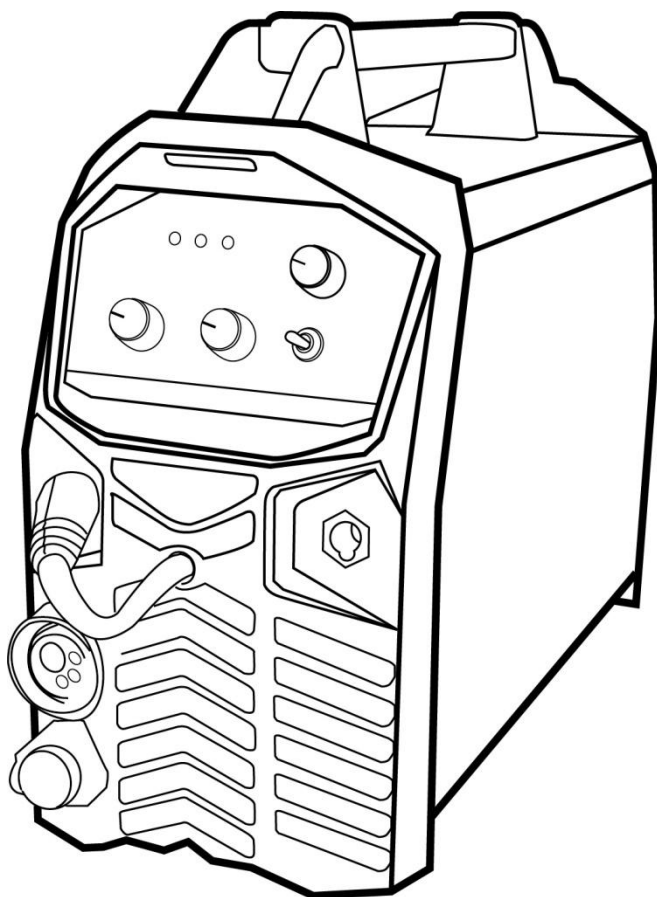


# **TitanMig195/225**

## **OPERATING MANUAL**

**WeldTronic**



Operating manual**EN**

Brugsanvisning**DA**

Gebrauchsanweisung**DE**

Manual de instrucciones**ES**

Käyttöohje**FI**

Manuel d'utilisation**FR**

Manuale d'uso**IT**

Gebruiksaanwijzing**NL**

Bruksanvisning**NO**

Instrukcja obsługi**PL**

Manual de utilização**PT**

Инструкции по эксплуатации**RU**

Bruksanvisning**SV**

操作手册 **CN**

**English**

**TitanMig 195 MIG/Stick Welder**  
**Model No.TM195 Issue. A 04/15**



## Welcome:

**Thank you for your purchase of your new Weldtronic product.** The Weldtronic product range provides you with quality and reliability.

This product is supported by our extensive service network. In the unlikely event of a problem occurring please call your local distributor.

Please record below the details from your product as these will be required for warranty purposes and to ensure you get the correct information should you require assistance or spare parts.

**Date purchased:** \_\_\_\_\_

**From where:** \_\_\_\_\_

**Serial No:** \_\_\_\_\_

*(The serial number will be located on the equipment data plate underneath or on the rear panel)*

This Operating manual has been designed to instruct you on the correct use and operation of your Weldtronic product. Information is a guide and we assume no liability for its use.

Please take the time to read the entire manual paying particular attention to the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

### 2 Year Warranty Statement.

- This product is covered by a 2 Year Warranty Parts & Labour Warranty.
- This warranty does not cover freight or goods that have been interfered with.
- All goods in question must be repaired by an authorized repair agent as appointed by Weldtronic.
- Warranty does not cover abuse, misuse, accident, theft or general wear & tear.
- New product will not be supplied unless Weldtronic International P/L has inspected product returned for warranty and agrees to replace the product.
- Product will only be replaced if repair is not possible.
- Warranty will be considered void if the 15 Amp primary power Input Plug is modified or replaced to fit a domestic 10A primary power input Plug.
- Warranty will be considered void if the equipment is powered from an unsuitable engine driven generator.
- Warranty will be considered void if no proof of purchase can be provided.
- Warranty will be considered void if this product has been altered, tampered or used in any manner contrary to customary usage or application.
- Full warranty details and conditions supplied with this product are shown in the back of this manual.

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## **SAFETY PRECAUTIONS – READ BEFORE USING**

---

These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted.

The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules. Only suitably trained and competent persons should use the equipment. Operators should respect the safety of other persons.

### **Prevention against electric shock**

---

- The equipment should be installed by a qualified person and in accordance with current standards in operation. It is the user's responsibility to ensure that the equipment is connected to a suitable power supply. Consult with your utility supplier if required.
- If earth grounding of the work piece is required, ground it directly with a separate cable.
- Do not use the equipment with the covers removed.
- Do not touch live electrical parts or parts which are electrically charged.
- Turn off all equipment when not in use.
- Cables (both primary supply and welding) should be regularly checked for damage and overheating. Do not use worn, damaged, under sized or poorly jointed cables.
- Ensure that you wear the correct protective clothing, gloves, head and eye protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work ground.
- Never touch the electrode if you are in contact with the work ground, or another electrode from a different machine.
- Do not wrap cables over your body.
- Ensure that you take additional safety precautions when you are welding in electrically hazardous conditions such as damp environments, wearing wet clothing, and metal structures. Try to avoid welding in cramped or restricted positions.
- Ensure that the equipment is well maintained. Repair or replace damaged or defective parts immediately. Carry out any regular maintenance in accordance with the manufacturer's instructions.

### **Safety against fumes and welding gases**

---

- Locate the equipment in a well-ventilated position.
- Keep your head out of the fumes. Do not breathe the fumes.
- Ensure the welding zone is in a well-ventilated area. If this is not possible provision should be made for suitable fume extraction.
- If ventilation is poor, wear an approved respirator. Read and understand the Material Safety Data Sheets (MSDS's) and the manufacturer's instructions for metals, consumable, coatings, cleaners, and de-greasers.
- Do not weld in locations near any de-greasing, cleaning, or spraying operations. Be aware that heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
- Do not weld on coated metals, unless the coating is removed from the weld area, the area is well ventilated, and while wearing an air-supplied respirator. The coatings on many metals can give off toxic fumes if welded.

## **Prevention against burns and radiation**

---

- Arc rays from the welding process produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin.
- Wear an approved welding helmet fitted with a proper shade of filter lens to protect your face and eyes when welding or watching
- Wear approved safety glasses with side shields under your helmet.
- Never use broken or faulty welding helmets.
- Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding area. Ensure that there are adequate warnings that welding or cutting is taking place.
- Wear suitable protective flame resistant clothing. The sparks and spatter from welding, hot work pieces, and hot equipment can cause fires and burns
- Welding on closed containers, such as tanks, drums, or pipes, can cause them to explode.
- Accidental contact of electrode to metal objects can cause arcs, explosion, overheating, or fire.
- Check and be sure the area is safe and clear of inflammable material before carrying out any welding.

## **Protection against noise**

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- Some welding and cutting operations may produce noise.
- Wear safety ear protection to protect your hearing.

## **Protection from moving parts**

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- When the machine is in operation, keep away from moving parts such as motors and fans. Moving parts, such as the fan, may cut fingers and hands and snag garments.
- Protections and coverings may be removed for maintenance and controls only by qualified personnel, after first disconnecting the power supply cable.
- Replace the coverings and protections and close all doors when the intervention is finished, and before starting the equipment.
- Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation.
- When feeding wire be careful to avoid pointing it at other people or toward your body.
- Always ensure machine covers and protective devices are in operation.

## **Precautions against fire and explosion**

---

- Avoid causing fires due to sparks and hot waste or molten metal
- Ensure that appropriate fire safety devices are available near the cutting / welding area.
- Remove all flammable and combustible materials from the cutting / welding zone and surrounding areas
- Do not cut/weld fuel and lubricant containers, even if empty. These must be carefully cleaned before they can be cut/welded.
- Always allow the cut/welded material to cool before touching it or placing it in contact with combustible or flammable material.
- Do not work in atmospheres with high concentrations of combustible fumes, flammable gases and dust.
- Always check the work area half an hour after cutting to make sure that no fires have begun

## **Risks due to magnetic fields**

---

- The magnetic fields created by high currents may affect the operation of pacemakers or electronically controlled medical equipment.
- Wearers of vital electronic equipment should consult their physician before beginning any arc welding, cutting, gouging or spot welding operations.
- Do not go near welding equipment with any sensitive electronic equipment as the magnetic fields may cause damage.

## **RF Declaration**

---

Equipment that complies with directive 2004/108/EC concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not those for domestic use where electricity is provided via the low voltage public distribution system. Difficulties may arise in assuring class A electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated emissions.

In the case of electromagnetic problems, it is the responsibility of the user to resolve the situation. It may be necessary to shield the equipment and fit suitable filters on the mains supply.

