxide is.*

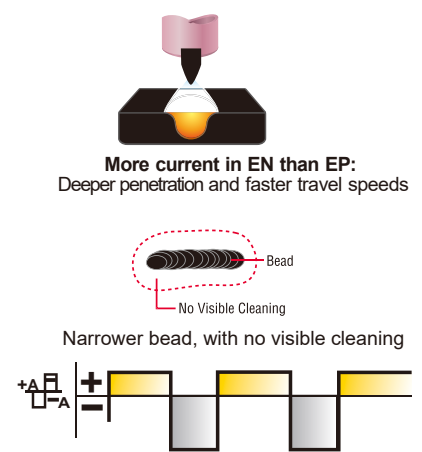
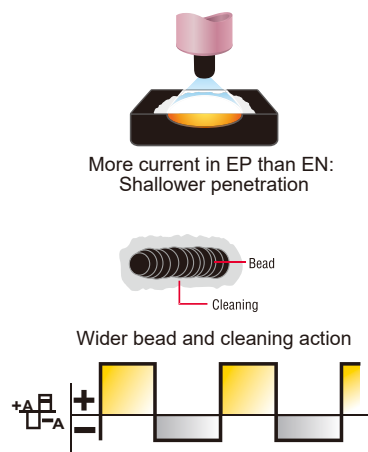


## • Amplitude Control

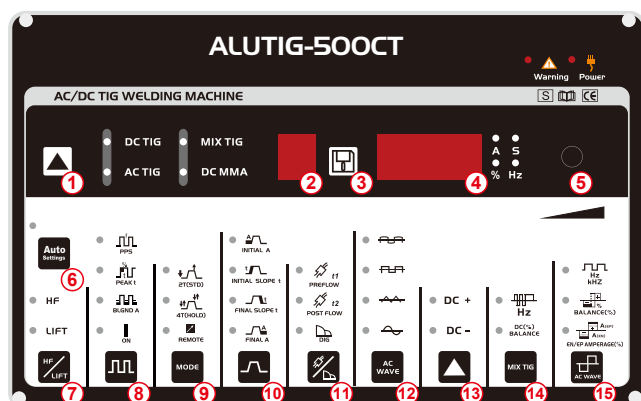


Adjust the ratio of EN to EP amperage. Precise control of heat input to workpiece and electrodes.

*Note: EN amperage controls penetration levels, while EP amperage, along with AC balance control, significantly affects arc cleaning action.*



## General View of Control Panel



### 1. Welding Process

DC TIG/AC TIG/MIX TIG/DC MMA

### 2. Memory Display

### 3. Memory

### 4. Ammeter/Voltmeter Display

### 5. Encoder Control

### 6. AC Waveshape types

### 7. Arc Ignition type: HF Impulse/LIFT Arc

### 8. Pulser Control: Pulse ON/OFF selection

### 9. Mode: 2T(STD) / 4T(HOLD) / REMOTE

### 10. Sequencer Control

Arc-starting Current: 10A~500A

Crater-filling Current: 5A~500A

Current Up-slope Time: 0.1S~15S

Current Down-slop Time: 0.1S~15S

### 11. Pre-Gas Time: 0.1S~15S

Flow-Gas Time: 0.1S~15S

### 12. AC Waveshape types

Advanced Squarewave / Soft Squarewave

Triangular Wave / Sine Wave

### 13. Arc Ignition Polarity

### 14. MIX TIG

MIX Frequency: 0.1Hz~5Hz

DC Balance: (%) 20~80

### 15. AC Waveshape

AC Frequency Range: 20Hz~200Hz

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

AC Clean Ratio (AC Bias)%: +30~-50

## Specifications

Item No	ALUTIG-320CT	ALUTIG-400CT	ALUTIG-500CT
Rated Input Voltage	3PH ~ 400V ±15%	3PH ~ 400V ±15%	3PH ~ 400V ±15%
Max. Load Power Capacity	TIG: 9.12KVA	TIG: 14.39KVA	TIG: 20.76KVA
	MMA: 10.38KVA	MMA: 14.21KVA	MMA: 19.93KVA
Rated Duty Cycle(40°C) 60%	TIG: 320A/22.8V	TIG: 400A/26V	TIG: 500A/30V
	MMA: 250A/30V	MMA: 315A/32.6V	MMA: 400A/36V
Welding Current/Voltage Range	TIG: 20A/10.8V~320A/22.8V	TIG: 20A/10.8V~400A/26V	TIG: 20A/10.8V~500A/30V
	MMA: 20A/20.8V~250A/30V	MMA: 20A/20.8V~315A/32.6V	MMA: 20A/20.8V~400A/36V
Open Circuit Voltage	70V~80V	70V~80V	70V~80V
Power Factor	0.8	0.8	0.8
Efficiency	80%	80%	80%
Dimension (LxWxH)	960x420x900mm	960x420x900mm	960x420x900mm
Weight (KG)	75KG	80KG	85KG



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### Web & Mail

www.cn-topwell.com

sales@topwellwelders.com

### Phone

(+86)571-88231791

(+86)571-88231792