



INDUSTRIAL EQUIPMENTS PVT. LTD.

iTIG250ACDC

TIG 250 AC/DC Pulse Welding Machine

IGBT inverter | AC TIG · DC TIG · Pulse TIG · MMA | 1 phase 220 V | 5 - 250 A



INSTRUCTION MANUAL

Please read this manual carefully before installing and using the machine.

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This manual contains the description, installation, operation, safety and maintenance instructions for the Cruxweld iTIG250ACDC TIG 250 AC/DC Pulse Welding Machine.

Please read and understand this manual before installing and operating the machine, and keep it near the machine for future reference.

Cruxweld provides a warranty for this machine from the date of purchase, as stated in Chapter 10.

Cruxweld improves its products continuously. The contents of this manual may be revised without prior notice.

Signs used in this manual

▲ DANGER	Immediate danger which will cause death or serious injury if it is not avoided.
▲ WARNING	A potential hazard which may cause death or serious injury if it is not avoided.
▲ CAUTION	A hazard which may cause injury or damage to the machine if it is not avoided.
Note	Useful information for correct operation.

1 Safety precautions

Arc welding can be dangerous to the operator and to people in or near the work area. Follow the precautions in this manual, otherwise accidents may occur. The supply installation, the choice of the work site and the use of high-pressure gas must comply with the applicable standards and regulations. Installation, operation, maintenance and repair must be carried out only by trained and qualified persons. Unauthorised persons must be kept out of the welding area.

The machine must not be used for any purpose other than welding (for example battery charging, heating or thawing frozen pipes).

1.1 Electric shock can kill

- Never touch live parts, the tungsten electrode, the electrode holder or bare metal parts of the torch while the machine is switched on.
- Have a qualified electrician earth the machine and connect the supply cable. Cable insulation must not be damaged.
- In damp or confined places, make sure that your body is insulated from the workpiece and the ground. Wear dry insulating gloves and rubber-soled shoes.
- Use a safety harness when working at height.
- Switch off the machine and the mains isolator when not working and before connecting cables or carrying out maintenance.

1.2 High frequency (HF) arc ignition

- The HF arc starter produces a high voltage at the torch. Never touch the tungsten or the torch head while pressing the trigger.
- HF can interfere with radio, computers, CNC controls and other electronic equipment. Keep the torch and work cables short and close together, and earth the workpiece and the machine properly.
- Persons with a cardiac pacemaker must consult their doctor before welding or going near welding operations.

1.3 Fumes and gases

- Use fume extraction or good ventilation to avoid poisoning and suffocation. Argon is heavier than air and collects in low places.
- When working inside a tank or container, harmful gases can collect around you. Provide special ventilation and have a second person watch from outside.

1.4 Arc rays, spatter and hot metal

- Wear a welding helmet with a filter of sufficient shade (normally 10 – 13 for TIG). Arc rays burn the eyes and skin.
- Wear leather gloves, long-sleeved flame-resistant clothing, a cap, an apron and safety shoes to protect against arc rays, spatter and hot slag.
- Protect other people with non-flammable screens.

1.5 Fire and explosion

- Remove combustible material from the welding area. Sparks and hot metal can cause fire.
- Tighten the work cable connection to the workpiece. A loose connection can overheat and cause fire.
- Never weld on tanks, drums or pipes that contain or have contained flammable gas or liquid.
- Keep a fire extinguisher ready at the work site.

1.6 Gas cylinders

- Secure the argon cylinder upright with a chain so that it cannot fall. Keep it away from heat, sparks and electrical circuits.
- Use a regulator and flow meter suitable for argon. Open the cylinder valve slowly and close it after work.

1.7 Rotating parts

- Keep fingers, hair and clothing away from the cooling fan and other rotating parts. Do not operate the machine with covers removed.

1.8 Moving and lifting the machine

- Carry the machine by its handles only, with the torch, cables and gas hose disconnected. Do not pull the machine by its cables.
- When a lifting device is used, the rope must be strong enough for the load and nobody may stand under the machine.
- Place the machine on a stable, level surface so that it cannot fall.