## **LF Declaration**

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Consult the data plate on the equipment for the power supply requirements.

Due to the elevated absorbance of the primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point must be applied to these systems.

In this case the installer or the user is responsible for ensuring the equipment can be connected, consulting the electricity provider if necessary.

## **Materials and their disposal**

---

The equipment is manufactured with materials, which do not contain any toxic or poisonous materials dangerous to the operator.

When the equipment is scrapped, it should be dismantled separating components according to the type of materials.

Do not dispose of the equipment with normal waste. The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment states the electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.

## **Handling of Compressed gas cylinders and regulators**

---

All cylinders and pressure regulators used in welding operations should be handled with care.

Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder.

Keep your head and face away from the cylinder valve outlet when opening the cylinder valve.

Always secure the cylinder safely.

Never deface or alter any cylinder

## EMF Information

---

Considerations About Welding And The Effects Of Low Frequency Electric And Magnetic Fields Welding current, as it flows through welding cables, will cause electro-magnetic fields. There has been and still is some concern about such fields, However, after examining more than 500 studies spanning 17 years of research, a special blue ribbon committee of the National Research Council concluded that: "The body of evidence, in the committees judgment, has not demonstrated that exposure to power-frequency electric and magnetic fields is a human-health hazard." However studies are still going forth and evidence continues to be examined. Until the final conclusions of the research are reached, you may wish to minimize your exposure to electromagnetic fields when welding or cutting.

To reduce magnetic fields in the workplace, use the following procedures:

- Keep cables close together by twisting or taping them.
- Arrange cables to one side and away from the operator.
- Do not coil or drape cables around your body.
- Keep welding power source and cables as far away from operator as practical.
- Connect work clamp to work piece as close to the weld as possible.

## Limitations of warranty declaration regarding machine use

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- ▲ ***The welding machine(s) described in this manual are designed exclusively for electrical arc welding with shielding gases Argon, CO<sub>2</sub> or Ar + CO<sub>2</sub> mixture(s) employing MIG or MAG technology. Using this machine for other purposes is not allowed. Using this machine in opposition with instructions can put the welder in danger. Damage can occur to the welding machine if not operated according to this manual. Failures and accidents due to such actions are not covered by warranty, nor can the producer be held responsible***



## Symbol usage

---



Means Warning! Watch Out! There are possible hazards with this procedure! The possible hazards are shown in the adjoining symbols.

▲ Marks a special safety message.



*This group of symbols means Warning! Watch Out! Possible ELECTRIC SHOCK, MOVING PARTS, and HOT PARTS hazards.*

*Consult symbols and related instructions below for necessary actions to avoid the hazards.*

## Arc Welding Hazards

---

- ▲ The symbols shown below are used throughout this manual to call attention to and identify possible hazards. When you see the symbol, watch out, and follow the related instructions to avoid the hazard. The safety information given below is only a summary of the more complete safety information found in the Safety Standards. Read and follow all Safety Standards.
- ▲ Only qualified persons should install, operate, maintain, and repair this unit.
- ▲ During operation, keep everybody, especially children, away.

## ELECTRIC SHOCK can kill.

---



Touching live electrical parts can cause fatal shocks or severe burns. The electrode and work circuit is electrically live whenever the output is on. The input power circuit and machine internal circuits are also live when power is on. In semi-automatic or automatic wire welding, the wire, wire reel, drive roll housing, and all metal parts touching the welding wire are electrically live. Incorrectly installed or improperly grounded equipment is a hazard.

- Do not touch live electrical parts.
- Wear dry, hole-free insulating gloves and body protection.
- Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work or ground.
- Do not use AC output in damp areas, if movement is confined, or if there is a danger of falling.
- Use AC output ONLY if required for the welding process.
- If AC output is required, use remote output control if present on unit.
- Disconnect input power or stop engine before installing or servicing this equipment. Lockout/tagout input power according to Safety Standards.
- Properly install and ground this equipment according to its Owner's Manual and national, state, and local codes.

- Always verify the supply ground — check and be sure that input power cord ground wire is properly connected to ground terminal in disconnect box or that cord plug is connected to a properly grounded receptacle outlet.
  - When making input connections attach proper grounding conductor first - double-check connections.
  - Frequently inspect input power cord for damage or bare wiring replace cord immediately if damaged — bare wiring can kill.
  - Turn off all equipment when not in use.
  - Do not use worn, damaged, undersized, or poorly spliced cables.
  - Do not drape cables over your body.
  - If earth grounding of the work piece is required, ground it directly with a separate cable.
  - Do not touch electrode if you are in contact with the work, ground, or another electrode from a different machine.
  - Use only Well-maintained equipment. Repair or replace damaged parts at once. Maintain unit according to manual.
  - Wear a safety harness if working above floor level.
  - Keep all panels and covers securely in place.
  - Clamp work cable with good metal-to-metal contact to work piece or worktable as near the weld as practical.
  - Insulate work clamp when not connected to work piece to prevent contact with any metal object.
  - Do not connect more than one electrode or work cable to any single weld output terminal.
- ▲ SIGNIFICANT DC VOLTAGE exists after removal of input power on inverters.**
- Turn off inverter, disconnect input power, and discharge input capacitors according to instructions in Maintenance Section before touching any parts.

## **FUMES AND GASES can be hazardous.**

---



Welding produces fumes and gases. Breathing these fumes and gases can be hazardous to your health.

- Keep your head out of the fumes. Do not breathe the fumes.
- If inside, ventilate the area and/or use exhaust at the arc to remove welding fumes and gases.
- If ventilation is poor use an approved air-supplied respirator.
- Read the Material Safety Data Sheets (MSDSs) and the manufacturers' instructions for metals, consumables, coatings, cleaners, and degreasers.
- Work in a confined space only if it is well ventilated, or while wearing an air-supplied respirator. Always have a trained watch-person nearby. Welding fumes and gases can displace air and lower the oxygen level causing injury or death. Be sure the breathing air is safe.
- Do not weld in locations near degreasing, cleaning, or spraying operations. The heat and rays of the arc can react with vapours to form highly toxic and irritating gases.
- Do not weld on coated metals, such as galvanized, lead, or cadmium plated steel, unless the coating is removed from the weld area, the area is well ventilated, and if necessary, while wearing an air-supplied respirator. The coatings and any metals containing these elements can give off toxic fumes if welded.

## **ARC RAYS can burn eyes and skin.**

---



Arc rays from the welding process produce intense visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Sparks fly off from the weld.

- Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching (see Safety Standards).
- Wear approved safety glasses with side shields under your helmet.
- Use protective screens or barriers to protect others from flash and glare; warn others not to watch the arc.
- Wear protective clothing made from durable, flame-resistant material (leather and wool) and foot protection.

## **WELDING can cause fire or explosion.**

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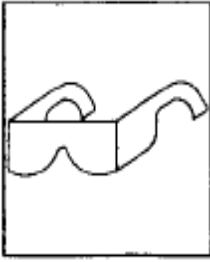
Welding on closed containers, such as tanks, drums, or pipes, can cause them to blow up. Sparks can fly off from the welding arc. The flying sparks, hot work piece, and hot equipment can cause fires and burns. Accidental contact of electrode to metal objects can cause sparks, explosion, overheating, or lure. Check and be sure the area is safe before doing any welding.

- Protect yourself and others from flying sparks and hot metal.
- Do not weld where flying sparks can strike flammable material.
- Remove all flammables within 35 ft (10.7 m) of the welding arc. If this is not possible, tightly cover them with approved covers.
- Be alert that welding sparks and hot materials from welding can easily go through small cracks and openings to adjacent areas.
- Watch for fire, and keep a fire extinguisher nearby.
- Be aware that welding on a ceiling, floor, bulkhead, or partition can cause fire on the hidden side.
- Do not weld on closed containers such as tanks, drums, or pipes, unless they are properly prepared according to Safety Standards.
- Connect work cable to the work as close to the welding area as practical to prevent welding current from travelling long, possibly unknown paths and causing electric shock and fire hazards.
- Do not use welder to thaw frozen pipes.
- Remove stick electrode from holder or cut off welding wire at contact tip when not in use.
- Wear oil-free protective garments such as leather gloves, heavy shirt, cuff less trousers, high shoes, and a cap.
- Remove any combustibles, such as butane lighter or matches, from your person before doing any welding.

---

**FLYING METAL can injure eyes.**

---



- Welding, chipping, wire brushing, and grinding cause sparks and flying metal. As welds cool, they can throw off slag.
- Wear approved safety glasses with side shields even under your welding helmet.

---

**BUILDUP OF GAS can injure or kill.**

---



- Shut off shielding gas supply when not in use.
- Always ventilate confined spaces or use approved air-supplied respirator.

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**HOT PARTS can cause severe burns.**

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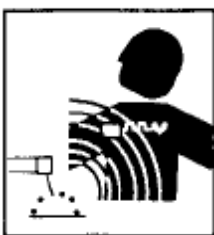


- Do not touch hot parts bare handed.
- Allow cooling period before working on gun or torch.

