H HZXVOGEN HVT250P-Dual

H HZXVOGEN HVT250P-Dual AC/DC TIG Welder with Pulse User Manual

Model: HVT250P-Dual

1. Introduction

This manual provides essential information for the safe and effective operation, setup, and maintenance of your H HZXVOGEN HVT250P-Dual AC/DC TIG Welder. This versatile machine supports both 110V and 220V power supplies, offering a maximum output current of 200A for stable and high-performance welding across various materials.

The HVT250P-Dual is equipped with IGBT inverter technology, providing multiple welding functions including AC TIG, DC TIG, Pulse TIG, and Stick (MMA) welding. It is designed for both professional and DIY applications, particularly excelling in aluminum welding with its AC square wave capabilities.

Image 1.1: Front view of the H HZXVOGEN HVT250P-Dual AC/DC TIG Welder with included accessories.

2. Safety Information

WARNING: Welding can be dangerous. Always follow safety precautions to prevent serious injury or death.

- **Electric Shock:** Can kill. Do not touch live electrical parts. Wear dry welding gloves and protective clothing. Ensure proper grounding.
- **Fumes and Gases:** Can be hazardous to your health. Keep your head out of the fumes. Use ventilation or exhaust to remove fumes from the breathing zone.
- **Arc Rays:** Can burn eyes and skin. Wear a welding helmet with a proper shade filter and protective clothing to protect your eyes and skin.
- **Fire and Explosion:** Welding sparks can cause fire or explosion. Keep flammable materials away from the welding area. Have a fire extinguisher readily available.
- **Hot Parts:** Can cause severe burns. Do not touch hot parts with bare hands. Allow equipment to cool before handling.
- **Noise:** Excessive noise can damage hearing. Wear ear protection.

This welder is equipped with safety systems including VRD (Voltage Reduction Device), over-voltage, over-current, overload, and overheat protections. Always ensure these systems are functioning correctly and do not bypass them.

3. Setup

3.1 Unboxing and Components

Carefully unpack the welding machine and all accessories. Verify that all components listed below are present and undamaged.

Image 3.1: Illustration of included components.

Package Includes:

1. AC/DC TIG Welder (HVT250P-Dual)
2. WP-17 TIG Torch
3. TIG Torch Consumables (collets, collet bodies, ceramic nozzles)
4. Ground Clamp
5. Electrode Holder (for Stick welding)
6. Argon Gas Hose

3.2 Power Connection

The HVT250P-Dual supports dual voltage input (110V/220V). Ensure the power source matches the machine's setting and is capable of providing sufficient current for your welding tasks. Connect the power cable securely to a grounded outlet.

3.3 Gas Connection

For TIG welding, an inert shielding gas (typically Argon) is required. Connect the argon gas hose from your gas cylinder regulator to the gas inlet on the rear panel of the welder. Ensure all connections are tight to prevent gas leaks.

3.4 Torch and Ground Clamp Connection

Connect the WP-17 TIG torch to the appropriate terminal on the front panel. The ground clamp should be connected to the workpiece or welding table, ensuring good electrical contact.

Image 3.2: Rear and front panel connections, including power, gas, and welding terminals.

3.5 Foot Pedal Connection (Optional)

If using an optional foot pedal for current control, connect it to the 5-pin foot pedal interface on the front panel of the welder.

Image 3.3: Close-up of the 5-pin foot pedal interface.

4. Operating Instructions

4.1 Control Panel Overview

Familiarize yourself with the control panel for setting welding parameters.

Image 4.1: Labeled control panel indicating safety indicator, pedal indicator, parameter adjustment, menu adjustment, and mode selections.

1. **Safety Indicator:** Illuminates to indicate a safety condition.
2. **Pedal Indicator:** Illuminates when a foot pedal is connected and active.
3. **Parameter Adjust:** Knob for adjusting selected welding parameters.
4. **Menu Adjust:** Button to cycle through adjustable parameters.
5. **MMA/TIG Mode:** Selects between Stick (MMA) and TIG welding.
6. **AC/DC Mode:** Selects between Alternating Current (AC) and Direct Current (DC) TIG welding.

7. **Pulse/Non-pulse Mode:** Activates or deactivates the pulse welding function.
8. **2T/4T Mode:** Selects between 2-Touch and 4-Touch trigger modes.

4.2 Welding Modes

The HVT250P-Dual offers multiple welding processes:

Image 4.2: Visual representation of the 5-in-1 welding capabilities: TIG AC Square, TIG AC Pulse Square, TIG DC Pulse, TIG DC, and MMA.