1.9 Machine malfunction

- If the machine does not work normally, stop using it at once and refer to Chapter 9, or contact Cruxweld service.
- Only qualified persons may open or repair the machine. Do not modify the machine.

▲ WARNING

Dangerous voltages remain inside the machine for some minutes after switching off. Wait at least 5 minutes after disconnecting the supply before removing any cover.

2 General description

The Cruxweld iTIG250ACDC is an IGBT inverter TIG welding machine with AC and DC output, pulse function and MMA (stick) welding. It welds aluminium and aluminium alloys (AC TIG) as well as mild steel, stainless steel, alloy steel, copper, nickel alloys and titanium (DC TIG), in thin sheet and thicker plate. The pulse mode reduces heat input and distortion and gives better control of the weld pool. It is suitable for professional fabrication, maintenance and repair work.

2.1 Features

- IGBT inverter with closed-loop control – stable, concentrated arc, resistant to supply voltage fluctuation.
- AC square-wave output with adjustable AC balance for clean, bright aluminium welds.
- Pulse TIG with adjustable peak current, base current, pulse frequency and pulse width.
- High-frequency (HF) arc ignition – contact-free arc start, even at low current.
- 2T / 4T torch trigger modes with start current and down slope for crater filling.
- Adjustable gas post-flow to protect the tungsten and the weld.
- MMA welding with hot start, arc force and anti-stick functions.
- Remote (foot pedal) control possible.
- Automatic shut-down on over-current, over-temperature and abnormal supply voltage, with the O.C indicator; the machine restarts when the fault clears.
- Switching frequency above the audible range for quiet operation; low losses for energy saving.

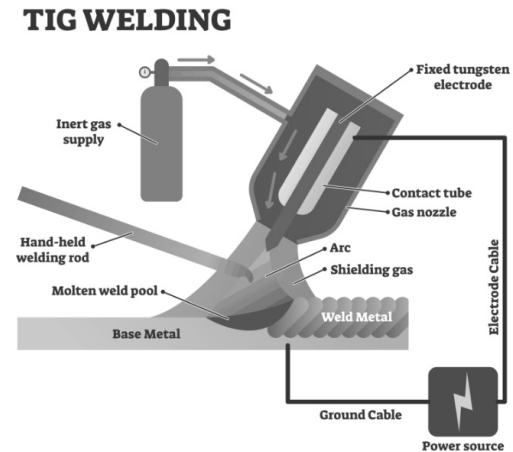


Fig. 2.1 The TIG welding process

2.2 Working principle

The single-phase supply is rectified and filtered. The IGBT inverter converts the DC into medium-frequency AC by PWM control. The main transformer reduces the voltage, and fast recovery diodes rectify it to DC for DC TIG and MMA. For AC TIG, a secondary inverter converts the DC into an AC square wave. The control circuit adjusts the output continuously, so the arc stays stable when the supply or the arc length changes.

2.3 Applications

Process	Materials
AC TIG	Aluminium and aluminium alloys, magnesium alloys
DC TIG / DC pulse TIG	Mild steel, low-alloy steel, stainless steel, copper and copper alloys, nickel alloys, titanium
MMA	Mild steel, low-alloy steel, stainless steel and cast iron with suitable electrodes

3 Technical specifications

Specification	iTIG250ACDC
Input voltage	1 phase ~ 220 V $\pm$10 %, 50 / 60 Hz
Rated input peak current	30 A
Power capacity	6.5 kVA
Welding current range - TIG	5 - 250 A
Welding current range - MMA	10 - 250 A
Duty cycle	60 %
No-load voltage without VRD	56 V
No-load voltage with VRD	9 V
Welding processes	AC TIG, DC TIG, pulse TIG, MMA
Arc start	High frequency (HF)
Arc force current range (MMA)	0 - 50 A
Spot welding time	0.5 - 10 s
Pre-flow time	0.1 - 10 s
Up-slope time	0 - 10 s
Down-slope time	0 - 15 s
Post-flow time	0.5 - 15 s
Pulse frequency	0.2 - 500 Hz
Pulse width	1 - 99 %
Remote control	Yes
Efficiency	85 %
Power factor (cos ϕ)	0.93
Torch cooling	Air (gas) cooled
Insulation class	H
Protection class	IP23
Dimensions (L x W x H)	590 x 345 x 485 mm
Weight	32 kg

Specifications may change without notice as a result of continuous improvement. The values on the rating plate of the machine apply. The adjustment range of each knob is printed on the front panel.