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**MAGNETIC FIELDS can affect pacemakers.**

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- Pacemaker wearers keep away.
- Wearers should consult their doctor before going near arc welding, gouging, or spot welding operations.

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**NOISE can damage hearing.**

---



Noise from some processes or equipment can damage hearing.

- Wear approved ear protection if noise level is high.

## **CYLINDERS can explode if damaged.**

---



Shielding gas cylinders contain gas under high pressure. If damaged, a cylinder can explode. Since gas cylinders are normally part of the welding process, be sure to treat them carefully.

- Protect compressed gas cylinders from excessive heat, mechanical shocks, slag, open flames, sparks, and arcs.
- Install cylinders in an upright position by securing to a stationary support or cylinder rack to prevent falling or tipping.
- Keep cylinders away from any welding or other electrical circuits.
- Never drape a welding torch over a gas cylinder.
- Never allow a welding electrode to touch any cylinder.
- Never weld on a pressurized cylinder - explosion will result.
- Use only correct shielding gas cylinders, regulators, hoses, and fittings designed for the specific application: maintain them and associated parts in good condition.
- Turn face away from valve outlet when opening cylinder valve.
- Keep protective cap in place over valve except when cylinder is in use or connected for use

## **FIRE OR EXPLOSION hazard.**

---



- Do not install or place unit on, over, or near combustible surfaces.
- Do not install unit near flammables.
- Do not overload building wiring — be sure power supply system is properly sized, rated, and protected to handle this unit.

## **FALLING UNIT can cause injury.**

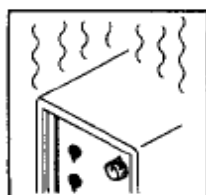
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- Use lifting eye to lift unit only, NOT running gear, gas cylinders, or any other accessories.
- Use equipment of adequate capacity to lift and support unit.
- If using lift forks to move unit, be sure forks are long enough to extend beyond opposite side of unit

## **OVERUSE can cause OVERHEATING**

---



- Allow cooling period; follow rated duty cycle
- Reduce current or reduce duty cycle before starting to weld again.
- Do not block or filter airflow to unit.

### **STATIC (ESD) can damage PC boards.**

---



- Put on grounded wrist strap BEFORE handling boards or parts.
- Use proper static-proof bags and boxes to store, move, or ship PC boards.

### **MOVING PARTS can cause injury.**

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- Keep away from moving parts.
- Keep away from pinch points such as drive rolls.

### **WELDING WIRE can cause injury.**

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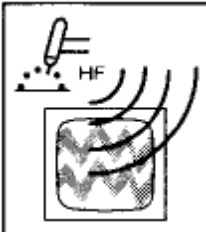


- Do not press gun trigger until instructed to do so.
- Do not point gun toward any part or the body, other people, or any metal when threading welding wire.

### **H.F. RADIATION can cause interference.**

---

- High frequency (HF,) can interfere with radio, navigation, safety services, computers, and communications equipment.



- Have only qualified persons familiar with electronic equipment perform this installation.
  - The user is responsible for having a qualified electrician promptly correct any interference problem resulting from the installation.
  - If notified by the FCC about interference, stop using the equipment at once.
  - Have the installation regularly checked and maintained.
- Keep high-frequency source doors and panels tightly shut. Keep spark gaps at correct setting, and use grounding and shielding to minimize the possibility of interference.

### **ARC WELDING can cause interference.**

---



- Electromagnetic energy can interfere with sensitive electronic equipment such as computers and computer-driven equipment such as robots.
  - Be sure all equipment in the welding area is electromagnetically compatible.
  - To reduce possible interference, keep weld cables as short as possible, close together, and down low, such as on the floor.
  - Locate welding operation 100 meters from any sensitive electronic equipment.
  - Be sure this welding machine is installed and grounded according to this manual.
- If interference still occurs, the user must take extra measures such as moving the welding machine, using shielded cables, using line filters, or shielding the work area

## 1.0 Preface

---

### 1.1 General

Congratulations on choosing TitanMig195/225. Used correctly, our products can significantly increase the productivity of your welding, and provide years of economical service.

This operating manual contains important information on the use, maintenance and safety of our product. Please read the manual carefully before using the equipment for the first time.

For your own safety and that of your working environment, pay particular attention to the safety instructions in the manual.

For more information on our products, contact us, consult an authorized dealer, or visit our website.

The specifications presented in this manual are subject to change without prior notice.

#### **Important notes**

Items in the manual that require particular attention in order to minimize damage and personal harm are indicated with the '**NOTE!**' notation. Read these sections carefully and follow their instructions.

#### **Disclaimer**

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. We reserve the right to change the specification of the product described at any time without prior notice.

## 1.2 Introduction

---

The TitanMig195/225 power source is a MIG power source designed for demanding professional use in Steels, Stainless, Cast Iron, Bronze, Aluminum & Copper welding. The power source has a control panel that allows ready control of the functions of the power source and the wire feeder.

The TitanMig195/225 Compact power source is inverter-based MIG welding machines with added MMA function. These are industrial machine equipped with an integrated 2 roll gear driven wire feeder.

The MIG function allows you to weld with Solid wires, Flux-cored Gas and Gasless wires.

The TitanMig195/225 Compact is an inverter power source that can provide MIG, MMA and gasless/self-shielded welding options.

Its IGBT power device with unique control mode provides excellent reliability with a high duty cycle.

The system has a closed loop feedback control, constant voltage output, which allows it to operate with a wide tolerance to mains fluctuation, within  $\pm 15\%$ .

It has continuously adjustable welding voltage and current, to provide excellent welding characteristics.

Adopting a unique welding dynamic characteristic control circuit in MIG, provides a stable arc, low spatter, excellent weld appearance and high welding efficiency.

By removing the ball at the end of the wire after welding, a high no-load voltage, and slow wire feed at the start presents exceptional arc starting.

The machine also has a very stable welding current in MMA, excellent arc ignition, and can be used with a wide variety of welding electrodes.

### Features

- Innovative IGBT Inverter Technology
- MIG/MAG with Gas and Gasless wire function
- Stick Electrode (MMA) Function
- VRD function: Provides additional safety keep the operator safe when the machine is idle
- Burn Back Controls
- Wire Inch
- Euro MIG torch connection
- Excellent arc stability for MIG/MAG/MMA welding with minimal spatter
- Suitable for 0.6 to 1.0 mm wires
- Spool gun interface



## 1.3 Technical Specifications


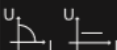


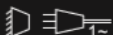

	▲ TitanMig195 Compact	▲ TitanMig 225 Compact
Power Supply / Phases (V-Ph)	AC240V±15% 50/60HZ 1 Phase	
Duty Cycle@40°C to AS/NZ60974	20% @ 195 Amps MIG	30% @ 225 Amps MIG
	20% @ 160 Amps MMA	25% @ 200 Amps MMA
Output Current Range MIG	30A/15.5V - 195A/23.8V	30A/15.5V-225A/25.3V
Output Current Range MMA	10A/20.4V - 160A/26.4V	10A/20.4V - 200A/28.0V
Rated Power MIG	7.8KvA	9.6 KvA
Power factor	0.7	0.7
I Max MIG	32.5 Amps	40 Amps
MMA	29.6 Amps	39.2 Amps
I effMIG	14.5 Amps	21.9 Amps
MMA	13 Amps	17.5 Amps
Wire Feeder Type	Gear Driven 2 Roll	Gear Driven 2 Roll
Protection Class	IP 21S	IP 21S
Insulation Class	F	F
Dimensions Power Source (LxWxH)	490x195x380mm	490x195x380mm
Weight Power Source	13.5KGS	13.5KGS

## General Information



- ▲ **Do not operate or install this equipment without thoroughly reading this manual and the safety precautions contained throughout.**
  - Save this manual and keep it handy for reference.
  - Disconnect mains of the semi-automatic welding machine after finishing work or before a long break.
- ▲ **DO NOT make any modifications to the machine. It may cause changes in the features and deterioration of technical data.**
- ▲ **Any adaptations to this machine are prohibited and may void the warranty.**
- ▲ **Warranty is void if any damage to the machine is caused by misuse.**
  - Acceptable range of ambient temperature is from 10—40°C.
  - Acceptable range of humidity is 20°C at 95% humidity.
  - Specifications may change without previous notice.