- **AC TIG Welding:** Ideal for aluminum and magnesium alloys. The alternating current helps break through surface impurities (oxide layer) for a clean weld.
- **DC TIG Welding:** Suitable for carbon steel, stainless steel, low alloy steel, and copper. Produces a stable arc with less spatter.
- **Pulse TIG Welding:** Provides better control over heat input, reducing distortion and improving penetration, especially on thin materials.
- **Stick (MMA) Welding:** For general-purpose welding with coated electrodes.

4.3 Parameter Adjustment

The machine allows precise adjustment of various welding parameters to optimize performance for different materials and thicknesses.

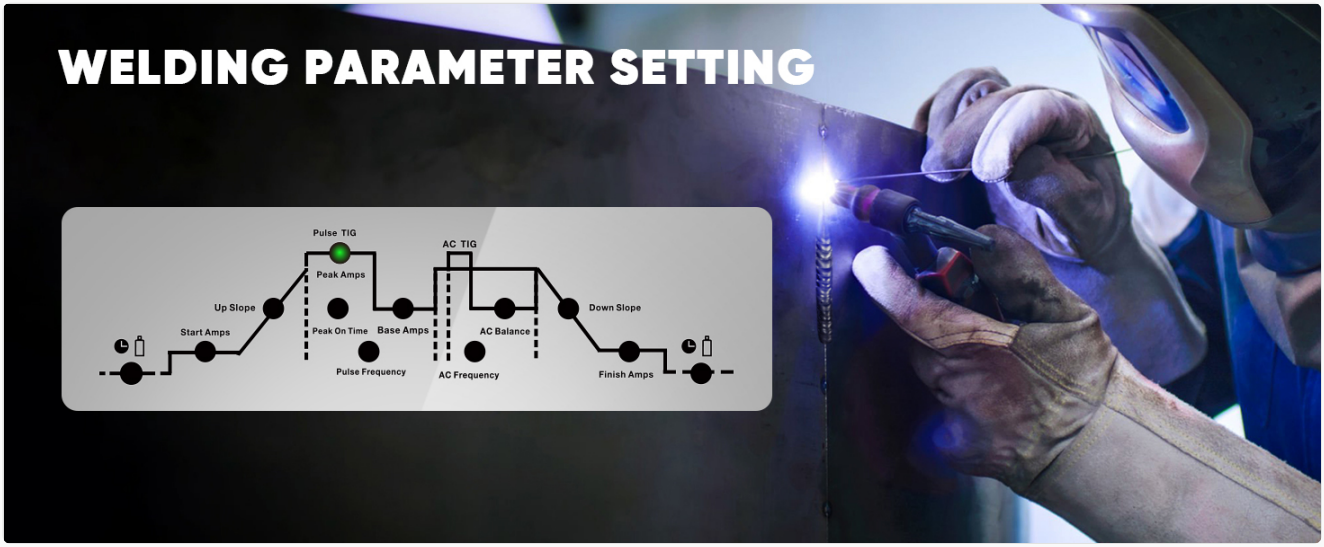

Image 4.3: Diagram showing adjustable parameters such as Pre-gas time, Start Amps, Up Slope, Peak Amps, Pulse On Time, Base Amps, Pulse Frequency, AC Frequency, AC Balance, Down Slope, and Finish Amps.

You can adjust parameters such as pre-gas time, start current, uphill time, peak current, AC frequency, pulse frequency, downhill time, and after-gas time. These settings contribute to clean, high-quality welds with minimal post-weld cleaning.

4.4 2T/4T Modes

- **2T (2-Touch) Mode:** High-frequency ignition remains active as long as the torch button is pressed. Releasing the button terminates the arc. This mode provides continuous control.
- **4T (4-Touch) Mode:** The arc ignites with a single press and release of the torch button. The arc continues until the button is pressed and released again, providing precise control over longer welds without continuous button holding.

4.5 Welding Aluminum

For welding aluminum, the AC TIG mode is recommended. The square wave output helps to clean the aluminum oxide layer, resulting in a strong and visually appealing weld. Adjusting AC frequency and balance can further refine the arc and bead appearance.

Image 4.4: Illustration of square wave (suitable for 1mm-2mm aluminum) and triangle wave (suitable for 2mm-4mm aluminum) for AC TIG welding.

