MASTER TIG-500CT

The master of TIG welding

Quick Specs CE

- **Processes:**
  DC TIG,
  AC TIG,
  MIX TIG,
  MMA(Stick)
- **Input Power:**
  340-460V/3-PH/50-60Hz
- **Rated Output at 40℃ (104℉):**
  500CT: 500A at 30V @60% Duty Cycle
- **Applications:**
  Metal fabrication workshops
  Shipyards and offshore industry
  Chemical and process industry
  Steel structure workshops

TOP Features:

- ✓ **DC TIG Features** With the Pulse function, it can reduce heat input and increase control of the weld puddle, penetration and distortion.
- ✓ **AC TIG Features**

  2 AC Waveforms

  Standard Square Wave
  fast freezing puddle, deep penetration and fast travel speeds.

  Sine Wave
  For customers that like a traditional arc. Quiet with good wetting.

  3 AC Waveshape Controls

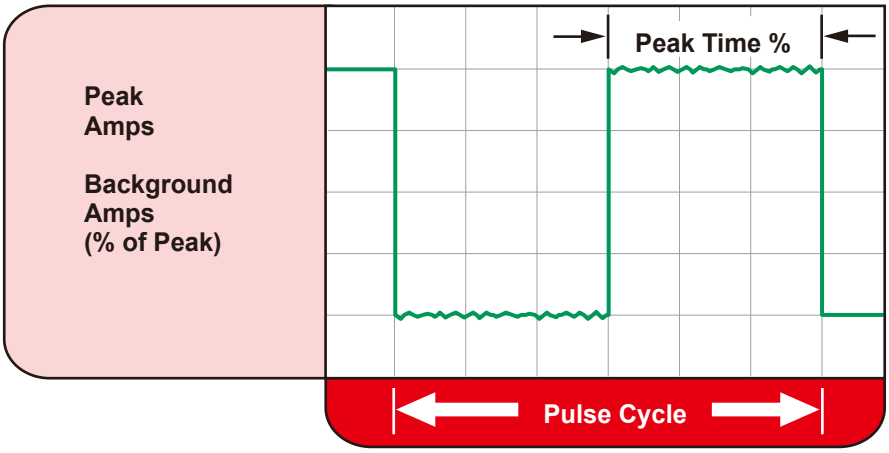
  • **Balance control** provides adjustable oxide removal which is essential for creating the highest quality aluminum welds.

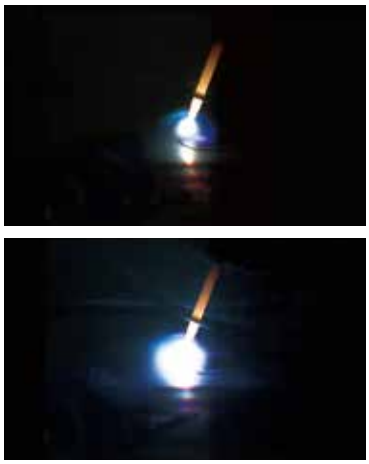
  • **Frequency controls** the width of the arc cone and can improve directional control of the arc.

  • **Amplitude controls** the heat input to the work piece and the electrode.
- ✓ **MIX TIG Features** AC current and DC current in one duty cycle, easily get an excellent arc concentration and reduce heat input.
- ✓ HF start and Lift-Arc start are both available
- ✓ DC+/DC-: Improved TIG starting
- ✓ Pre-flow and post-flow adjustment
- ✓ 2T and 4T selection
- ✓ Capable to remote control
- ✓ 10 channels memory capacity