## 1.4 Rating Label / Compliance Plate

Model		TitanMig 195		Made in PRC for Weldtronic International P/L						
1~				AS/EN60974-1 AS/EN60974-10						
		MMA:10A/20.4V-160A/26.4V MIG:50A/16.5V-195A/23.8V								
				X	20%		60%		100%	
		U <sub>0</sub> V 50V		I <sub>2</sub>	MMA	MIG	MMA	MIG	MMA	MIG
				U <sub>2</sub>	160A	195A	124A	151A	72A	87A
					26.4V	23.8V	25V	21.6V	22.9V	18.4V
		CE S		Power Factor : 0.7						
Insulation Class:F	U <sub>1</sub> V ~240	MMA I <sub>max</sub>			29.6A		MIG I <sub>max</sub>		32.5A	
		MMA I <sub>ieff</sub>			13A		MIG I <sub>ieff</sub>		14.5A	
Gas Cool	50/60Hz	S <sub>1</sub>	7.1KV.A			7.8 KV.A				
IP21S	 N28466	Serial No								

### ▲ Important Note on TitanMig 195/225 Input Power Supply

This unit has been supplied with a downgraded 15 Amp primary supply plug for commissioning purposes only. You are advised to upgrade the input power plug and lead to a minimum of 32A if sustained usage at maximum amperage is desired.

### ▲ WARNING

With the 15A plug supplied it is recommended that the operator does not exceed more than 180Amps, as use of higher amperages over this amount may lead to failure and overheating of the 15A plug and circuit, which may result in electrical supply component damage and ultimately electrical fires.



▲ Fitted for commissioning



▲ Recommended outlet

## 1.5 Overview of machine

### Front View

1. Power LED
2. VRD LED
3. Overheating LED
4. Wire feed control - MIG
5. Current control - MMA
6. MMA/ MIG Switch
7. Voltage control - MIG
8. "+" output terminal
9. Euro connector of the welding torch in MIG
10. Push Pull control Socket
11. "-" output terminal
12. Gas/Non gas selector

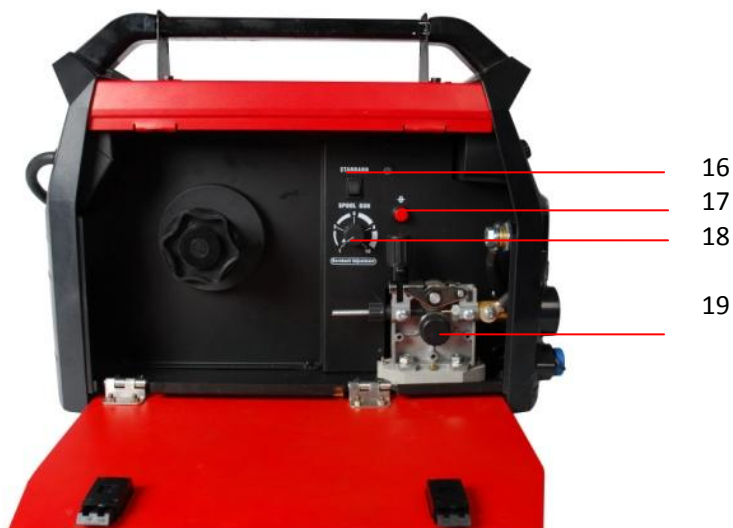


### Rear View

13. Power switch
14. Input cable
15. Gas inlet

### Inside View

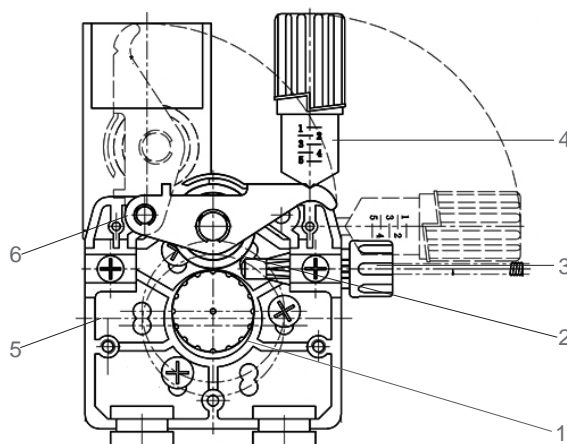
16. Push Pull Torch Switch
17. Wire Inch Button
18. Burnback Knob
19. Wire Feed Assembly



## 1.6 Overview of Wire Feed Assembly

### Drive System

1. Drive Roller
2. Pressure Rollers
3. Inlet Guide
4. Pressure Adjustment Screw
5. Feed Housing
6. Pressure Rocker Arm
7. Drive Motor



### Spare Feed Rollers



Feed Roll Size & Type	Part Number
Feed Roll 30/10/10 – 0.6/0.8mm Steel	FR301010V0608
Feed Roll 30/10/10 – 0.9/1.0mm Steel	FR301010V0910
Feed Roll 30/10/10 – 0.9/1.0mm Aluminum	FR301010U0910
Feed Roll 30/10/10 – 0.8/0.9mm Flux Cored	FR301010K0809

## 2.0 Installation

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### Worker and working area protection

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Fumes and gases produced by welding are dangerous for your health. Ventilation in workplace must be adequate to remove all harmful fumes and gases but not too strong since it could remove the shielding gas flowing over work piece. Arc welding rays are dangerous for your eyes. The welder must always use a welding helmet with a minimum protective shade glass No. 10 for MIG Welding. All personal protective including working clothes, leather apron, gloves, etc. must always be worn when welding or handling the work piece.



### Unpacking

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Check the packaging for any signs of damage. Carefully remove the machine and retain the packaging until the installation is complete.

### Positioning of the machine

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Place the machine on a firm, dry and level surface. Where possible, do not allow dust or other impurities to enter the machine's cooling air flow. Preferably site the machine above floor level; for example on a suitable carriage unit.

Notes for positioning the machine

- The surface inclination should not exceed 15 degrees.
- Ensure the free circulation of the cooling air. There must be at least 20 cm of free space in front of and behind the machine for cooling air to circulate.
- Protect the machine against heavy rain and direct sunshine.

**NOTE!** The machine should not be operated in the rain as the protection class of the machine, IP21S, allows for outside preserving and storage only.

**NOTE!** Never aim metallic grinding spray/sparks towards the equipment.

### Input connection

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Before connecting the machine you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual.

The equipment should be connected by a suitably qualified competent person. Always ensure the equipment has a proper grounding.

Never connect the machine to the mains supply with the panels removed.

## Mains supply – TitanMig 195/225

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The INPUT primary cable is supplied with machine. Connect the machine to mains according to your state legislation of where machine is being used. Connection can be effected through plug or direct wiring. Supply system should be protected at all times by the fuse stated in technical data section. Direct connection to mains can be done by qualified electrical technician only.

### Australian 240V Single Phase Plug variants – AS/NZS 3122



## Output connections

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### Electrode polarity

- In general when using the machine for MMAW (Stick) the electrode holder is connected to the positive (+) terminal and the work return to the negative (-) terminal.
- In general when using the machine for GMAW (Mig) the MIG Torch should be connected to the positive (+) terminal (Euro Connector) and the work return to the negative (-) terminal.
- In general when using the machine Gasless Mig the Mig Torch should be connected to the negative (-) terminal (Euro Connector) and the work return to the positive (+) terminal.
- When using the machine for GTAW (TIG) welding the TIG torch should be connected to the negative terminal (-) and the work return to the positive (+) terminal
- Always consult the electrode manufacturer's data sheet if you have any doubts.

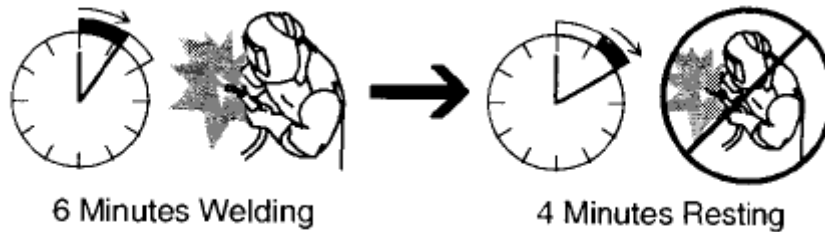
## 3.0 Operation

### Duty cycle and overheating

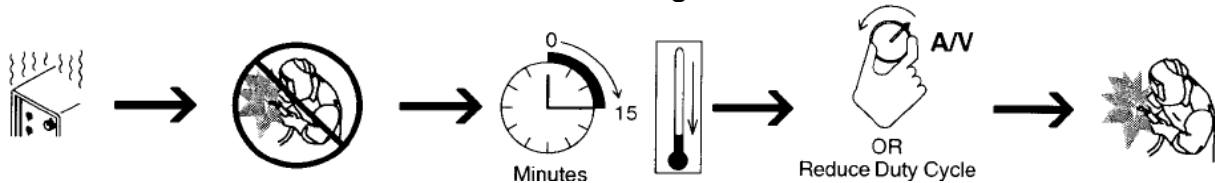


Duty Cycle is percentage of 10 minutes that unit can weld at rated load without overheating. If unit overheats, thermostat(s) opens, output stops, and cooling fan runs. Wait fifteen minutes for unit to cool. Reduce amperage or duty cycle before welding.

#### 60% Duty Cycle at 180A.



#### Overheating



- ▲ Welding machine must be used according to technical data from this manual. If the machine is overloaded, failures may occur that are not be covered by warranty.