3.1 Scope of supply

No.	Item
1	iTIG250ACDC welding machine
2	Air-cooled TIG torch, 4 m (13 ft)
3	Electrode holder with 3 m (10 ft) cable
4	Earth clamp with 3 m (10 ft) cable
5	Gas hose
6	Argon regulator with flow meter
7	TIG accessories: 3 collets, 1 collet body, 3 alumina ceramic cups, 1 long back cap, 1 short back cap
8	User manual



Air-cooled TIG torch



TIG accessories

3.2 Duty cycle

The duty cycle is the percentage of a 10-minute period during which the machine can weld at a given current without overheating. For example, at 60 % duty cycle the machine can weld for 6 minutes and must then rest for 4 minutes.

The rated duty cycle of the iTIG250ACDC is **60 %** at the maximum welding current (see the rating plate).

If the duty cycle is exceeded, the over-temperature protection switches off the output and the **O.C** indicator lights. Leave the machine switched on so that the fan cools it; welding can continue when the indicator goes out.

3.3 Operating conditions

Ambient temperature during welding	–10 °C to +40 °C
Relative humidity	below 85 %, no condensation
Location	dry, out of direct sunlight and rain; free from heavy dust and corrosive gases
Free space around the machine	at least 20 cm; air inlets and outlets must never be blocked
Supply voltage	1 phase, 220 V ±10 %, 50 / 60 Hz

3.4 Rating plate symbols

U₀	No-load voltage, V	U₁	Rated supply voltage, V
X	Rated duty cycle, %	I_{1max}	Maximum input current, A
I₂	Welding current, A	I_{1eff}	Effective input current, A
U₂	Conventional load voltage, V	IP23	Degree of protection of the enclosure

4 Machine overview and controls



Fig. 4.1 Front view of the iTIG250ACDC

1	Handles	8	Output terminal (-) - electrode holder for MMA
2	O.C (protection) indicator	9	TIG torch connector (power and gas)
3	Current meter	10	Torch switch socket (2-pin)
4	Power switch (ON / OFF)	11	Remote control socket (4-pin)
5	Control knobs	12	Output terminal (+) - work cable
6	Remote ON / OFF switch	13	Side air louvers
7	Mode switches (2T/4T, MMA/TIG, AC/DC, pulse)		

4.1 Rear panel

The rear panel carries the **mains input cable**, the **gas inlet** (connection of the gas hose from the argon regulator) and the **cooling fan**. Keep the fan opening free. The machine is switched on and off with the **power switch** on the front panel.

