STAHLWERK AC/DC TIG 200 CUT ST

STAHLWERK AC/DC TIG 200 CUT ST 3-in-1 Welding Machine Instruction Manual

Model: AC/DC TIG 200 CUT ST

1. Introduction

The STAHLWERK AC/DC TIG 200 CUT ST is a versatile 3-in-1 combined welding machine designed for a wide range of metalworking tasks. This compact device integrates TIG welding, MMA (Manual Metal Arc) electrode welding, and plasma cutting functionalities. It is engineered to provide high performance and precision for both professional and demanding DIY applications.

This manual provides essential information for the safe and effective operation, setup, maintenance, and troubleshooting of your STAHLWERK AC/DC TIG 200 CUT ST machine. Please read it thoroughly before initial use and keep it for future reference.

Image 1: The STAHLWERK AC/DC TIG 200 CUT ST 3-in-1 welding machine with all included accessories, showcasing its comprehensive capabilities.

2. Safety Instructions

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

- **Eye and Face Protection:** Always wear a welding helmet with appropriate shade filter to protect against arc flash and sparks.
- **Body Protection:** Wear flame-resistant clothing, heavy-duty gloves, and safety shoes. Avoid synthetic fabrics.
- **Ventilation:** Ensure adequate ventilation to remove welding fumes and gases from the work area. Use a fume extractor if necessary.
- **Electrical Safety:** Ensure the machine is properly grounded. Do not operate in wet conditions. Inspect cables and connections for damage before each use.
- **Fire Prevention:** Keep flammable materials away from the welding area. Have a fire extinguisher readily available.
- **Gas Cylinders:** Secure gas cylinders to prevent tipping. Use appropriate regulators and hoses.

- **Plasma Cutting Hazards:** Be aware of molten metal spray and intense UV radiation during plasma cutting.
- **First Aid:** Know basic first aid procedures for burns and electrical shock.

3. Product Overview

3.1 Key Features

- **3-in-1 Functionality:** Combines AC/DC TIG welding, MMA (ARC) welding, and Plasma cutting.
- **AC/DC TIG Welding:** Suitable for welding almost all metals, including steel, stainless steel, aluminum, and copper.
- **Precise Plasma Cutting:** Generates a plasma jet for precise cutting of conductive metals like standard steel, stainless steel, copper, aluminum, and titanium.
- **Cutting Thickness:** Capable of separation cuts up to 12 mm (ST37 structural steel), 8 mm (V2A/V4A stainless steel), and 5 mm (aluminum). Cutting current continuously adjustable from 20 to 45 A.
- **Modern IGBT Technology:** Ensures high performance and efficiency across all functions.
- **HF Ignition:** High-frequency ignition for TIG welding and HF contact ignition for plasma cutting for reliable arc starting.
- **Air Post-Flow:** Adjustable air post-flow for plasma cutting to protect consumables.
- **Compact Design:** Weighs approximately 16 kg for comfortable transport and handling.
- **Smart Cooling & Overheating Protection:** Ensures maximum operational duration and protects the device.
- **Splash Protected:** Designed for quality welding results even in unfavorable conditions.
- **Hotstart Function:** Automatic voltage increase for optimal ignition results in MMA welding.
- **Anti-Stick Function:** Prevents the electrode from sticking during MMA welding.

Image 2: Welder in action, illustrating the machine's diverse capabilities and advanced features.

3.2 Control Panel

The intuitive control panel allows for precise adjustment of welding and cutting parameters.

Image 3: Detailed view of the clear and intuitive control panel.

- **Digital Display:** Shows current settings (e.g., '200' for amperage).
- **Mode Selection Buttons:** For TIG (2T/4T), AC/DC, WIG/MMA/CUT.
- **Rotary Knobs:** Adjustments for Gas Pre-Flow, AC Balance, Current Down Slope, and Gas Post-Flow.
- **Current/Cutting Current Knob:** Main adjustment for welding or cutting amperage.
- **Indicator Lights:** For Overcurrent and Overheating warnings.

3.3 Connections

The machine features clearly labeled and easily accessible connections for all functions.

Image 4: Rear connections for comfortable operation.

- **MMA Output:** Connection for MMA electrode holder.
- **TIG/CUT Trigger:** Connection for torch trigger.
- **TIG/MMA +/-:** Connections for TIG torch and ground clamp.
- **CUT Output:** Connection for plasma torch.
- **Gas/Air Input:** Connection for inert gas (TIG) or compressed air (Plasma).

4. Setup

4.1 Unpacking and Inspection

- Carefully remove the welding machine and all accessories from the packaging.
- Inspect all components for any signs of damage during transit. Contact your supplier immediately if any damage is found.
- Ensure all listed accessories are present.

4.2 Power Connection

- Connect the machine to a suitable power supply according to local electrical regulations.
- Ensure the power outlet has adequate amperage and proper grounding.

4.3 Gas/Air Connection

- **For TIG Welding:** Connect an inert gas cylinder (e.g., Argon) with a pressure regulator to the gas input.
- **For Plasma Cutting:** Connect an air compressor with a suitable pressure regulator to the air input. Ensure the air supply is clean and dry.