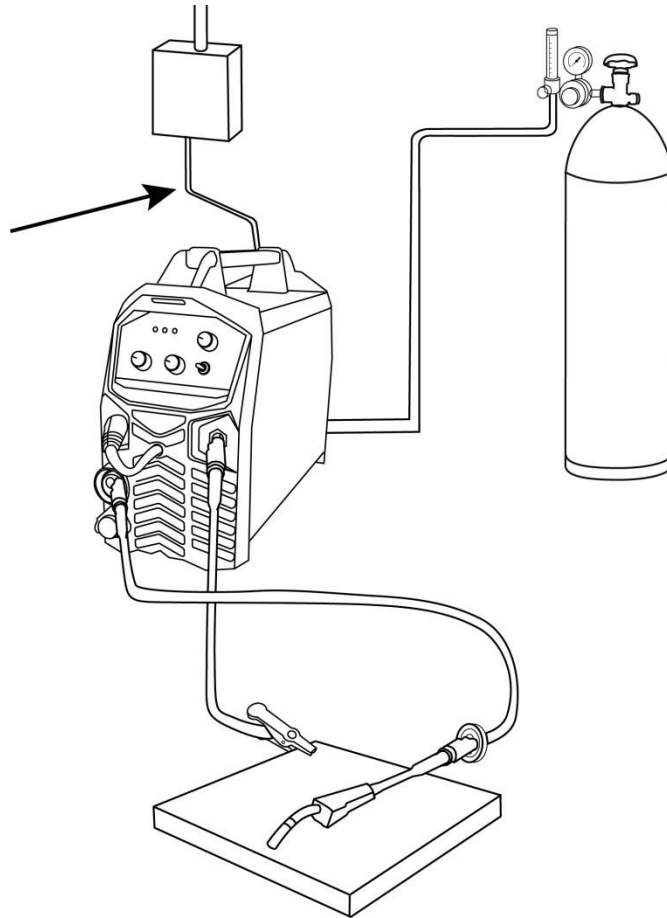
### Overload control



Thermal protection is built in the machine's main transformer and Inverter Bridge. If the machine overheats, thermal fuse will prevent further use and control lamp on the front panel will light up. In this case the welder must wait until the machine's temperature drops to normal. Note the machine must be left switched on for the fan to keep running.

## 3.1 GMAW (MIG) Welding

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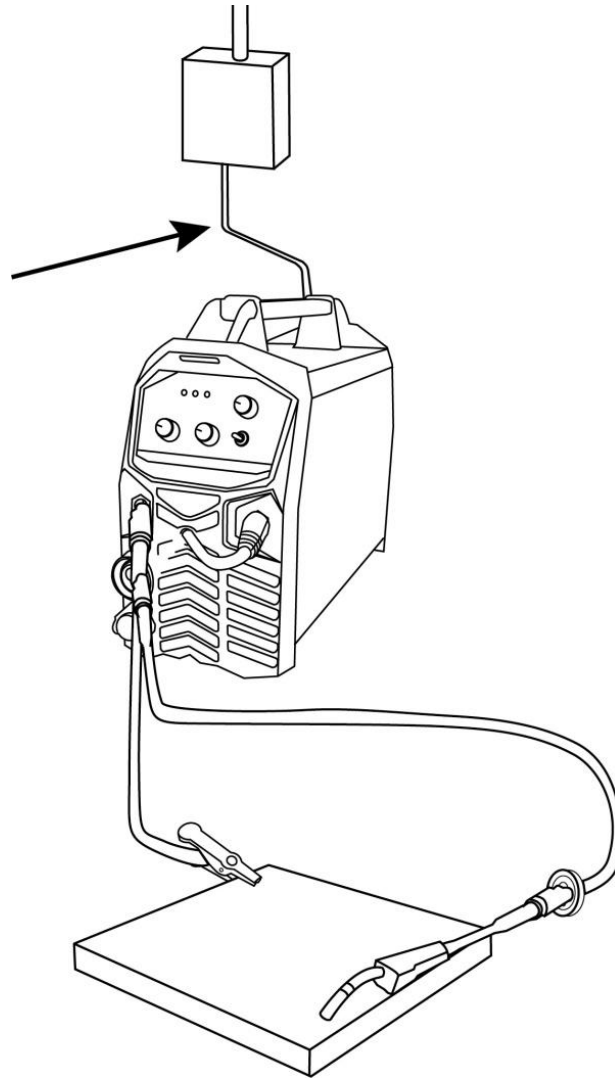
### MIG Gas Shielded Welding

- Insert the welding torch into the “Euro connector for torch in MIG” output socket on the front panel of the machine, and tighten it.
- Install the wire spool on the spindle adapter.
- Connect the cylinder equipped with the gas regulator to the gas inlet on the back panel of the machine with a gas hose.
- Insert the cable plug with work clamp into the “-” output terminal on the front panel of the welding machine, and tighten it clockwise.
- Insert the quick plug of the gas / no gas selector into the “+” output terminal of the welding machine, and tighten it clockwise.
- Ensuring that the groove size in the feeding position on the drive roll matches the contact tip size of the welding torch and the wire size being used.
- Release the pressure arm of the wire feeder to thread the wire through the guide tube, and into the drive roll groove. Adjust the pressure arm, ensuring no sliding of the wire. Too high pressure will lead to wire distortion, which will affect wire feeding.
- Press the wire inch button to thread the wire out of the torch contact tip.



### 3.1 GMAW (MIG) Welding

---



#### **Gas-less Self Shielded Welding**

- Insert the welding torch into the “Euro connector for torch in MIG” output socket on the front panel of the machine, and tighten it.
- Insert the cable plug with work clamp into the “+” output terminal on the front panel of the welding machine, and tighten it clockwise.
- Insert the quick plug of the gas / no gas selector into the “-” output terminal on the middle plate of the welding machine, and tighten it clockwise.
- Install the wire spool on the spindle adapter, ensuring that the groove size in the feeding position on the drive roll matches the contact tip size of the welding torch and the wire size being used.
- Release the pressure arm of the wire feeder to thread the wire through the guide tube, and into the drive roll groove. Adjust the pressure arm, ensuring no sliding of the wire. Too high pressure will lead to wire distortion, which will affect wire feeding.
- Press the wire inch button to thread the wire out of the torch contact tip.
- After being installed according as above, and the power switch on the back panel being switched on, the machine is started.
- Before starting the welding it is recommended to make tests and trial runs on scrap material.

## Installation of wire reel

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Open the side cover and unscrew reel brake cover. Mount the reel in such way that one end of wire hangs downwards. Mount brake cover back in position.

Cut off the bent end of the wire. Lead the end of the wire through inlet guide and unclip pressure handle of feed rollers in order to make the work easier. Ensure both wire inlet guide and the feeding rollers groove are aligned. Push the welding wire to the inlet of the torch connection. Replace the pressure handle to re-establish pressure on the wire. If handle pressure is too strong the wire could be transformed - flattened. If the pressure is too low the wire could slip in the feeding groove. Use tension knob to adjust this.

## Gas selection for Gas Metal Arc Welding (GMAW)

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Metal inert gas welding (MIG): Uses Argon (Ar), Helium (He) or Ar-He mixtures as the shield gas, and it mainly used for welding aluminum and its alloys.

Metal active gas welding (MAG): Uses Argon (Ar) mixed with a certain amount of CO<sub>2</sub> / O<sub>2</sub> as the shield gas, and it usually used in short circuit transfer and spray transfer. It can be applicable to flat position welding, vertical position welding, overhead position welding and all-position welding, and it mainly used for welding carbon steel, high strength low alloy steel and stainless steel. Welding robots mostly use the MAG process.

CO<sub>2</sub> (carbon dioxide) gas shielded arc welding (CO<sub>2</sub> welding): It uses CO<sub>2</sub> as the shield gas, and is usually used in globular transfer and short circuit transfer to implement welding. It can be used to weld in different positions. As compared with other welding methods, CO<sub>2</sub> welding has many advantages, though it produces more spatters, CO<sub>2</sub> welding is widely used for general metal structure welding.

**The correct shielding gas can alter productivity in GMAW by contributing to.**

- Correct weld sizes, to reduce over welding
- Lower spatter levels, to increase welding speed and reduce clean-up
- Reduced welding defects which reduces rework time
- Reduced fume levels, to improve OH&S and worker comfort, increases productivity

**Shielding gases have a strong influence over..**

- Stability of the arc
- The shape of the weld bead/face
- Mechanical properties of the weld
- Cost efficiency of the welding process being used
- Control of fume generation rates

## Gases used in Shielding Gas Formulations

### Argon

- The tendency for argon to produce a "Wine Glass" penetration profile can make it difficult to ensure complete fusion of the weld especially if "Arc Wander" is occurring.
- For GMAW applications small additions of oxygen or carbon dioxide will assist in eliminating "Arc Wander" by producing a uniformly oxidized surface for the arc root to "Anchor" to. The addition of helium produces a broader and deeper fusion profile.