4.2 Control panel



Fig. 4.3 Control panel

No.	Control	Function
1	Current meter	Shows the set current before welding and the actual welding current during welding.
2	O.C indicator	Protection indicator. Lights when the machine is overheated (duty cycle exceeded), in case of over-current, or when the supply voltage is outside the permitted range. The output is switched off until the fault clears.
3	Power switch (ON / OFF)	Switches the machine on and off.
4	Remote ON / OFF switch	ON: the welding current is set with a remote control or foot pedal connected to the remote socket. OFF: the current is set with the knobs on the panel.
5	MMA / TIG switch	Selects MMA (stick) or TIG welding. HF arc ignition works only in TIG.
6	AC / DC switch	TIG only. AC for aluminium and its alloys; DC for steel, stainless steel, copper, titanium and other metals.
7	2T / 4T switch	Selects the torch trigger mode (see 6.5).
8	Pulse switch	ON (square-wave symbol): pulse TIG – Base Cur., Pulse Frq. and Pulse Wth. are active. OFF (straight line): no pulse.
9	Start Cur. (A)	4T only. Current at arc start, before the welding current – used to preheat and to locate the start position.
10	Peak Cur. (A)	Welding current. In pulse mode it sets the peak current of the pulse. In MMA mode it sets the welding current.
11	Base Cur. (A)	Pulse mode only. Sets the base (background) current between pulses.
12	Down Slope (s)	Time for the current to fall at the end of the weld, to fill the crater and avoid crater cracks.
13	Pulse Frq.	Pulse mode only. Sets the number of pulses per second.
14	Pulse Wth. (%)	Pulse mode only. Sets the proportion of each pulse period at peak current.
15	Post Gas (s)	Time that gas continues to flow after the arc stops, to protect the hot tungsten and the weld. Increase it for higher currents.
16	Ac Balance (%)	AC TIG only. Sets the balance between oxide cleaning and penetration in each AC cycle. More cleaning gives a brighter weld on aluminium but heats the tungsten more; less cleaning gives deeper penetration and less tungsten wear.

The line diagram printed between the knobs on the panel shows the welding sequence: start current – welding (peak / base) current – down slope – post gas.

5 Installation

5.1 Location

- Use the machine in a relatively dry place (relative humidity below 85 %, no condensation), out of direct sunlight and rain.
- Ambient temperature: $-10\text{ }^{\circ}\text{C}$ to $+40\text{ }^{\circ}\text{C}$. Avoid places with heavy dust or corrosive gases.
- Keep at least **20 cm** between the machine and surrounding objects. Never block the air inlet and outlet.
- Place the machine firmly on a level surface. If the floor is wet, place the machine on a stand 30 – 50 cm high to prevent leakage currents and moisture damage.
- Keep the welding site away from flammable and explosive materials.

5.2 Mains connection

▲ DANGER

Before making any connection, switch off the supply at the distribution box and switch off the machine. The connection must be made by a qualified electrician.

1. Check that the supply is **1 phase, 220 V $\pm 10\%$, 50 / 60 Hz**.
2. Connect the input cable to a distribution box with a double-pole isolator and fuses or a circuit breaker of suitable rating (recommended **32 A**).
3. Use a 3-core copper cable (phase, neutral and earth) of at least **4 mm²**.
4. Connect the earth conductor to a reliable protective earth. **The machine must always be earthed.**

Do not connect the machine to a 415 V supply – this will damage it. An engine generator must have adequate capacity (at least 1.5 times the power capacity) and a stable voltage.