Pulse TIG

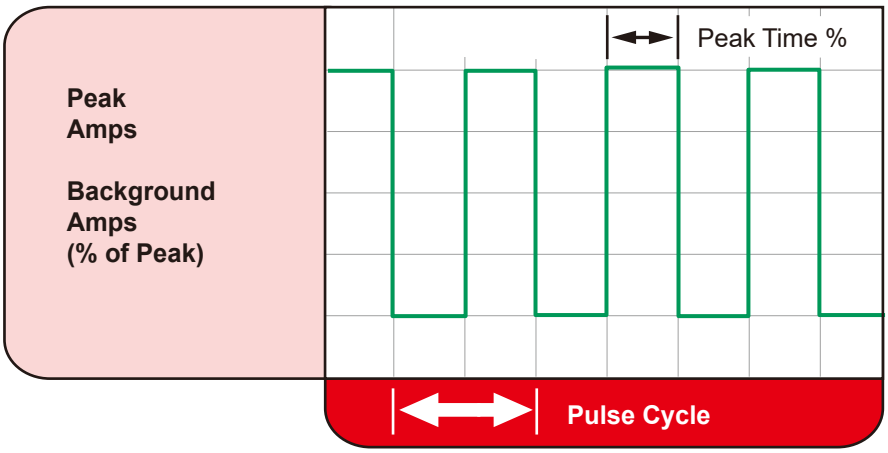
Conventional Pulsed TIG

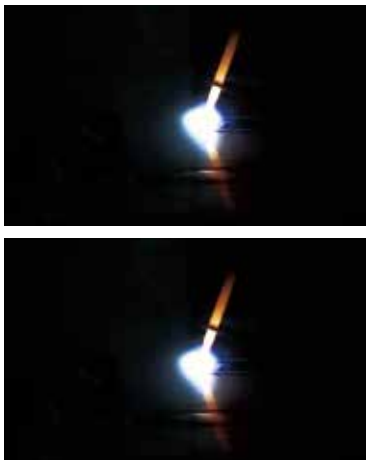




Typically from 0.2 to 10 PPS. Provides a heating and cooling effect on the weld puddle and can reduce distortion by lowering the average amperage. This heating and cooling effect also produces a distinct ripple pattern in the weld bead. The relationship between pulse frequency and travel speed determines the distance between the ripples. Slow pulsing can also be coordinated with filler metal addition and can increase overall control of the weld puddle.

High Speed Pulsed TIG





In excess of 40 PPS, Pulsed TIG becomes more audible than visible—causing increased puddle agitation for a better as-welded microstructure. Pulsing the weld current at high speeds — between a high Peak and a low Background amperage — can also constrict and focus the arc. This results in maximum arc stability, increased penetration and increased travel speeds.

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.

Sine Wave

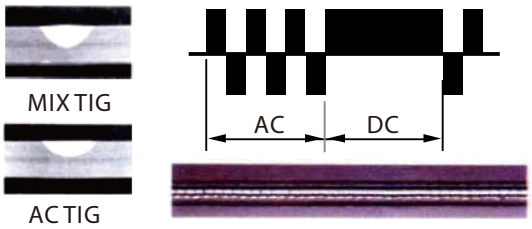
The Sine Wave a soft arc with the feel of a conventional power source. It provides good wetting action and actually sounds quieter than other waves. Its fast transition through the zero amperage point also eliminates the need for continuous high frequency.

MIX TIG Control

Features of MIX TIG:

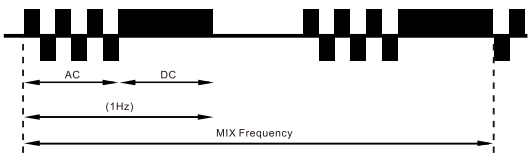
The AC current can get a very good clearance, and DC current can get a deeper penetration. Use the MIX TIG we can get an excellent Arc Concentration, can be carried out the excellent welding performance from thin to thick plate.

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



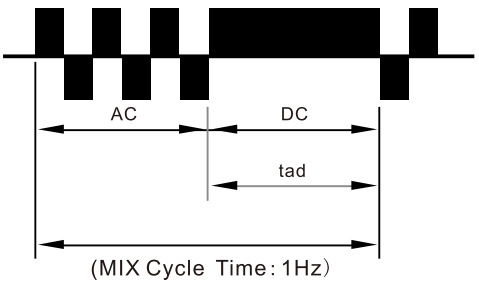
MIX TIG Frequency (Hz):

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

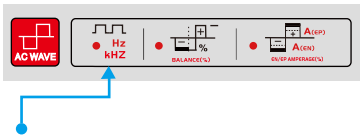


MIX TIG Balance (DC) %:

DC Balance (%) = (tad/Tmix) x 100



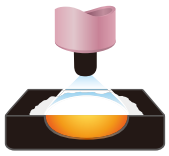
AC Waveshape Controls



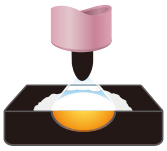
AC Frequency control

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

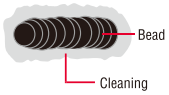
Note: Decreasing the AC Frequency softens the arc and broadens the weld puddle for a wider weld bead.



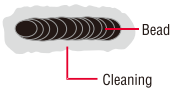
Wider bead, good penetration ideal for buildup work



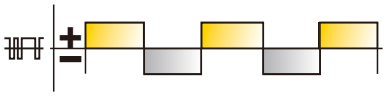
Narrower bead for fillet welds and automated applications

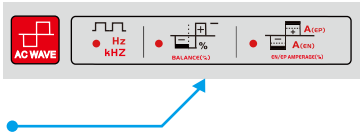


Wider bead and cleaning acting



Narrower bead and cleaning acting

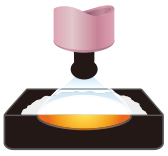




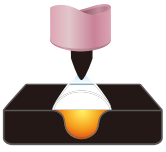
AC Balance Control

Controls arc cleaning action. Adjusting the % EN of the AC wave controls the width of the etching zone surrounding the weld.