### Carbon Dioxide CO<sub>2</sub>

- The first shielding gas used for GMAW, MIG welding.
- Spray transfer using GMAW cannot be achieved with carbon dioxide.
- At low currents a good dip transfer mode can be obtained.
- At high currents the transfer mode is globular and significant spatter is produced

- Carbon Dioxide is less than ideal for use alone as a shielding gas but it is an essential ingredient of most GMAW shielding mixtures.
- High Carbon Dioxide (18 to 23%) mixtures are particularly suited to welding steels which are coated with paint, primers and other surface contaminants, or where higher penetration is required.

### Helium

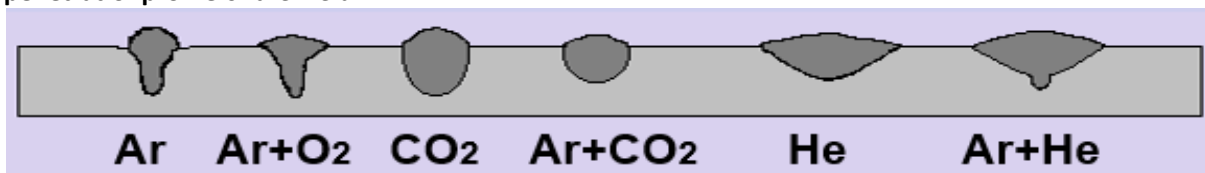
- Rarely used alone as a shielding gas.
- Completely inert.
- Lighter than air therefore less efficient as a shield.
- High ionization potential which can cause arc initiation problems.
- Essential ingredient for many shielding gas mixtures.
- Helium rich shielding gas mixtures provide excellent weld fusion characteristics for GMA welding applications. The high heat input obtained by using helium produces a hot arc and allows for high deposition welding.

### Oxygen

- Oxygen is never used as a shielding gas on its own.
- Oxygen is a vital component in many mixtures and performs two main functions...
- It aids stability within the arc ionizing at a similar level to argon and influences the arc rooting characteristics by producing a uniform oxide layer on the electrode and work piece. It also reduces the surface tension of the metal droplets and the molten weld pool.
- The benefits of these two functions are reduced wire losses as a result of spatter and the more efficient use of deposited metal due to reduced reinforcement (weld metal build-up).

### Penetration Profiles

Different shielding gas formulations produce quite different and significant changes to the **penetration profile** of the weld.



### Selecting the Correct Shielding Gas

#### Base Material considerations

- Base material type or classification
- Base material thickness
- Joint design
- Welding position

#### Quality aspect of the finished weld

- Mechanical and chemical requirement
- Surface finish
- Penetration

#### Metal transfer mode

- Spray transfer
- Globular transfer
- Dip transfer
- Pulsed current transfer

#### Economics of the weld

- Clean up costs (acceptable level of spatter)
- Welding travel speed
- Flow rate of shielding gas
- Cost of shielding gas

### Carbon Steel - Low content CO<sub>2</sub> Mixtures

- Most shielding gases are based on the argon/carbon dioxide/oxygen system for welding carbon steels.
- Low content CO<sub>2</sub> mixture (1-7% CO<sub>2</sub>) produce welds with a “Wine Glass” penetration profile similar to that produced by pure argon, along with a very stable arc and low spatter levels.

- Due to these mixtures having a relatively low heat input, fusion defects and porosity can occur when welding heavy sections due to the penetration profile, low fluidity and the rapid freezing of the weld pool.

#### **Carbon Steel – Intermediate content CO2 mixtures**

- Intermediate content CO2 mixtures (8-15% CO2) produce a higher heat input giving improved characteristics and broader penetration profile.
- These mixtures are more versatile than the low content CO2 mixtures and sound welds can be produced over a wide range of material thickness.
- These mixtures usually produce the most stable welding arc characteristics and are normally the best general purpose shielding gases for Mild, Carbon and Low Alloy Steels.

#### **High content CO2 mixtures**

- High content CO2 mixtures (16-23% CO2) allow for further improvements in the fusion characteristics and the penetration profiles of the weld.
- These mixtures are ideally suited for welding heavy sections especially in multi pass situations.
- The stiff weld pools cool relatively slowly which aids welding and complete fusion to the weld side walls.
- Any entrapped gas has time to disperse before freezing of the weld pool occurs.
- The arc is less stable than with the low content CO2 mixtures which may result in increased spatter levels.

#### **Welding current setting**

Set the welding current after the above preparation. Short circuiting transfer is mainly fit for electrode wires of diameter 0.6~1.2mm. As a guide for short circuit welding set the welding current according to the table below.

Wire Diameter(mm)	Welding Current Range(A)	Optimal Current(A)
0.8	50-120	70-100
1.0	70-180	80-120
1.2	80-350	100-200

#### **Welding speed selecting**

The welding quality and productivity should be taken into consideration for the selecting of welding speed. In the case that the welding speed increases, it weakens the protection effect and quickens the cooling. As a consequence, it is not good for weld bead shaping. In the event that the speed is too slow, the workpiece will be burned through, and a good weld bead will be unavailable. In practical operation, the welding speed should not exceed 50cm/min.

#### **Wire Stick-out**

The increase of the stick-out can improve the productivity, but too long stick-out may lead to excessive spatter, wire breaking and unstable welding. Generally, the stick-out should be 10 times as the welding wire diameter.

#### **Shielding Gas flow selection**

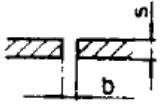


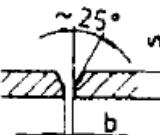


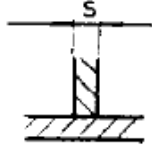



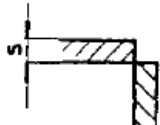

The protection effect is the primary consideration. Besides, the protection effect of inner-angle welding is better than that of external-angle welding, so the gas flow in inner-angle welding should be lower. Less or no shield gas is needed in FCAW. Refer to the table below for the recommended gas flow rates.

Welding Mode	Welding with thin wire	Welding with thick wire	Welding with thick wire under high current
Gas Flow(L/m)	5~15	15~20	20~2

## Work piece preparation

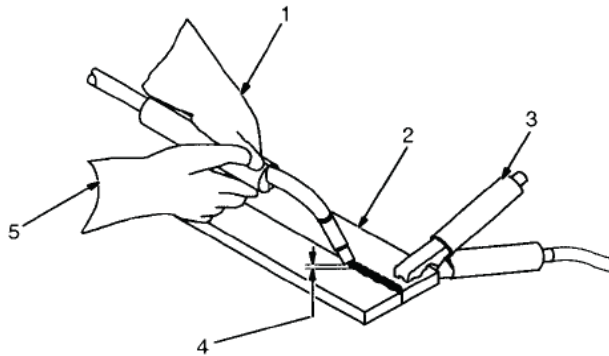
Welding joint describes the welding spot and exact position of work pieces to be welded together. Work piece preparation, groove form and width, material type and thickness, together with certain welding technique all determine joint type.

Around the groove work pieces should be dry and clean, free of rust, metallic coating, dirt, colour or grease.

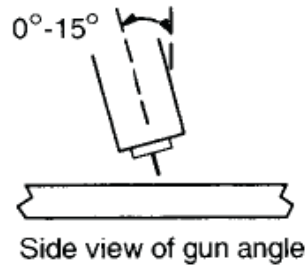
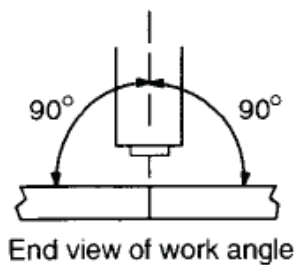
Joint type	Groove shape	Weld shape	Metal thickness [mm]	Work piece spacing [mm]
Square butt joint single sided			up to 1,5 from 1,5	0 to 2
Square butt joint double sided			2 to 4	up to 2
V – butt joint			3 to 6	up to 1
			3 to 6	up to 1
Square T - joint single sided			from 0,6	-
Square T - joint double sided			from 0,6	-
Lap joint			0,6 to 1,5	-
Edge joint			from 1	-

## Positioning the welding torch

Welding wire is energised when the torch button is pressed. Lower your helmet first and then press the trigger. Wire should be around  $\frac{1}{2}$  in past end of nozzle, and tip of wire positioned correctly on seam.