4.6 Recommended Parameters for Aluminum TIG Alloy (Reference Only)

Plate Thickness (mm)	Slope Shape	Welding Layers	Tungsten Rod Diameter (mm)	Wire Diameter (mm)	Preheat Temperature (°C)	Welding Current (A)	Gas Volume (L/min)	Nozzle Radius (mm)
1.5	I groove	1/0	2	1.6-2.0	-	50-80	7-9	8
2	I groove	1/0	2-3	2-2.5	-	50-80	8-12	8-12
3	I groove	1/0	3	2-3	-	15-180	8-12	8
4	Y groove	1-2/1	4	3	-	20-180	10-15	10-12
5	Y groove	1-2/1	4	4-5	100	180-240	10-15	10-12
8	Y groove	2/1	5	4-5	100-150	260-320	16-20	14-16
10	Y groove	3-4/1-2	5-6	4-5	150-200	300-360	18-22	14-16
12	Y groove	4-5/1-2	5-6	5-6	200-220	340-380	20-24	16-20
16	Y groove	4-5/1-2	6	5-6	200-260	360-400	25-30	16-20
16-20	Double Y groove	16-20	6	5-6	200-260	300-380	25-30	16-20

Plate Thickness (mm)	Slope Shape	Welding Layers	Tungsten Rod Diameter (mm)	Wire Diameter (mm)	Preheat Temperature (°C)	Welding Current (A)	Gas Volume (L/min)	Nozzle Radius (mm)
22-25	Double Y groove	22-25	6-7	5-6	200-260	300-380	30-35	20-22

Table 4.1: Recommended welding parameters for aluminum and its TIG alloy. (For reference only; actual parameters may vary based on specific conditions and operator skill.)

5. Maintenance

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

- **Cleaning:** Periodically clean the exterior of the machine with a dry, soft cloth. Ensure ventilation openings are free from dust and debris to maintain efficient heat dissipation.
- **Torch and Consumables:** Inspect the TIG torch, collets, collet bodies, and ceramic nozzles regularly for wear and tear. Replace worn consumables to maintain arc stability and weld quality.
- **Cables and Connections:** Check all welding cables, power cords, and gas hoses for damage, cuts, or loose connections. Repair or replace damaged components immediately.
- **Internal Inspection:** For advanced maintenance, consult a qualified technician to inspect internal components and clean dust accumulation, especially around the cooling fan and heat sinks.

Image 5.1: Internal components highlighting efficient heat dissipation system with IGBT technology and cooling fan.

6. Troubleshooting

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

Problem	Possible Cause	Solution

Problem	Possible Cause	Solution
Welder does not power on	No power supply; Power switch off; Faulty power cable	Check power outlet and circuit breaker; Ensure power switch is ON; Inspect and replace power cable if damaged.
No arc ignition (TIG)	No gas flow; Incorrect gas type; Ground clamp not connected; Tungsten electrode not properly installed or contaminated; Incorrect welding mode selected.	Check gas cylinder and regulator; Ensure Argon gas is used; Secure ground clamp; Inspect and clean/replace tungsten; Verify TIG mode is selected.
Poor weld quality / Unstable arc	Incorrect welding parameters (current, frequency, balance); Contaminated workpiece; Worn or incorrect consumables; Insufficient shielding gas.	Adjust parameters according to material; Clean workpiece thoroughly; Replace worn torch consumables; Check gas flow and ensure no leaks.
Overheat protection activated	Exceeded duty cycle; Blocked ventilation; High ambient temperature.	Allow machine to cool down; Ensure clear airflow around the machine; Operate in a well-ventilated area.

7. Specifications

Detailed technical specifications for the H HZXVOGEN HVT250P-Dual AC/DC TIG Welder.

Image 7.1: Dimensions of the HVT250P-Dual TIG Welder (17.3in/45cm length, 6.2in/15cm width, 13.3in/33cm height).

Feature	Specification
Model Number	HVT250P-Dual
Manufacturer	H HZXVOGEN
Input Voltage	110V/220V (Dual Voltage)
Max Output Current	200A
Welding Processes	AC TIG, DC TIG, Pulse TIG, Stick (MMA)

Feature	Specification
Technology	IGBT Inverter, HF TIG
Material	ABS
Item Weight	44.9 pounds
Package Dimensions	21.5 x 18.2 x 14 inches
Color	Black
Included Components	AC TIG welder, HF TIG torch, ground clamp, electrode holder

8. Warranty and Support

Your H HZXVOGEN HVT250P-Dual TIG Welder comes with a **3-Year Extended Warranty**, ensuring peace of mind for your investment.
For any questions, technical assistance, or warranty claims, please contact H HZXVOGEN customer support. Our team is available **24/7** to provide assistance.
For more information, visit the official H HZXVOGEN store on Amazon:HZXVOGEN Store