



# FEROTIG 200

DC TIG MMA WELDER

..... OPERATING MANUAL





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# 1. Introduction

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Welcome to the FEROTIG 200 DC TIG Welder user manual. Thank you for choosing SWS Welding for your welding needs. The FEROTIG 200 is a high-performance, versatile welding machine designed to provide precise and efficient welding results for both professionals and hobbyists. This manual will guide you through the safety information, installation procedures, operational instructions, maintenance tips, troubleshooting techniques, and warranty information. Understanding and following the instructions provided in this manual will ensure optimal performance and longevity of your welding machine.



# Ultimate DC TIG welding

The SWS FEROTIG™ 200 is a portable welding machine ideal for steel and specialty metals like titanium and chromoly. It has digital controls and quality accessories, making it a good choice for professional fabricators and hobby welders. This machine excels in DC TIG and stick welding, providing reliability and precision for various welding tasks.



**This manual will guide you through the safety information, installation procedures, operational instructions, maintenance tips, troubleshooting techniques, and warranty information. Understanding and following the instructions provided in this manual will ensure optimal performance and longevity of your welding machine.**

## General Safety Precautions



**Electric Shock:** Can be fatal. Ensure proper grounding and avoid touching live electrical parts or electrodes with bare skin, wet gloves, or wet clothing. Insulate yourself from the workpiece and maintain a safe stance.

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**Fumes and Gases:** Hazardous to health. Ensure good ventilation and use fume extraction systems to keep fumes and gases away from your breathing zone. In confined spaces, use an approved air-supplied respirator.

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**Arc Rays:** Can injure eyes and skin. Always use an approved welding helmet with the correct shade of filter lens, and wear protective clothing. Shield bystanders with appropriate screens or curtains.

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**Fire Hazard:** Sparks can cause fires. Keep flammable materials away from the welding area. Never weld on closed containers such as tanks, drums, or pipes without proper preparation and ventilation.

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**Noise:** Excessive noise can damage hearing. Use ear protection and warn bystanders of the risk.

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**Hot Parts:** Items being welded generate high heat and can cause severe burns. Do not touch hot parts with bare hands; use insulated gloves and allow parts to cool before handling.

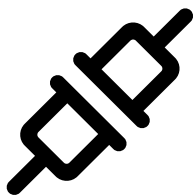


## 2. Safety Information



**Avoid Live Electrical Parts:** Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit are electrically live whenever the output is on. The input power circuit and internal machine circuits are also live when power is on.

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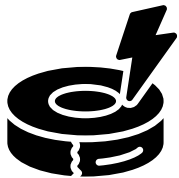
**Proper Connection:** Connect the primary input cable according to local standards and regulations. Avoid all contact with live electrical parts of the welding/cutting circuit, electrodes, and wires with bare hands.

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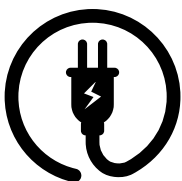
**Use Dry Gloves:** The operator must wear dry welding gloves while performing the welding/cutting task.

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**Insulate the Workpiece:** The operator should keep the workpiece insulated from themselves.

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**Maintain Cords:** Keep cords dry, free of oil and grease, and protected from hot metal and sparks. Frequently inspect the input power cable for wear and tear, and replace the cable immediately if damaged. Bare wiring is dangerous and can kill.

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**Use Proper Cables:** Do not use damaged, undersized, or poorly joined cables. Do not drape cables over your body.

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**Magnetic Fields:** Can affect implanted medical devices. Wearers of such devices should avoid welding areas and consult their doctor before operating welding equipment.

# 3. Safety Information



**Gas Cylinders:** Gas cylinders contain high-pressure gas and can explode if damaged. Protect cylinders from heat, physical damage, and ensure they are secured upright. Do not allow the welding electrode or earth clamp to touch the cylinder.

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**Gas Build-Up:** Accumulation of gas can create a toxic environment. Shut off the gas supply when not in use and ventilate confined spaces properly.

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**RCD Safety Switch:** It is recommended to use an RCD (Residual Current Device) safety switch with this equipment to detect any leakage of current to earth.