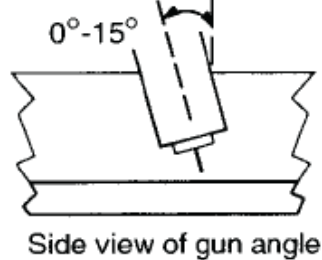
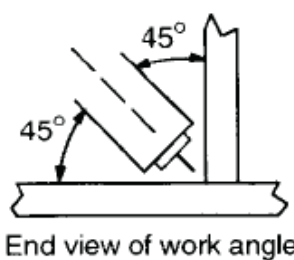


- 1..... Hold torch and control trigger with one hand
- 2..... Work piece
- 3..... Earth clamp
- 4..... Electrode extension (Stickout)  $\frac{1}{4}$  to  $\frac{1}{2}$  in
- 5..... Cradle torch with the other hand and rest it on work piece

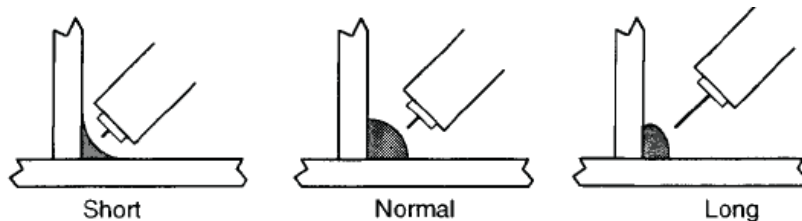


Heat distribution and weld material flow are specific for groove welds and fillet welds. Optimal torch position differs from one to another.

### GROOVE WELDS



### FILLET WELDS

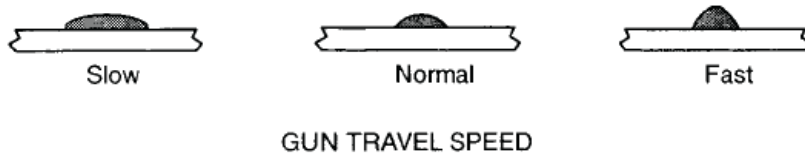


### FILLET WELD ELECTRODE EXTENSIONS (STICKOUT)

Weld bead shape differs depending on electrode extension when welding fillet welds.

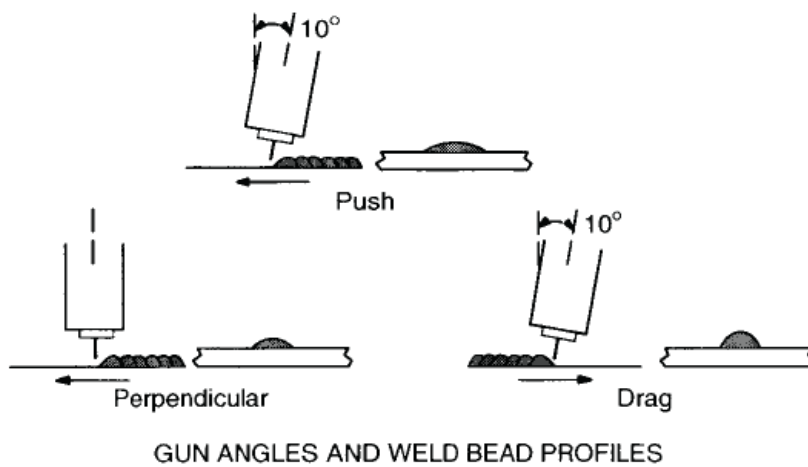
## Gun movement during welding

Weld bead shape as well as penetration and overall joint quality are affected by torch angle, direction of travel, electrode extension, travel speed, thickness of base material, wire feed speed, and voltage.



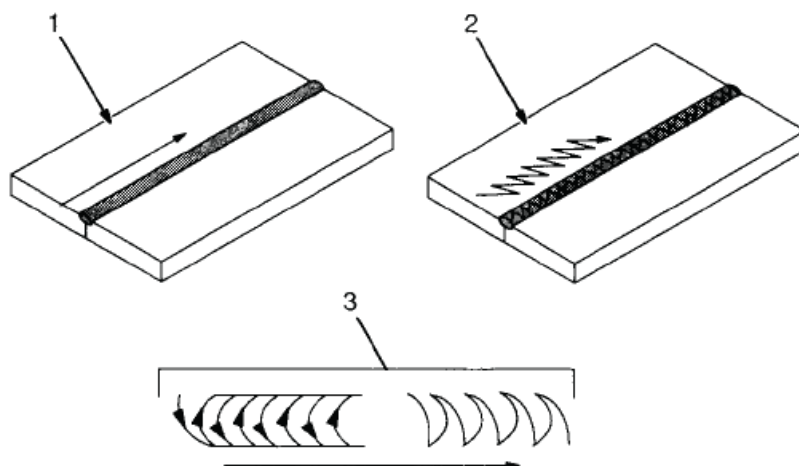
varies with torch travel speed. For adequate penetration to be achieved welding source must provide more power at higher speeds.

Using constant parameters welding material deposit and penetration



Dragging the torch results in deeper penetration and narrower weld. Arc strength prevents slag to enter the molten material.

When pushing the torch penetration will be shallower and the weld wider. This movement is suitable for thin plates because of smaller heat input.



3..... Wave patterns

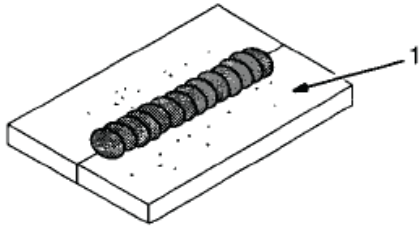
Use weave patterns to cover a wide area in one pass of electrode.

Normally a single stringer bead is satisfactory for most narrow groove weld joints. However for wide groove weld joints or bridging across gaps, a weave bead or multiple stringer beads work better.

- 1..... Stringer bead – steady movement along seam
- 2..... Wave bead – side to side movement along seam

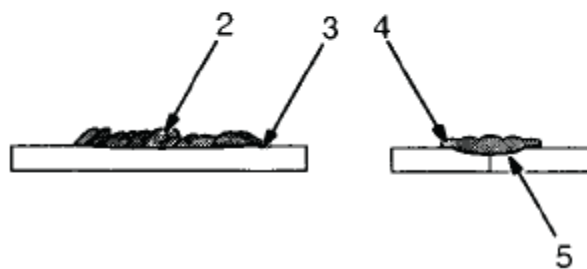
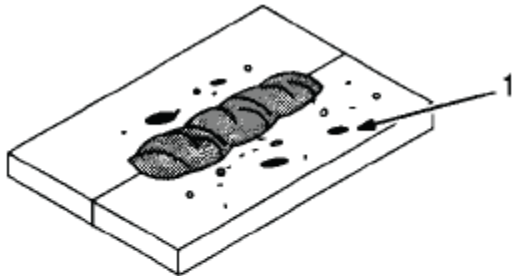
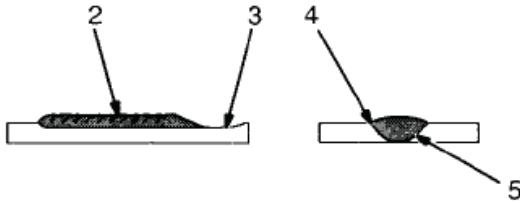
## Welding results and troubleshooting

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### GOOD WELD BEAD

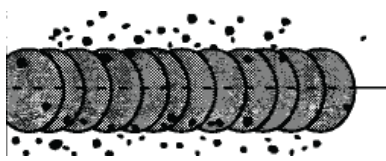
- 1..... Fine spatter
- 2..... Uniform bead
- 3..... Moderate crater during welding
- 4..... No overlap
- 5..... Good penetration into base material



### POOR WELD BEAD

- 1..... Large spatter deposits
- 2..... Rough, uneven bead
- 3..... Slight crater during welding
- 4..... Bad overlap
- 5..... Poor penetration





### Excessive spatter

Scattering of molten metal particles that cool to solid near weld bead.

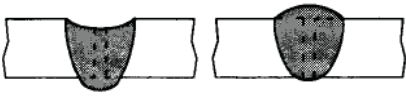
Possible causes	Corrective actions
Wire feed speed too high.	Select lower wire feed speed.
Voltage too high.	Select lower voltage.
Electrode extension too long.	Use shorter electrode extension.
Work piece dirty.	Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding.
Insufficient shielding gas at arc.	Increase flow of shielding gas at regulator and/or prevent drafts near welding arc.
Dirty welding wire.	Use clean, dry welding wire. Eliminate pickup of oil or lubricant on welding wire from feeder or liner.

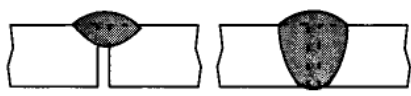


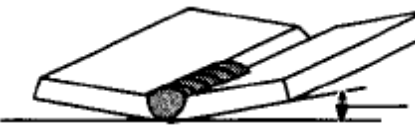
### Porosity


Small cavities or holes resulting from gas pockets in weld material.

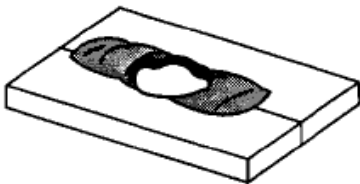
Possible causes	Corrective actions
Wrong gas.	Use welding grade shielding gas; change to different gas.
Welding wire extends too far out of nozzle.	Be sure welding wire extends no more than ½ in beyond nozzle.
Work piece dirty.	Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding. Use a highly deoxidising welding wire (contact supplier).
Insufficient shielding gas at arc.	Increase flow of shielding gas at regulator and/or prevent drafts near welding arc. Remove spatter from gun nozzle. Check gas hoses for leaks. Place nozzle ¼ to ½ in from work piece. Hold gun near bead at end of weld until molten metal solidifies.
Dirty welding wire.	Use clean, dry welding wire. Eliminate pickup of oil or lubricant on welding wire from feeder or liner.