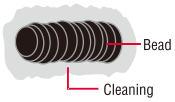
Note: Set the AC Balance control for adequate arc
cleaning action at the sides and in front of the weld puddle. AC Balance should be fine tuned according to
how heavy or thick the oxides are.



Wider bead, good penetration ideal for buildup work

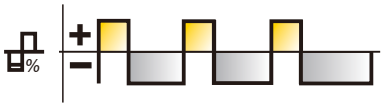


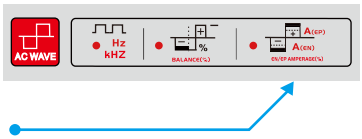
Narrower bead, good penetration ideal for buildup work



Wider bead and cleaning action

Narrower bead, with no visible cleaning

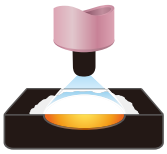




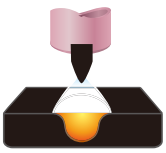
Amplitude Control

Adjusts the ratio of EN to EP amperage to precisely control heat input to the work and the electrode.

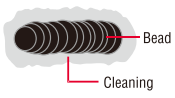
EN amperage controls the level of penetration, while EP amperage dramatically effects the arc cleaning action along with the AC Balance control.



More current in EP than EN: Shallower penetration

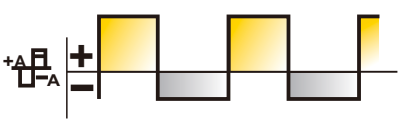


More current in EN than EP: Deeper penetration and faster travel speeds



Wider bead and cleaning action

Narrower bead, with no visible cleaning



Technical Specifications

Item No			MasterTig-500CT
Rated Input Voltage			3PH ~ 400V ±15%
Max. Load Power Capacity			TIG: 50.76KVA
			MMA: 19.93KVA
Rated Duty Cycle(40℃) 60%			TIG: 500A/30V
			MMA: 400A/36V
100%			TIG: 400A/26V
			MMA: 3150A/32.6V
Welding Current/Voltage Range			TIG: 5A/10.2V~500A/30V
			MMA: 20A/20.8V~400A/36V
Open Circuit Voltage			70V~80V
Power Factor			0.85
Efficiency			85%
TIG	Pulse	Peak Current	5A~500A
		Pulse Frequency	0.2Hz~200Hz
		Pulse Width (Ratio)	1~100%
	AC TIG	AC Frequency Range	20Hz~250Hz
		AC Clean Width (AC Balance)	+40~-40
		AC Clean Ratio (AC Bias) %	+30~-50
	MIX TIG	MIX Frequency	1Hz~5Hz
		DC Balance (%)	20~80
	Arc-starting Current		5A~500A
	Crater-filling Current		5A~500A
	Current Up-slope Time		0.1S~15S
	Current Down-slop Time		0.1S~15S
	Pre-Gas Time		0.1S~15S
	Flow-Gas Time		0.1S~15S
	Spot Arc Time		0.1S-10S
MMA	Arc Force		10A~400A
	Hot Start Time		0.1~3S
	Hot Start Current		10A~400A
Dimension (LxWxH)			960x420x1100mm
Weight (KG)			85KG

Water-cooling Unit: WC-150	
Operating Voltage	230V 50/60Hz
Rated Power	260W
Cooling Power	1.5KW(1L/MIN)
Maximum Pressure	0.3MPA/60HZ
Recommended Cooling Liquid	20%~40% ethanol/water
Tank Volume	6.5L

Accessories

Standard accessories

TIG-12

Technical data (EN 60 974-7):	
Type of cooling:	Water Cooled
Rating:	350A DC
	250A AC
Duty cycle:	100%
Tungsten electrodes:	Ø 1.6–4.0 mm

Consumables:

Back cap

Collet

Insulating ring/Adaptor

Collet body

Gas nozzle, ceramic

Electrode holder with cable 2M
Earth clamp with cable 2M

Water-cooling unit: WC-100

Optional accessories

BINZEL ABITIG ® GRIP 12

Technical data (EN 60 974-7):	
Type of cooling:	liquid cooled
Rating:	350A DC
	250A AC
Duty cycle:	100%
Tungsten electrodes:	Ø 1.6–4.0 mm

Argon gas regular

Trolley:WT-100

Foot Pedal