## Emergency Procedures

- **In case of fire:** Know the location of fire extinguishers and how to use them. Be aware that sparks can travel through small cracks and openings, causing fires in adjacent areas.
- **First Aid:** Familiarize yourself with first aid procedures for electric shock, burns, and inhalation of fumes. Ensure a first aid kit is accessible in the workplace.

## Gas Leakage Check Procedure

1. Connect the regulator and gas hose assembly and tighten all connectors and clamps.
2. Slowly open the cylinder valve.
3. Set the flow rate on the regulator to approximately 8-10 L/min.
4. Close the cylinder valve and observe the needle indicator of the contents pressure gauge on the regulator. If the needle drops, there is a gas leak.
5. Check all connectors and clamps for leakage using soapy water. Tighten clamps or fittings to eliminate gas leakage.

## Important Safety Notes

- Do not switch function modes while the machine is operating to avoid damage.
- Disconnect the electrode-holder cable from the machine before switching it on to avoid arcing.
- Operators should be trained and qualified.
- Keep cords dry, free of oil and grease, and protected from hot metal and sparks.
- Frequently inspect the input power cable for wear and tear, and replace it immediately if damaged.

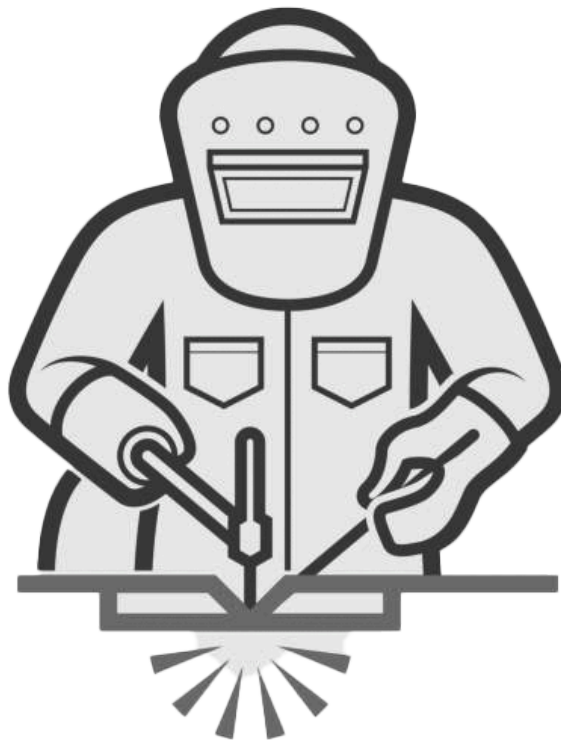


## Use of this Equipment

- This product is only intended for welding. Any other use may result in personal injury and equipment damage.
- Read and understand the instruction manual before installing or operating.

## Personal Protective Equipment (PPE)

- Always wear approved personal safety equipment, such as welding helmets, safety glasses, flame-proof clothing, and safety gloves.
- Never wear loose-fitting items that can become trapped or cause serious injury burns.



# Specifications



**Model:** FEROTIG 200

**Processes Supported:**

- HF TIG DC (GTAW-DC)
- LIFT TIG DC (GTAW-DC)
- Pulsed TIG (GTAW-P)
- Stick DC (MMA)

**Current Type:** DC

**Weldable Metals:**

- Mild Steel (DC)
- Stainless Steel (DC)
- Specialty Metals



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## Industries:

- Steel and Stainless Steel Fabrication
- Stainless Steel Tank and Pipe Fabrication
- Boat Building / Shipyards
- Motorcycle Custom Shops
- Automotive Custom Shops
- Automotive Components and Repairs
- Motorcycle Components and Repairs
- Technical Schools
- Aerospace
- Agriculture
- Farming
- Building and Construction
- Home Repair Workshops

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**Input Voltage:** 1 Phase 230V +/- 15% (15 Amp Plug)

**Input Hz:** 50/60 Hz

**Min Generator:** 6.6kW (8.5kVA at 0.8 PF)

Duty Cycle (TIG - MMA) 40° C AMB: 25% @ 200A, 100% @ 100A

Duty Cycle (TIG - MMA) 25° C AMB: 40% @ 200A, 100% @ 140A

**Welding Current Range:** 10-200 Amps

**Arc Ignition:** HF, Lift TIG

## 2. Specifications



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### Parameters TIG:

**Pre-Flow:** 0.5-10s

**Post-Flow:** 0-20s

**Start-Amps:** 5-100%

**End-Amps:** 5-100%

**Upslope:** 0-10s

**Downslope:** 0-10s

**Pulse Peak Amps:** 10-200 Amps

**Pulse Time On:** 10-90%

**Pulse Frequency:** 0.1-500 Hz

**Pulse Base Amps (TIG):** 20-50%

**Hot Start (MMA):** 0-60 Amps

**Arc Force (MMA):** 0-99%

**Tack Time:** 0.1-10s

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**Dimensions:** L 435mm, H 265mm, W 180mm

**Weight:** 8 Kg

**Warranty:** 3 Years Standard, 5 Years Extended

**Manufactured to Standards:** AS60974.1:2006, IEC60974.10, CE

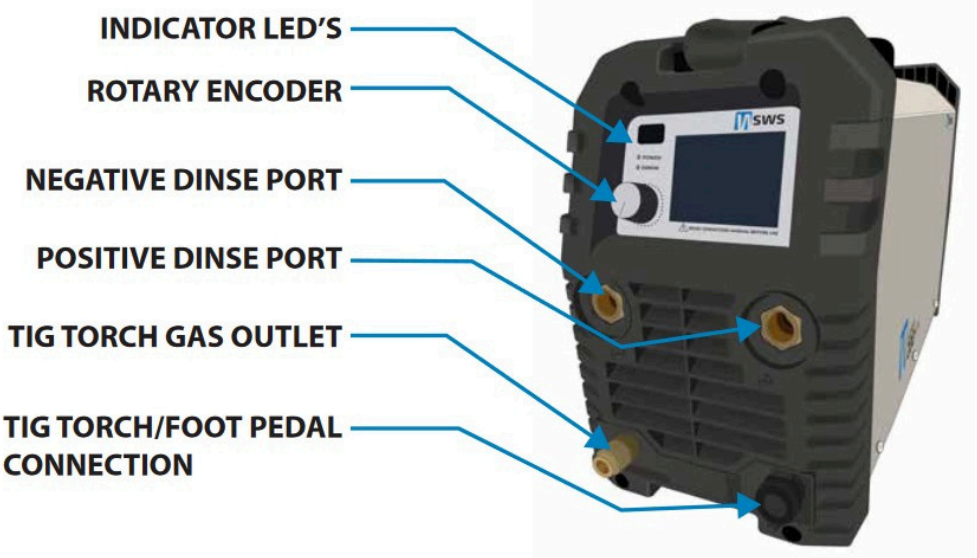
**Country of Manufacture:** Made in China

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## Package Contents

- 8 Meter 17 Series TIG flex head torch with amp control and single switch control
- Argon Regulator & Hose
- 4 Meter ground clamp
- Spares Kit

