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› [Plasmargon TSE350P AC/DC TIG MMA Pulse 6-in-1 Aluminum Welding Machine User Manual](#)

Plasmargon TSE350P

Plasmargon TSE350P AC/DC TIG MMA Pulse 6-in-1 Aluminum Welding Machine

USER MANUAL

Model: TSE350P | Brand: Plasmargon

1. Introduction and Overview

This manual provides comprehensive instructions for the Plasmargon TSE350P, a versatile 6-in-1 AC/DC TIG MMA Pulse welding machine. It is designed for welding various metals including aluminum, copper, steel, and iron. Featuring IGBT and inverter technology, the TSE350P offers multiple welding modes such as Pulse TIG, MMA, AC/DC, and 2T/4T, with an intuitive control panel for enhanced user experience and operational efficiency.

The Plasmargon TSE350P is engineered with a focus on reducing complex steps and improving work efficiency, making it suitable for both technical and DIY soldering tasks.



Image 1.1: The Plasmargon TSE350P welding machine, showcasing its compact design and control panel.

2. Safety Instructions

Always prioritize safety when operating welding equipment. Failure to follow safety precautions can result in serious injury or death.

- **Wear appropriate personal protective equipment (PPE):** This includes a welding helmet with proper shade, flame-resistant clothing, welding gloves, and safety shoes.
- **Ensure proper ventilation:** Welding fumes can be hazardous. Work in a well-ventilated area or use fume extraction equipment.
- **Prevent electric shock:** Ensure the welding machine is properly grounded. Do not operate in wet conditions. Inspect cables for damage before use.
- **Fire prevention:** Keep flammable materials away from the welding area. Have a fire extinguisher readily available.
- **Read and understand the entire manual:** Familiarize yourself with all controls and functions before operation.
- **Disconnect power:** Always disconnect the welding machine from the power supply before performing any maintenance or changing accessories.

3. Package Contents

Upon unpacking your Plasmargon TSE350P, verify that all components are present and undamaged. The standard package typically includes:

- Plasmargon TSE350P Welding Machine
- WP17 TIG Torch with 3m cable
- Electrode Holder Clamp
- Ground Clamp
- Various TIG Torch consumables (collets, collet bodies, ceramic nozzles) for 1.6mm, 2.4mm, and 3.2mm tungsten electrodes.

Note: The included ground and electrode holder cables are approximately 1.5m in length.

4. Setup

Follow these steps to set up your welding machine for operation:

1. **Placement:** Place the welding machine on a stable, level surface, ensuring adequate ventilation around the unit.
2. **Power Connection:** Connect the power cable to a suitable 110V or 220V ($\pm 15\%$, 50/60Hz) power outlet. Ensure the power supply matches the machine's requirements.
3. **Ground Clamp Connection:** Attach the ground clamp cable securely to the designated ground terminal on the welding machine. Connect the ground clamp to the workpiece or welding table, ensuring good electrical contact.
4. **TIG Torch Connection (for TIG welding):** Connect the TIG torch to the appropriate terminals on the machine. Connect the argon gas hose from your gas cylinder (with a regulator) to the gas inlet on the machine.
5. **Electrode Holder Connection (for MMA welding):** Connect the electrode holder cable to the designated terminal for MMA welding.
6. **Tungsten Electrode/Welding Rod:** Insert the appropriate tungsten electrode into the TIG torch collet or the correct welding rod into the electrode holder, depending on your chosen welding process.

5. Operating Modes

The Plasmargon TSE350P offers multiple welding modes for various applications:

5.1. TIG Welding (Tungsten Inert Gas)

TIG welding requires argon gas for shielding. This machine supports both AC TIG for aluminum and DC TIG for other metals like stainless steel, copper, and titanium. The TSE350P allows for various welding procedures such as spot welding and continuous welding, depending on machine settings and user technique.