5.3 Connecting the welding system for TIG

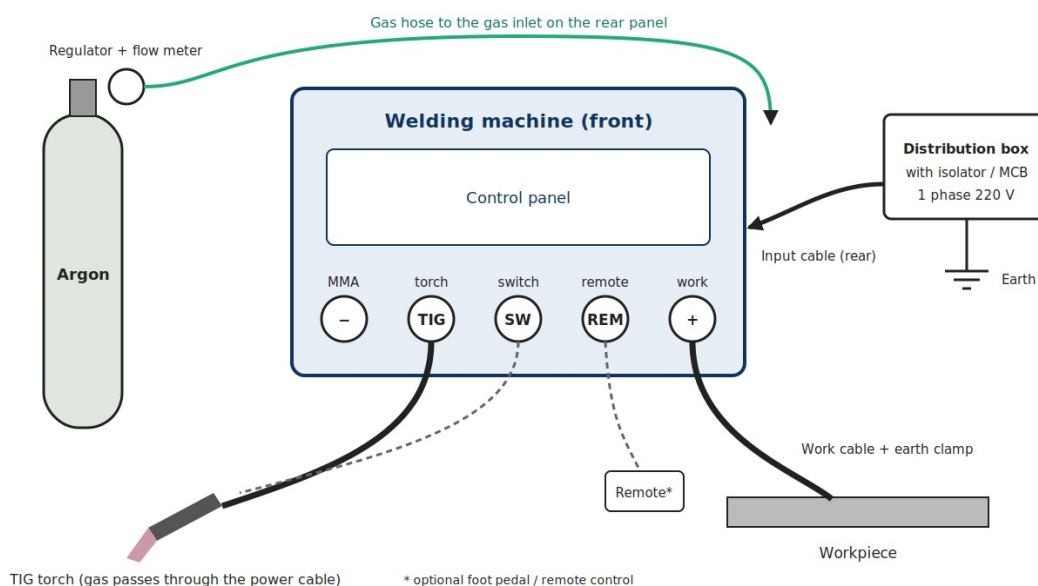


Fig. 5.1 Connection diagram (schematic)

1. Connect the **TIG torch power / gas connector** to the TIG torch connector on the front panel and tighten it.
2. Connect the **torch switch plug** to the torch switch socket (2-pin) and tighten the ring nut.
3. Connect the **work cable** to the output terminal **(+)**, turn the plug clockwise to lock it, and fix the earth clamp to the workpiece close to the joint.
4. If a **remote control or foot pedal** is used, connect it to the remote socket (4-pin) and set the Remote switch to ON.
5. Connect the **gas hose** from the argon regulator to the **gas inlet** on the rear panel and fix it with a hose clamp.
6. Connect the **input cable** to the distribution box (5.2).
7. Check all connections. Open the argon cylinder and set the flow on the flow meter (5.5).
8. Switch on the distribution box. Switch on the **power switch** on the front panel. The display shows the set current.

▲ CAUTION

For DC TIG the tungsten must be negative (torch on the TIG torch connector, work cable on **(+)**). Never connect the TIG torch to the (+) terminal – the tungsten will overheat and be destroyed.

5.4 Connecting for MMA welding

1. Connect the electrode holder cable and the work cable to the output terminals with the polarity recommended by the electrode manufacturer.
2. Most rutile electrodes can be welded with the electrode holder on **(–)** and the work cable on **(+)**, as marked on the panel. Most basic (low-hydrogen) electrodes are welded with reverse polarity: electrode holder on **(+)**, work cable on **(–)**.
3. Remove the TIG torch or keep it away from the work while welding with electrodes.

5.5 Shielding gas

- Use pure argon (99.99 %) for TIG welding of all metals.
- Set the flow on the flow meter according to Table 7.1. Press the torch trigger briefly with the tungsten away from the work, to purge the hose and check the flow.
- Check the hoses and connections for leaks. A leak draws air into the gas and causes porosity.

5.6 Preparing the tungsten electrode

Process	Tungsten type	Tip shape
DC TIG	Ceriated, lanthanated or thoriated	Ground to a point; tip angle about 30 – 60°, larger angle for higher current. Grind lengthwise, not around the tip.
AC TIG	Lanthanated, zirconiated or pure tungsten	Slightly blunted point; in AC a small rounded ball forms at the tip during welding.

- Use a collet and collet body that match the tungsten diameter. The tungsten should stick out of the ceramic cup by about 3 – 5 mm (up to 8 mm for fillet welds).
- If the tungsten touches the weld pool or the filler wire, stop and regrind it – a contaminated tungsten gives an unstable arc.

6 Operation

6.1 AC TIG welding (aluminium and aluminium alloys)

1. Set the MMA / TIG switch to **TIG** and the AC / DC switch to **AC**.
2. Set the trigger switch to **2T** and the Pulse switch to **OFF**.
3. Set the welding current with **Peak Cur.** and set the **Ac Balance** (start in the middle of the scale).
4. Set **Post Gas** and **Down Slope** as required.
5. Hold the torch with the tungsten about 2 – 3 mm above the work and press the trigger. The HF ignites the arc without touching. Form the pool, then add filler wire at the front edge of the pool.

Ac Balance controls how strongly the oxide film on the surface of aluminium is removed. If the weld surface is dull or black, or the pool does not wet, increase the cleaning slightly. If the tungsten ball becomes large or melts, reduce it.