## Front Panel



## Rear Panel

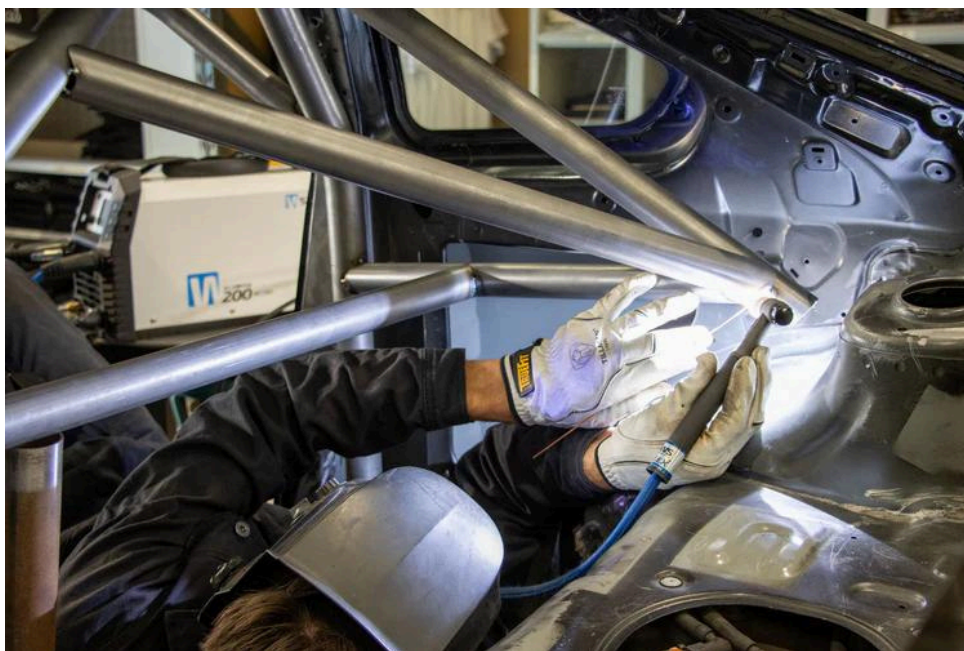


## Working Environment

- Ensure the workspace is free from excessive grinding dust, natural dust, flammable and corrosive chemicals, flammable gas or materials, etc. The humidity should not exceed 80%.
- When using the equipment outdoors, protect it from precipitation and direct sunlight. The working temperature environment should be between  $-15^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$ .
- Keep the machine at least 250mm away from walls to ensure proper ventilation.

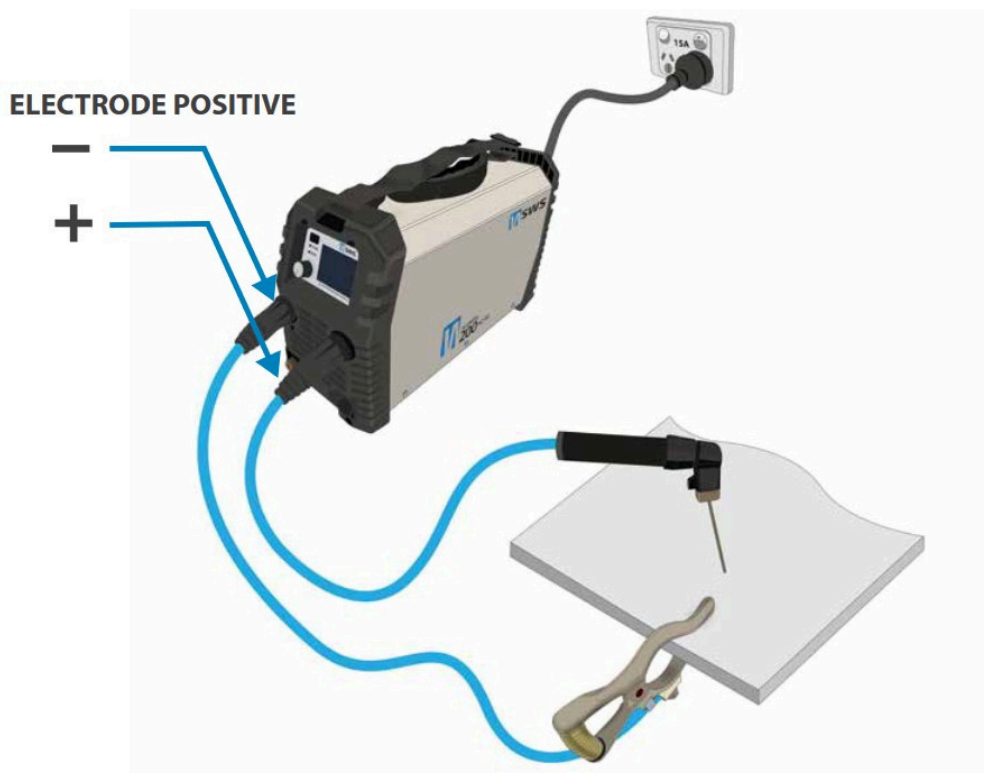
## Ventilation and Cooling

- Ensure the cooling system is unobstructed and clean the ventilation slots regularly to prevent overheating.
- Place the machine in a well-ventilated area to allow for adequate air circulation.