- **Tungsten Electrode Sizes:** The machine is compatible with tungsten needle diameters of 1.6mm, 2.4mm, 3.2mm, and other sizes.
- **AC TIG:** Essential for welding aluminum and its alloys.
- **DC TIG:** Used for welding steel, stainless steel, copper, and other non-ferrous metals (excluding aluminum).

- **Pulse TIG:** This function provides better control over heat input, reducing distortion and improving weld quality, especially on thin materials.

5.2. MMA Welding (Manual Metal Arc / Stick Welding)

MMA welding does not require shielding gas, using a consumable electrode rod instead. This mode is often considered the simplest method for general soldering and DIY projects.

5.3. 2T/4T Multimode Switching

- **2T (Two-Touch) Mode:** Press and hold the torch trigger to start welding; release to stop. Suitable for short welds.
- **4T (Four-Touch) Mode:** Press and release the trigger to start welding; press and release again to stop. This mode is ideal for longer welds, reducing operator fatigue.

5.4. Control Panel and Settings

The machine features a clear and intuitive control panel for easy data display and adjustment of welding parameters. Parameters such as current range, pulse frequency, AC frequency, and duty cycle can be precisely set to achieve optimal welding results. An optional foot pedal can be connected for adjustable current control, freeing your hands during operation.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your Plasmargon TSE350P welding machine.

- **Cleaning:** Periodically clean the machine's exterior with a dry, soft cloth. Use compressed air to clear dust from internal components, ensuring the machine is unplugged.
- **Cable Inspection:** Regularly inspect all welding cables, power cords, and gas hoses for cuts, abrasions, or loose connections. Replace damaged components immediately.
- **TIG Torch Maintenance:** Clean the TIG torch regularly. Replace worn-out collets, collet bodies, and ceramic nozzles to maintain arc stability and gas shielding.
- **Storage:** Store the machine in a clean, dry environment, protected from dust and moisture, when not in use.

7. Troubleshooting

This section addresses common issues you might encounter during operation. For problems not listed here, contact customer support.

Problem	Possible Cause	Solution
Machine does not power on	No power supply; faulty power cable; internal fault.	Check power connection and outlet. Inspect power cable. If problem persists, contact service.
Difficulty starting arc (MMA/TIG)	Poor ground connection; incorrect welding parameters; contaminated tungsten/electrode; worn consumables.	Ensure ground clamp has good contact. Adjust current/voltage. Clean or replace tungsten/electrode. Replace TIG torch consumables.

Problem	Possible Cause	Solution
Poor weld quality	Incorrect settings; improper technique; insufficient gas shielding (TIG); contaminated material.	Adjust welding parameters. Practice welding technique. Check gas flow and connections (TIG). Clean workpiece thoroughly.
Overheating protection activates	Exceeded duty cycle; insufficient ventilation; high ambient temperature.	Allow machine to cool down. Ensure proper airflow around the machine. Reduce welding time or current.

8. Specifications

Technical specifications for the Plasmargon TSE350P welding machine:

Manufacturer:	Plasmargon
Model Number:	TSE350P
Power Source:	AC_DC
Voltage (Frequency):	110/220 V ± 15% (50/60 Hz)
Technology:	IGBT & Inverter
Rated Input Power:	5.5 kW
Open Circuit Voltage (OCV):	68 V
Current Range:	5-225A
Rise Time:	0.1~5s
Duty Cycle:	60%
Pulse Frequency:	0.1 ~ 25 Hz
AC Frequency:	20 ~ 150 Hz
Balance Ratio (AC):	10% to 90%
Efficiency:	85%
Protection Class:	-50 ~ +30
Power Factor:	0.93
Package Dimensions:	62.4 x 47.6 x 34.9 cm
Weight:	15.82 kg

9. Warranty and Support

For warranty information, technical support, or service inquiries regarding your Plasmargon TSE350P welding machine, please contact Plasmargon customer service through their official website or the retailer where the product was purchased. Please have your model number (TSE350P) and purchase date available when contacting support.