6.2 DC TIG welding (steel, stainless steel, copper, titanium)

1. Set the MMA / TIG switch to **TIG** and the AC / DC switch to **DC**.
2. Set the trigger switch to **2T** and the Pulse switch to **OFF**.
3. Set the welding current with **Peak Cur.**, and set **Post Gas** according to the current.
4. Press the trigger to ignite the arc by HF and weld.

6.3 Pulse TIG welding

1. Select AC or DC TIG as above and set the Pulse switch to **ON**.
2. Set the **Peak Cur.** (pulse peak) and the **Base Cur.** (background current).
3. Set the **Pulse Frq.** and **Pulse Wth.** for the job.

Pulsing gives good penetration at the peak and lets the pool cool at the base current, which reduces heat input and distortion. It is useful for thin sheet, stainless steel, root runs and positional welding. A low pulse frequency (about 0.5 – 3 Hz) gives a regular ripple and helps to time the filler additions.

6.4 MMA (stick) welding

1. Connect the electrode holder and work cable (5.4).
2. Set the MMA / TIG switch to **MMA** and the Pulse switch to **OFF**.
3. Set the welding current with **Peak Cur.** for the electrode diameter (see Table 7.4).
4. Strike the arc by scratching the electrode on the work, and weld. The hot start and arc force functions work automatically. Remove the slag after each pass.

The machine has a voltage reduction device (VRD). When VRD is active, the no-load voltage at the output terminals is reduced to about 9 V; the full voltage (56 V) is applied only when the electrode touches the work.

▲ WARNING

In MMA mode the electrode holder is live as soon as the machine is switched on. Place the holder on an insulated surface when not welding.

6.5 Torch trigger modes

Mode	Sequence
2T	Press and hold the trigger: gas flows, the HF ignites the arc and the machine welds at the set current. Release the trigger: the current falls over the down-slope time, the arc stops and the gas flows for the post-gas time.
4T	1st press: gas flows and the arc starts at the start current . 1st release: the current rises to the welding current , and welding continues without holding the trigger. 2nd press: the current falls over the down-slope time to fill the crater. 2nd release: the arc stops and post-gas follows.

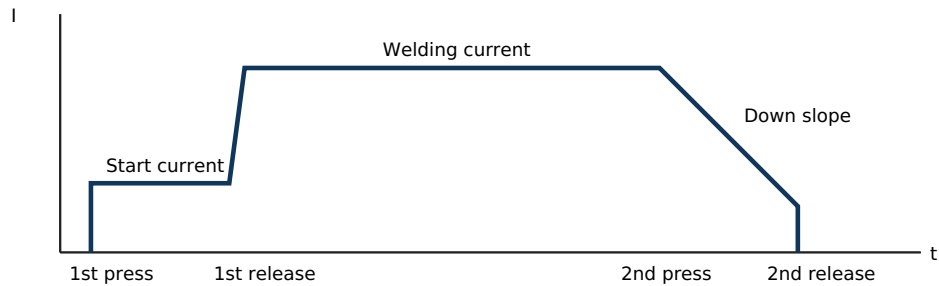


Fig. 6.1 Current sequence in 4T mode

6.6 Remote control

With a remote control or foot pedal connected to the remote socket and the Remote switch set to ON, the welding current is set from the remote unit, up to the maximum set on the panel. With a foot pedal, the current can be raised and lowered while welding. Set the Remote switch to OFF when no remote unit is used.

6.7 Finishing work

1. After welding, keep the torch over the end of the weld until the post-gas stops.
2. Close the argon cylinder valve.
3. Let the machine run for a few minutes without welding so that the fan cools it.
4. Switch off the power switch on the front panel and the distribution box.