## Machine Setup for Stick Welding

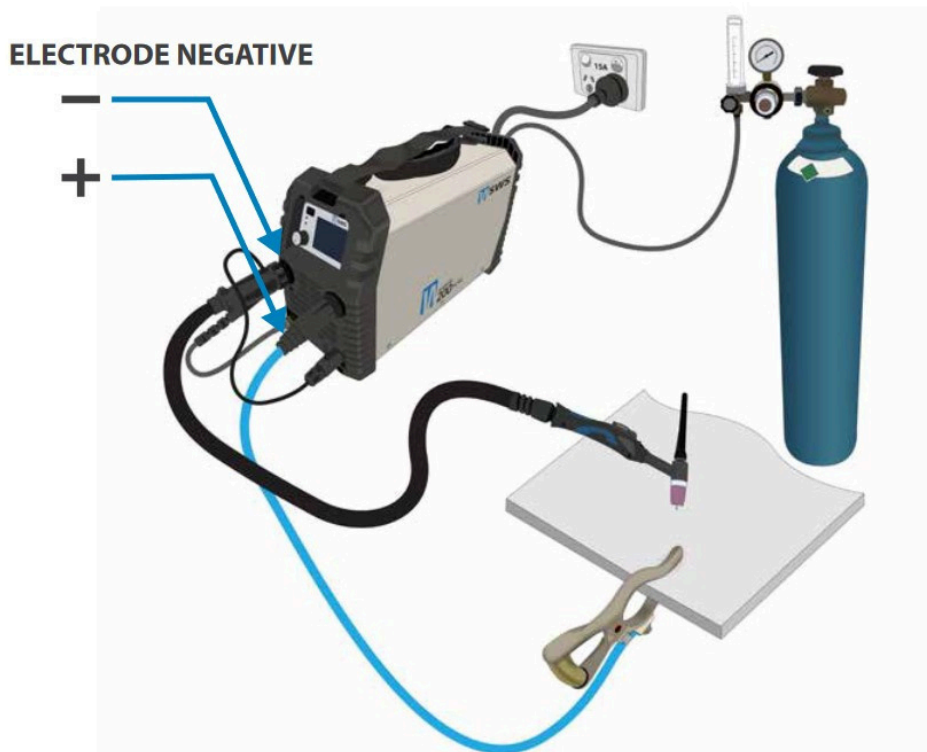
1. Connect the ground clamp to the negative connection (DCEP) and the torch to the positive connection (+).





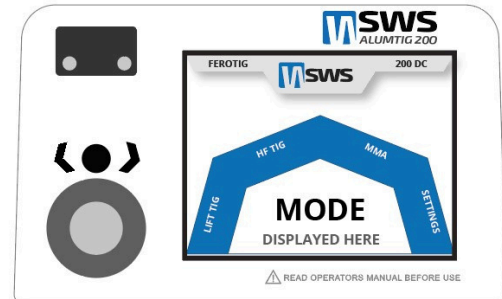
## Machine Setup for TIG Welding

1. Connect the ground clamp to the positive connection (+) and the welding torch to the negative connection (-).
2. Connect the 7-pin plug into the control connector, taking care to align it correctly.
3. Connect the gas line.



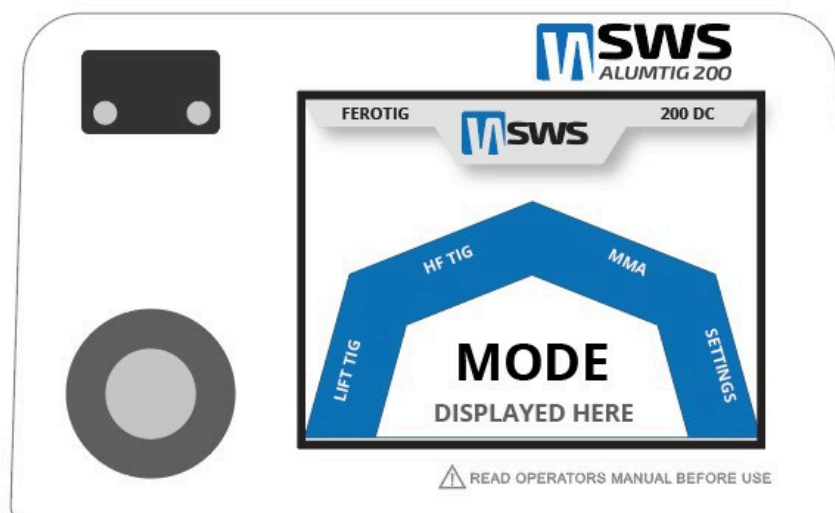
## ROTARY ENCODER

1. Rotate to choose setting
2. Press to select setting
3. Rotate to adjust setting
4. Press to store setting
5. Rotate to choose setting
6. Main Menu rotate and select to return



