

ATOM

AWE-T1200

Multifunction Cold Welding Machine

USER MANUAL

CAUTION : PLEASE READ THIS USER MANUAL CAREFULLY BEFORE WELDING !

1: INSTRUCTIONS FOR SAFE USE

The design of this welding machine has taken safety into account, but be sure to follow the precautions in this manual when using it, as this may cause a major accident !



To avoid major accidents, please observe the following regulations:

- This machine must not be used for jobs other than welding
- Read this manual carefully before use to avoid causing major accidents
- People who use pacemakers shall not be allowed to approach the welding machine in use and around the welding site without a physician's permission. It may adversely affect the pacemaker's movements



Electric shock hazard:

- The socket connecting the welder must be well grounded
- Do not touch live areas or wearing wet gloves
- Machine repair should be carried out after 5 minutes of power off
- Do not use the welder with the case removed



Arc, Splash, Solder slag, Noise hazard:

- Please use protective utensils with sufficient shading degree
- Please wear long-sleeved overalls, boots, leather aprons and other protective utensils
- Use soundproofing utensils when the noise is high

Flue gas and fire hazards:

- Please keep ventilated and use protective utensils
- Do not place combustible and combustible gases in the weld area
- Please set up fire fighting utensils at the welding place, just in case

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BEFORE WELDING !**

2: SUMMARY

Working principle:

The AWE-T1200 uses inverse arc welding power supplies and high-power devices to convert 50/60Hz frequencies to high frequencies (e.g. 100KHz or higher), then lowers voltage and regulates current, producing a powerful DC TIG welding power supply through (PWM).

Due to the use of switching power supply, inverter technology, the weight volume of the welding machine can be reduced, and the efficiency is increased by 30%.

AWE-T1200 can generate arc very easily, with advance gas delivery, delay shutdown and welding current automatic attenuation, continuous time adjustable, pulse frequency adjustable. It automatically controls arcing to improve welding stability ignorer to get a beautiful welding surface.

AWE-T1200 can be used in stainless steel, alloy steel, carbon steel, copper and other non-ferrous metals welding. The overall power conversion efficiency of the welder is more than 85% in general.

TECHNICAL DATA OF AWE-T1200

MODEL NO.	AWE-T1200	POWER SUPPLY	AC 220V 50/60Hz
FREQUENCY	1~20Hz	CURRENT OUTPUT	10~200A
WELDING TIME	1~80ms	PULSE TIME	1~99ms
WELDING MODE	SINGLE / CONTINUE / TIG	GAS DELAY TIME	0~5s
LOAD CONTINUITY	80%	POWER	0~4000W
EFFICIENCY	85%	WEIGHT	KGS 9.5

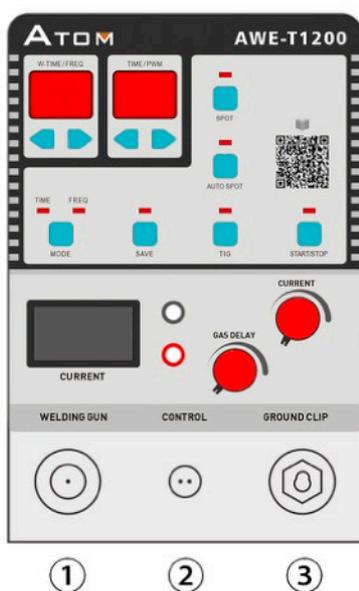
3: MACHINE INSTALLATION

Safety warning:

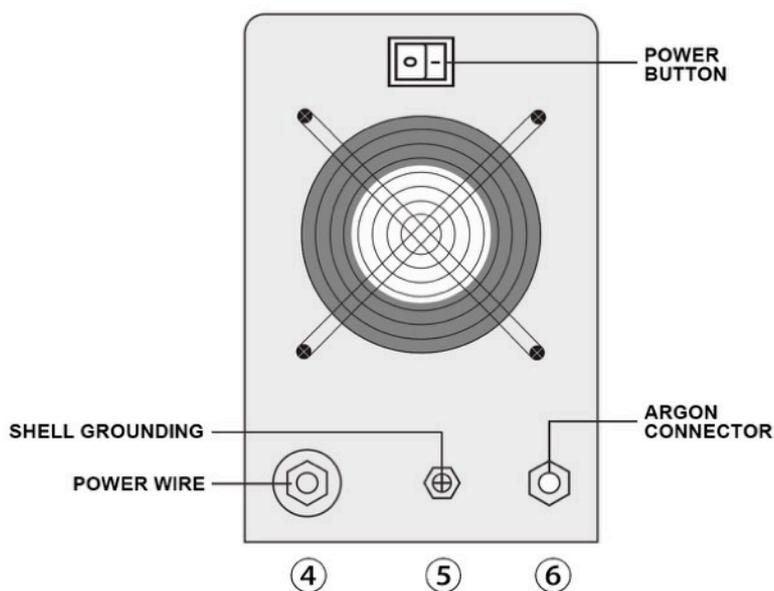
- Use original accessories to ensure proper operation of the welding machine
- The power outlet needs to be well grounded, and if not confirmed, ground the shell separately with a ground wire with a cut-off area of not less than 6mm (there is a grounding screw on the back of the welder, on position ⑤)
- Please use 220V single-phase AC power supply. If power supply is not stable please use a stabilizer, if higher than 220v it may cause a damage to the machine.