4.4 Torch and Ground Clamp Attachment

- Connect the TIG torch, MMA electrode holder, or Plasma torch to their respective outputs.
- Attach the ground clamp cable to the appropriate terminal and secure the clamp to the workpiece, ensuring good electrical contact.

Image 5: Overview of suitable accessories for various operations.

5. Operating Modes

5.1 TIG Welding (Tungsten Inert Gas)

TIG welding provides precise control and high-quality welds, suitable for various metals.

Image 6: TIG welding in progress, demonstrating precision and control.

- **Select TIG Mode:** Use the mode selection button to choose TIG.
- **AC/DC Selection:** Select AC for aluminum and magnesium alloys, DC for steel, stainless steel, copper, and titanium.
- **Adjust Current:** Set the desired welding current using the main current knob.
- **Gas Pre-Flow/Post-Flow:** Adjust these settings to protect the tungsten electrode and the weld puddle from atmospheric contamination.
- **AC Balance (AC TIG only):** Adjust for cleaning action and penetration when welding aluminum.
- **2T/4T Mode:** 2T (Two-Touch) for simple on/off control; 4T (Four-Touch) for continuous welding without holding the trigger.
- **HF Ignition:** The machine uses high-frequency ignition for a non-contact arc start.

5.2 MMA Welding (Manual Metal Arc / Stick Welding)

MMA welding is suitable for outdoor use and thicker materials, offering robustness and versatility.

Image 7: MMA welding on metal profiles, showcasing the process.

- **Select MMA Mode:** Use the mode selection button to choose MMA.
- **Adjust Current:** Set the welding current according to the electrode type and diameter.
- **Hotstart:** This function automatically increases the voltage at the start for easier arc ignition.
- **Anti-Stick:** Prevents the electrode from sticking to the workpiece, making it easier to restart the arc.

5.3 Plasma Cutting (CUT)

Plasma cutting offers fast and precise cuts on conductive metals.

- **Select CUT Mode:** Use the mode selection button to choose CUT.
- **Adjust Cutting Current:** Set the desired cutting current (20-45 A) based on the material type and thickness.
- **Air Pressure:** Ensure the compressed air supply is set to the recommended pressure for optimal cutting performance.
- **HF Contact Ignition:** The plasma torch uses HF contact ignition for reliable arc starting.
- **Cutting Technique:** Maintain a consistent torch height and travel speed for clean cuts.

6. Maintenance

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

- **Cleaning:** Regularly clean the machine's exterior with a dry cloth. Keep ventilation openings free from dust and debris.
- **Internal Cleaning:** Periodically open the casing (only by qualified personnel) and clean internal components with compressed air to remove dust buildup.
- **Cable Inspection:** Check all cables, hoses, and connections for wear, cuts, or damage before each use. Replace damaged parts immediately.
- **Torch Consumables:** Inspect and replace TIG electrodes, plasma cutting nozzles, and electrodes as they wear out.
- **Air Filter (for Plasma):** If applicable, clean or replace the air filter on your compressor or the machine's air input to ensure clean air supply.

Image 8: Smart cooling system for extended operational life.

7. Troubleshooting

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

Problem	Possible Cause	Solution
No power to the machine	Power cable disconnected, circuit breaker tripped, faulty power switch.	Check power cable connection, reset circuit breaker, ensure power switch is ON.
Welding arc unstable or difficult to start (TIG/MMA)	Incorrect current setting, poor ground connection, contaminated electrode/tungsten, incorrect gas flow.	Adjust current, ensure clean and secure ground, clean/replace electrode/tungsten, check gas flow and purity.
Poor plasma cutting quality	Incorrect cutting current, low air pressure, worn nozzle/electrode, contaminated air supply.	Adjust cutting current, check air pressure, replace worn consumables, ensure clean and dry air.
Overheating indicator active	Exceeded duty cycle, blocked ventilation, high ambient temperature.	Allow machine to cool down, ensure clear ventilation, operate in a cooler environment.

8. Specifications

Technical data for the STAHLWERK AC/DC TIG 200 CUT ST.

Specification	Value
Manufacturer	STAHLWERK
Model Number	6920
Product Dimensions (L x W x H)	58 x 41 x 55 cm
Weight	16 kg
TIG/MMA Welding Current	Up to 200 A
Plasma Cutting Current	Up to 45 A
Max. Plasma Cutting Thickness (ST37 Steel)	12 mm
Max. Plasma Cutting Thickness (Stainless Steel)	8 mm
Max. Plasma Cutting Thickness (Aluminum)	5 mm
Included Components	Welding Machine
Spare Parts Availability	Information unavailable

Image 9: Product dimensions for planning workspace and storage.

9. Warranty and Support

STAHLWERK offers a 7-year warranty on this product, ensuring extended coverage and peace of mind for your investment. For any technical assistance, warranty claims, or spare parts inquiries, please contact STAHLWERK customer support through their official channels or the retailer where the product was purchased.
For further information and support, please visit the official STAHLWERK website or contact their service department directly.

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. Privacy details.

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question