7 Welding guide

7.1 Tungsten diameter, current and argon flow

Welding current (A)	Tungsten diameter (mm)	Argon flow (L/min)
5 - 15	0.5	3 - 7
10 - 65	1.0	4 - 8
55 - 120	1.6	6 - 9
85 - 150	2.0	6 - 10
120 - 200	2.4	7 - 10
200 - 320	3.2	10 - 15

Table 7.1

7.2 AC TIG welding of aluminium

Plate thickness (mm)	Tungsten diameter (mm)	Filler wire diameter (mm)	Welding current (A)	Argon flow (L/min)
0.6	1.0 - 1.6	none or 1.0	25 - 40	4 - 5
1.0	1.0 - 1.6	none or 1.6	40 - 60	4 - 7
1.5	1.0 - 1.6	none or 1.6	60 - 90	6 - 9
2.5	1.6 - 2.4	1.6 - 2.4	80 - 120	6 - 9
3.0	1.6 - 2.4	1.6 - 2.4	100 - 160	7 - 10
4.0	2.4	1.6 - 2.4	130 - 200	10 - 15
5.0	2.4 - 3.2	2.4 - 3.2	150 - 250	10 - 15
6.0	3.2	2.4 - 3.2	200 - 250	10 - 15

Table 7.2 Guide values, butt welds in the flat position

7.3 DC TIG welding of stainless steel

Plate thickness (mm)	Tungsten diameter (mm)	Filler wire diameter (mm)	Welding current (A)	Argon flow (L/min)
1.0	1.0 - 1.6	1.0 - 1.6	30 - 60	5 - 7
2.0	1.6 - 2.4	1.6 - 2.0	70 - 100	6 - 8
3.0	2.4	2.0 - 2.4	100 - 140	7 - 9
4.0 - 5.0	2.4 - 3.2	2.4 - 3.2	130 - 180	8 - 10
6.0 and above	3.2	3.2	170 - 250	9 - 12

Table 7.3 Guide values, butt welds in the flat position (mild steel needs about 10 % more current)

7.4 MMA welding

Electrode diameter (mm)	Welding current (A)
2.5	60 - 90
3.15	90 - 140
4.0	130 - 190
5.0	180 - 250

Table 7.4 Guide values for mild steel electrodes; follow the electrode packet

7.5 TIG technique

- Hold the torch at 70 – 80° to the work, tilted in the direction of travel. Feed the filler rod at a low angle (15 – 20°) into the front edge of the pool.
- Keep a short arc, about equal to the tungsten diameter. Keep the hot end of the filler rod inside the gas shield.
- Clean the joint and the filler rod thoroughly. For aluminium, remove the oxide with a stainless steel brush or solvent just before welding.
- The air-cooled torch must not be overloaded. Use a torch rated for the current and duty cycle of the job.

7.6 Weld defects

Defect	Possible cause	Remedy
Porosity	Insufficient gas; draught; gas leak; dirty base metal or filler.	Check flow and hoses; screen from draught; clean the joint.
Black or grey weld (aluminium)	Insufficient cleaning action; oxide not removed; poor gas shield.	Increase the cleaning with Ac Balance; clean the joint; check gas flow and cup size.
Tungsten melts or balls excessively	Current too high for the tungsten; too much cleaning; torch on (+).	Use a larger tungsten; reduce the cleaning; connect the torch correctly.
Tungsten contamination	Tungsten touched the pool or filler.	Regrind the tungsten; keep a steady arc length.
Wandering arc	Contaminated or badly ground tungsten; current too low.	Regrind; adjust the current.
Oxidised, discoloured weld	Post-gas too short; gas flow too low.	Increase post-gas and gas flow.
Crater cracks	Arc stopped abruptly.	Use down slope (4T) to fill the crater.
Undercut / burn-through	Current too high; travel too slow.	Reduce current or use pulse; travel faster.

8 Maintenance

▲ WARNING

Switch off the machine and the distribution box before any maintenance. Wait at least 5 minutes before removing covers. Only qualified persons may work inside the machine.

Interval	Work
Daily	Check the supply cable, torch, work cable and connections for damage and tightness. Check that the fan runs. Check the gas hoses for leaks. Check the tungsten, collet and ceramic cup.
Weekly	Clean the torch parts. Check the O-rings and insulation of the torch. Check that the knobs and switches work correctly.
Every 3 – 6 months	Remove the covers and blow dust out of the machine with dry, low-pressure compressed air (more often in dusty workshops). Check the tightness of internal connections.
Yearly	Have the insulation and the earth connection checked by a qualified electrician.