## Main Menu

- **LIFT TIG:** This mode requires the tungsten to touch the metal, then press the button and lift to start the arc. This setting is used where HF may cause problems when used around sensitive electronics.
- **HF TIG:** Control all DC welding parameters. When a setting is modified, it saves automatically in the current program selection (HF 1, 2, 3, 4, 5).
- **MMA:** Stick welding mode.
- **Reset:** Reset all welding parameters to defaults and reset welding timer.
- **Timer:** Displays current total welding time for all welding modes.
- **Firmware Version:** Displays the software version.



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## Main Menu

**Function:** PRE FLOW (1-10 Seconds)

Provides gas to the weld zone prior to striking the arc, reducing weld porosity at the start of a weld.

**Function:** START AMPS

Sets the start current for TIG. In 4T mode, the Initial Current remains on until the torch trigger switch is released. In 2T mode, this is the Initial Current for the Up Slope current ramp.

**Function:** UPSLOPE

Sets the time for the weld current to ramp up from INITIAL current to BASE current.

**Function:** WELDING AMPS

Sets the welding current. In PULSE TIG mode, this parameter sets the PEAK current.

**Function:** PULSE BASE AMPS

In PULSE TIG mode, sets the BASE current.

**Function:** DOWNSLOPE

Ramps amps “down” from the welding amp value to the end amp value to fill the crater left at the end of the weld bead. Can also be used in 4T mode to control heat by briefly tapping the switch to cool off the weld before restarting the up slope sequence.

**Function:** PULSE TIME ON

The pulse consists of two stages: Welding amps (upper/Peak) and Pulse amps (lower/background current). This feature helps manage heat input by adjusting the pulse amp time relative to the welding amp time.

**Function:** PULSE FREQUENCY

Defines the number of times per second the pulse makes a complete cycle between welding amps (peak) and pulse amps (background).

# TIG Welding Functions



**Function:** BUTTON CONTROL (2T, 4T, TACK CONTROL 0.1 - 10 Seconds)

**2T MODE:** Press and hold the switch. The program will cycle automatically. Release to terminate with post gas flow.

**4T MODE:** Press and hold to start the pre-flow, then start amps part of the cycle. Release to begin upslope. Press and hold again to start downslope. Release to terminate with post flow.

**TACK CONTROL:** Controls the arc on time for precision tack welds.

## MMA Stick Welding Functions

**Function:** HOT START

Sets the starting amps to reduce sticking of the electrode during the arc strike phase.

**Function:** WELD AMPS

Defines the top limit of amps at which the machine operates.

**Function:** ARC FORCE

Controls the arc response when an arc is held short and voltage begins to drop. Arc force automatically compensates by modifying the volt/amp curve to maintain the energy needed to weld. Represented as a percent of available arc force amperage.

**General Maintenance** Regular maintenance of the FEROTIG 200 is essential to ensure its longevity and optimal performance. Follow these guidelines for proper maintenance:

- **Exterior Cleaning:** Clean the exterior of the power source regularly using a dry brush or compressed air.
- **Interior Cleaning:** Periodically inspect and clean the interior of the machine using compressed air (not exceeding 70 Psi) to remove dust and debris. Ensure the machine is unplugged before performing any maintenance.
- **Cable Inspection:** Frequently inspect the input power cable and welding cables for wear and tear. Replace any damaged cables immediately.
- **Cooling System:** Ensure the cooling system is unobstructed and the ventilation slots are clean to prevent overheating.

**Troubleshooting Tips** Refer to the following troubleshooting tips for common issues:

- **Over Temperature Error:** Allow the machine to cool down before resuming use. Ensure proper ventilation and allow machine to cool while power is on if duty cycle exceeded.
- **Over Current Error:** Check the input power and connections. Ensure the power supply matches the machine's requirements.
- **Porosity or Poor Weld Appearance:** Ensure proper gas flow and clean the base metal thoroughly. Check for contamination in the filler material.
- **Unstable Arc:** Verify correct tungsten and filler material usage. Ensure proper gas flow and check for any leaks in the gas supply.