SWITCH/CABLE SPECIFICATION SHEET

MODEL NUMBER		AWE-T1200
POWER SWITCH RATED CURRENT		32A
CABLE	INPUT	$\geq 2.5\text{mm}^2$
	OUTPUT	16mm ²
	GROUND WIRE	$\geq 2.5\text{mm}^2$
WELDING GUN STANDARD		$\geq 300\text{A}$



(FRONT)



(BACK)

- A. Connect **welding gun** on position ①;
- B. Connect **control button** on position ②;
- C. Connect **ground clip** on position ③;
- D. Connect a **grounding wire** on position ⑤ if the power outlet is not well grounded (optional);
- E. Connect **argon gas** on position ⑥;

BUTTON AND FUNCTION

1	W-TIME/FREQ	Pulse current welding time, 1~80 adjustable
2	TIME/PWM	Interval time, works only on AUTO SPOT mode, 1~99 adjustable
3	CURRENT	Adjust welding current, 1~200 adjustable
4	SPOT	Spot mode, press finger click to generate one welding spot
5	AUTO SPOT	Continue spot output mode, works when press and hold finger click
6	TIG	Traditional TIG welding mode
7	GAS DELAY	0~5s adjustable
8	MODE	Change TIME mode and FREQ mode, two ways to adjust pulse time and interval time, works only on AUTO SPOT mode
9	SAVE	Save 20 groups of settings, works only for SPOT and AUTO SPOT
10	START/STOP	Start and stop welding

- **MODE** button: default on TIME mode, press  to adjust W-TIME and TIME. Press **MODE** button FREQ light will turn red, press  to adjust FREQ and PWM. Both of the two modes can adjust pulse time and interval time on AUTO SPOT mode.
- **SAVE** button: AWE-T1200 can save 20 groups of settings. When parameters set to right values press and hold **SAVE** button for 3 seconds, LED will turn to red, release **SAVE** button you will see “**CC**” on W-TIME/FREQ screen and “**00**” on TIME/PWM screen, press  under TIME/PWM screen to choose a number, then press **SAVE** button to save the settings on that group.

How to use saved settings?

Press **SAVE** button, and press  to select a group, then press **SAVE** button to select a required group.

4: START WELDING

- A. Press power switch on the back side of the machine, fan start rotating.
- B. Press **START/STOP** button on the front panel.
- C. Select welding mode base on different materials (**SPOT / AUTO SPOT / TIG**).
- D. Rotate **CURRENT** knob to set welding current.
- E. Rotate **GAS DELAY** knob to set gas delay if required.
- F. Press finger click button on welding gun to start welding.

EXAMPLE

SHEET THICKNESS	WELDING MODE	CURRENT	W-TIME/FREQ	TIME/PWM
1.0MM	SPOT	140	6	--
2.0MM	AUTO SPOT	140	4	20
3.0MM	TIG	60	--	--

EXPERIENCE:

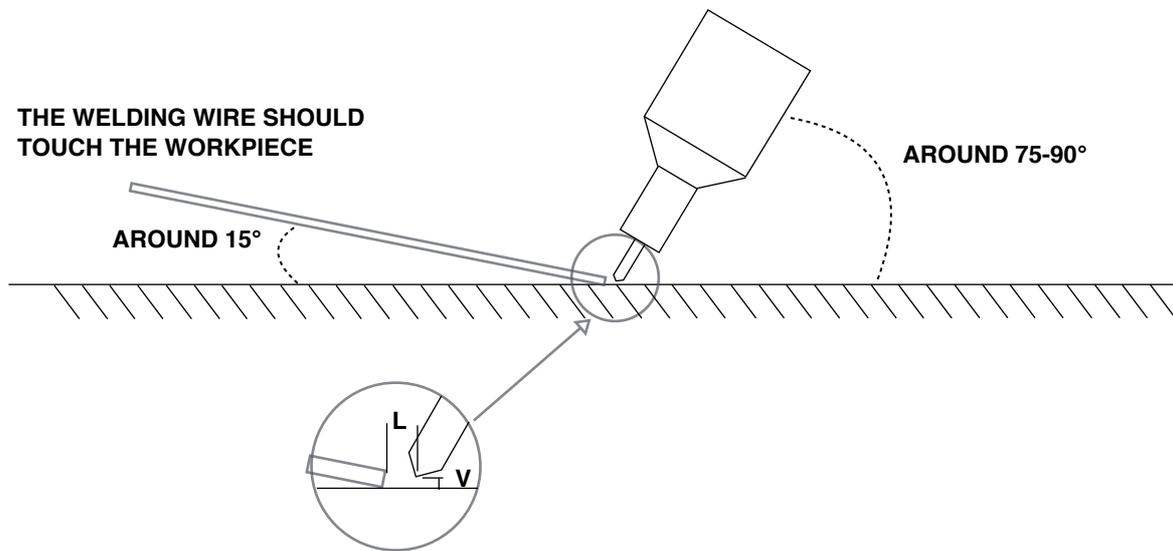
- Air inside the welding gun needs to be drained before welding begins to obtain a clean welding spot.
- The tungsten needle needs to be sharp.
- For thin sheet welding the tungsten should close to the sheet, normally <1mm.
- The first spot is important, when the first spot formed the next spot should close to the first one.

TIG mode suggested current/tungsten/welding rod/argon flow

SHEET THICKNESS	CURRENT	TUNGSTEN DIAMETER	WELDING WIRE DIAMETER	ARGON(L/min)
0.3~0.5MM	10~40	1.0MM	1.0MM	5
0.5~1.0MM	20~40	1.0MM	1.0MM	5
1.0~2.0MM	40~70	1.6MM	1.6MM	8
2.0~3.0MM	80~130	2.0~2.5MM	2.0MM	10
3.0~4.0MM	120~170	2.5~3.0MM	2.5MM	12
>4.0MM	160~200	3.0MM	3.0MM	14

Flat surface welding method:

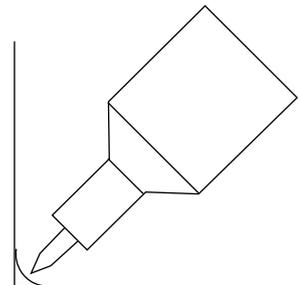
Here mentioned flat surface include flat and arc surface. **Welding arc** should heat the workpiece first, only after the workpiece melted then the welding wire can transition to the workpiece to form qualified welding points. During operation the tungsten needle distance from the workpiece should close than tungsten needle distance from the wire. Tungsten needle position please refer to the following diagram, keep “L” and “V” as smaller as you can (both <1.0mm).



Inner corner welding method:

We refer here to the angle is the angle between the two formed workpiece is equal to or less than 90 degrees. Because of the characteristics of arc discharge through the shortest path, the conventional welding method often can not welding to the bottom corner.

The tungsten needle should be grinded very sharply (< 20 degrees), and do not use welding wire, tungsten needle direct close to the bottom (see the below picture). Both sides of the metal were melted to the middle position to form a solder joint. If it is necessary, need to increase the welding current, until the middle form of a solder joint.



5: FAULT DIAGNOSIS AND ELIMINATION

QUESTIONS	REASONS	SOLUTIONS
WELDING WIRE MELTS INTO BALL SHAPE, FAILED TO MELT ON THE WORKPIECE	1、 Tungsten needle too close to the wire and too far from the workpiece	Put tungsten needle from wire about 0.3-1.0mm distance, at the same time keep 0.2-0.7mm to the workpiece. do not move the torch when step on the foot pedal.
	2、 The power output is too small	To increase the pulse current and pulse time to increase the power output.
	3、 Tungsten needle is not sharp enough	Grind tungsten needle sharp
	4、 Welding wire not touch the workpiece	Keep welding wire touch the workpiece
WELDING SPOT IN BLACK COLOR OR YELLOW COLOR	1、 Tungsten needle too long outside the ceramic nozzle	Adjust the needle position to keep less than 5mm outside the nozzle
	2、 Power output to big	Adjust the power output
	3、 The workpiece is dirty	Clean the workpiece surface
	4、 The argon air tank not open or argon flow is too small	Check whether there is argon air going outside when step on the foot pedal, adjust the argon air flow value.
THERE IS ARC SOUND BUT CAN NOT WELDING	1、 Grounding line not connect to the workpiece	Connect the grounding line to the workpiece
	2、 The arc welding gun is too far from the workpiece	Keep the right distance between tungsten needle and work piece

ATOM

Made in China.

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