8.1 General care

- Protect the machine from rain, moisture, metal dust and grinding dust. Metal dust inside the machine can cause short circuits.
- Do not place the machine near grinding or cutting work.
- Replace a damaged torch cable or gas hose immediately.
- Replace worn collets, cracked ceramic cups and damaged back caps. Use only genuine spare parts.
- Store the machine in a dry place.

9 Troubleshooting

▲ CAUTION

Only qualified technicians may repair the machine. To avoid electric shock, follow all safety instructions in this manual.

Fault	Possible cause	Remedy
Machine switched on but display off; no welding output	No supply or insufficient supply. Input connection fault. Internal auxiliary power supply fault.	Check the supply (1 phase 220 V). Reconnect the input cable. Contact Cruxweld service.
Display on, but no HF discharge sound and no arc ignition	Torch switch faulty or plug not connected. HF discharge gap faulty. MMA / TIG switch in MMA.	Check / replace the torch switch; reconnect the plug. Contact Cruxweld service. Select TIG.
HF discharge present, but no welding current	Work cable not connected. Torch cable broken or short-circuited.	Connect the earth clamp to the work. Check / replace the torch cable.
Current present but not adjustable	Remote switch ON without remote unit, or remote wrongly connected. Potentiometer of the remote unit damaged or worn.	Set the Remote switch correctly; check the connection. Replace the potentiometer.
O.C indicator lit	Over-temperature (duty cycle exceeded). Excessive dust inside. Supply voltage too high or too low. Internal component fault.	Leave the machine on to cool, then continue. Blow out the machine with dry compressed air. Check the supply. Contact Cruxweld service.
Oxide on aluminium not removed; poor aluminium weld	AC / DC switch set to DC. Cleaning (Ac Balance) too low. Secondary inverter fault.	Select AC. Increase the cleaning; clean the oxide mechanically. Contact Cruxweld service.
Current present but no gas flow	Gas nozzle blocked. Torch gas hose cracked or worn. Cylinder empty or valve closed. Gas solenoid valve or its circuit faulty.	Clean the nozzle. Replace the hose. Replace the cylinder / open the valve. Contact Cruxweld service.
Tungsten burns away quickly	Too much cleaning (Ac Balance). Torch on the wrong terminal. Tungsten too small for the current. Insufficient gas.	Reduce the cleaning. Connect the torch correctly (5.3). Use a larger tungsten. Increase the gas flow.
Work cable becomes very hot	Loose work cable connection.	Tighten the connections at the machine and at the work.

If a fault cannot be corrected with this table, contact Cruxweld service and state the model and serial number from the rating plate.

10 Warranty

Cruxweld warrants the iTIG250ACDC against defects in material and workmanship for the period stated in the sales contract, from the date of invoice. During the warranty period Cruxweld will repair or replace, free of charge, parts that are found to be defective due to faulty material or workmanship.

The warranty does not cover:

- consumable and wearing parts such as tungsten electrodes, collets, collet bodies, ceramic cups, back caps, torch cables, earth clamp and electrode holder;
- damage caused by incorrect supply voltage, missing earth, overload or operation beyond the duty cycle;
- damage caused by dust, moisture, blocked ventilation, falls, transport, lack of maintenance, misuse, or repair or modification by unauthorised persons.

Model	iTIG250ACDC
Serial number	
Invoice no. / date	
Customer	
Dealer stamp	

For service and spare parts please contact:

Cruxweld Industrial Equipments Pvt. Ltd.

5, Sector 29, Faridabad - 121008 (Haryana), India

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Email: sales@cruxweld.com | Service: support@cruxweld.com

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When ordering spare parts, always state the model and serial number from the rating plate.



Cruxweld iTIG250ACDC - TIG 250 AC/DC Pulse Welding Machine

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Cruxweld improves its products continuously. The technical data in this manual may change without notice.