## **Tungsten Corrodes Quickly:**

- Incorrect gas: Check that 100% Argon is being used.
- No gas: Check the gas cylinder contains gas and is connected.
- Inadequate gas flow: Check the gas is connected, check hoses, gas valve, and torch are not restricted. Set the gas flow between 15–25 CFH (7–12 LMN) flow rate.
- Back cap not fitted correctly: Make sure the torch back cap is fitted so that the O-ring is inside the torch body.
- Torch connected to DC+: Connect the torch to the DC- output terminal.
- Incorrect tungsten being used: Check and change the tungsten type if necessary.
- Tungsten being oxidized after weld is finished: Keep shielding gas flowing after arc stoppage. 1 second for each 10 amps of weld current.
- Tungsten melting back into the nozzle: Check that correct type of tungsten is being used.

## **Contaminated Tungsten Electrode:**

- Touching tungsten into the weld pool: Keep tungsten from contacting weld puddle. Raise the torch so that the tungsten is off of the work piece.
- Touching the filler wire to the tungsten: Keep the filler wire from touching the tungsten during welding, feed the filler wire into the leading edge of the weld pool in front of the tungsten.
- Tungsten melting into the weld pool: Check that correct type of tungsten is being used. Too much current for the tungsten size so reduce the amps or change to a larger tungsten.

## **Porosity and or Poor Weld Appearance and Color:**

- Incorrect Gas: Check that 100% Argon is being used.
- Contaminated base metal: Remove all grease, oil, or moisture from filler metal.
- Incorrect filler wire: Remove contaminating materials like paint, grease, oil, and dirt, including mill scale from base metal.
- Incorrect arc length: Set the torch so that the tungsten is off of the work piece 1/8"–1/4" (3–5mm).
- Tungsten is contaminated: Check and change the size and or the tungsten if required.



- Incorrect tungsten size and or tungsten being used: Grind marks should run lengthwise with tungsten, not circular. Use proper grinding method and wheel.
- Contaminated base metal: Remove all grease, oil, or moisture from filler metal.
- Incorrect filler wire: Remove contaminating materials like paint, grease, oil, and dirt, including mill scale from base metal.

## **Arc Difficult to Start or Will Not Start DC Welding:**

- Incorrect machine set up: Check machine set up is correct.
- No gas, incorrect gas flow: Check the gas is connected and cylinder valve open, check hoses, gas valve and torch are not restricted. Set the gas flow between 15–25 CFH (7–12 LMN) flow rate.
- Tungsten is contaminated: Remove 3/8" (10mm) of contaminated tungsten and re-grind the tungsten.
- Incorrect tungsten size and or tungsten being used: Check and change the size and or the tungsten if required.
- Loose connection: Check all connectors and tighten.
- Ground clamp not connected to work: Connect the ground clamp directly to the work piece wherever possible.
- Loss of high frequency: Check torch and cables for cracked insulation or bad connections.

**Warranty Information** The FEROTIG 200 comes with a 3-year warranty, extendable to 5 years upon registration on our website. This warranty covers manufacturing defects but excludes damage caused by misuse, accidents, or unauthorized repairs. For service and support, contact SWS Welding customer service.

## Warranty Claim Process:

- Contact the SWS Welding customer service line at (03) 5766 2331 for diagnosis and instructions.
- If qualified, you will not incur postage costs for warranty repairs. If not, you will be responsible for postage, parts, and labor costs.
- Ensure you have registered your product on our website to take advantage of the extended warranty and access the support portal.

## Additional Warranty Information:

- Coverage: The warranty covers parts and labor for repairs caused by manufacturing defects.
- Exclusions: The warranty does not cover damage caused by accidents, misuse, neglect, or unauthorized repairs. Consumables and accessories are also excluded.
- Registration: Register your product on our website within 30 days of purchase to activate the extended warranty.
- Transferability: The warranty is transferable to subsequent owners, provided the original proof of purchase and warranty registration are supplied.

For detailed terms and conditions, visit [swswelding.com.au/pages/warranty](https://www.swswelding.com.au/pages/warranty).



## Address

SWS Welding & Cutting  
PO BOX 50  
Glenrowan, Victoria Australia 3675



## Website

[www.sws welding.com.au](http://www.sws welding.com.au)



## Phone Number

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