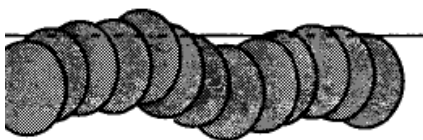
<div>  </div> <div> <p><b>Excessive penetration</b></p> <p>Weld metal melting through base metal and hanging underneath it.</p> </div>	
Possible causes	Corrective actions
Excessive heat input.	<p>Select lower voltage range and reduce wire feed speed.</p> <p>Increase travel speed.</p>

<div>  </div> <div> <p><b>Lack of penetration</b></p> <p>Shallow fusion between weld metal and base metal.</p> </div>	
Possible causes	Corrective actions
Improper joint preparation.	Material too thick. Joint preparation and design must provide access to bottom of groove while maintaining correct welding wire extension and arc characteristics.
Improper welding technique.	<p>Maintain normal gun angle of 0 to 15 degrees to achieve maximum penetration.</p> <p>Keep arc on leading edge of weld puddle.</p> <p>Be sure welding wire extends no more than ½ in beyond nozzle.</p>
Insufficient heat input.	<p>Select higher wire feed speed and/or select higher voltage range.</p> <p>Reduce travel speed.</p>

<div>  </div> <div> <p><b>Distortion</b></p> <p>Contraction of weld metal during welding that forces base metal to move.</p> </div>	
Possible causes	Corrective actions
Excessive heat input.	<p>Select lower voltage range and reduce wire feed speed.</p> <p>Increase travel speed.</p> <p>Use restraint (clamp) to hold base metal in position.</p> <p>Make tack welds along joint before starting welding operation.</p> <p>Weld in small segments and allow cooling between welds.</p>

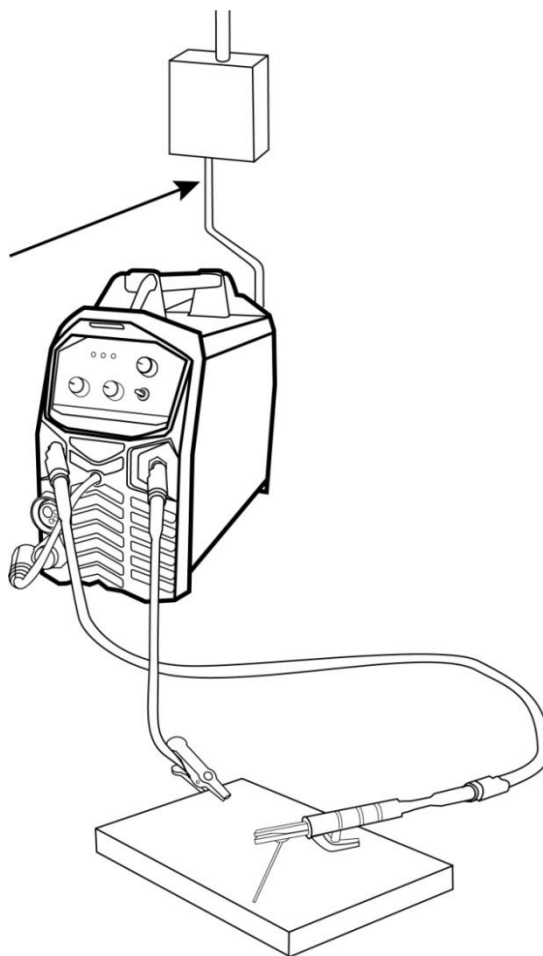
 <b>Incomplete fusion</b> Failure of weld metal to fuse completely with base metal or a preceding weld bead.	
Possible causes	Corrective actions
Work piece dirty.	Remove all grease, oil, moisture, rust, paint, undercoating, and dirt from work surface before welding.
Improper welding technique.	Place stringer bead in correct location(s) at joint during welding.  Adjust work angle or widen groove to access bottom during welding.  Momentarily hold arc on groove side walls when using weaving technique.  Keep arc on leading edge of weld puddle.  Use correct gun angle of 0 to 15 degrees.
Insufficient heat input.	Select higher wire feed speed and/or select higher voltage range.

 <b>Burn-through</b> Weld metal melting completely through base metal resulting in holes where no metal remains.	
Possible causes	Corrective actions
Excessive heat input.	Select lower voltage range and reduce wire feed speed.  Increase and/or maintain steady travel speed.

 <b>Incomplete fusion</b> Weld metal that is not parallel and does not cover joint formed by base metal.	
Possible causes	Corrective actions
Welding wire extends too far out of nozzle.	Be sure welding wire extends no more than ½ in beyond nozzle.
Unsteady hand.	Support hand on solid surface or use two hands.

## 3.2 MMAW (Stick/MMA) Welding

- Insert the cable plug with electrode holder into the “+” socket on the front panel of the welding machine, and tighten it clockwise.
- Insert the cable plug of the work return lead into the “-” socket on the front panel of the welding machine, and tighten it clockwise



- After connecting the welding leads as detailed you will need to switch the power switch on the back panel to “ON”
- Select MMA by switching to the MMA welding mode. There is voltage output at both output terminals.
- Set the amperage on the machine suitable for the electrode being used. Ensure you check that you have the electrode polarity correct.

Please see below a guide to amperages required.

Electrode Diameter(mm)	Welding Current(A)	Electrode Diameter(mm)	Welding Current(A)
2.0	40-60	4.0	130-180
2.5	60-95	5.0	180-220
3.2	95-130	6.0	220-260

Average Thickness of Material (mm)	Suggested Electrode Diameter (mm)	Average Thickness of Material (mm)	Suggested Electrode Diameter (mm)
1.0-2.0	2.5	5.0-8.0	4.0
2.0-5.0	3.2	8.0 >	5.0

## 4.0 Trouble Shooting

### 4.1 Mig Welding Trouble Shooting

The following chart addresses some common problems during MIG Welding.  
In the event of equipment malfunction, contact an authorized service agent.

Possible Reason	Suggested Solution
<b>The Welding current is unstable</b>	
The pressure arm on the wire feeder is not properly adjusted	Adjust it to get proper pressure.
The drive roll does not match the wire size being used.	Make sure they match with each other.
The contact tip of the welding torch is badly worn.	Replace it.
The wire-feeding tube of the welding torch is badly worn.	Replace it
The welding wire is of poor quality	Replace it with welding wire of good quality
<b>Excessive Spatter</b>	
Wire feed speed set too high	Select lower wire speed
Voltage too high	Select a lower voltage setting
Wrong polarity Set	Select the correct polarity for the wire being used
Stick out too long	Bring the torch closer to the work piece
Contaminated base metal	Remove any paint , grease, oil & dirt
Contaminated MIG Wire	Use clear dry rust free wire only.
Gas Flow too high or too low	Check gas is connected. Set gas flow between 10-15 l/min. Protect Weld Zone from wind & drafts
<b>Porosity</b>	
Wrong Gas	Check that correct gas is being used
Gas Flow too high or too low	Check gas is connected. Set gas flow between 10-15 l/min. Protect Weld Zone from wind & drafts
Moisture on the base metal	Remove all moisture from base metal
Contaminated base metal	Remove any paint , grease, oil & dirt
Contaminated MIG Wire	Use clear dry rust free wire only.
Gas nozzle worn or out of shape	Replace it
Missing or damaged gas diffuser	Replace it
Mig Torch O-ring missing or worn	Replace it
<b>Wire stubbing</b>	
Holding the torch too far away	Bring torch closer to work piece. Stick out should be 5-10mm
Welding Voltage too Low	Increase Voltage
Wire Speed Too High	Decrease the wire speed

#### 4.1 Mig Welding Trouble Shooting (Continued)

<b>Lack of Penetration</b>	
Poor joint preparation	Material too thick. Joint preparation needs to allow access to bottom of groove
Contaminated base metal	Remove any paint , grease, oil & dirt
<b>Lack of Fusion</b>	
Contaminated base metal	Remove any paint , grease, oil & dirt
Not enough Heat input	Increase voltage range / adjust wire speed
<b>No wire Speed</b>	
Wrong Mode selected	Check that the selector switch is set to MIG position
<b>Inconsistent Wire Feed</b>	
Adjusting wrong dial	Adjust Wire Speed & Voltage for Mig. Amp dial is used for MMA & TIG
Wrong Polarity	Select the correct polarity for the wire being used
Incorrect Wire Speed	Adjust Speed setting
Voltage Setting Incorrect	Adjust Volt setting
Torch too long	Replace with shorter gun
Contact tip worn / wrong size	Replace with correct type
Liner worn or clogged	Replace with new liner
Wrong size liner	Replace with correct type
Blocked inlet or outlet guide	Clean or Replace
Incorrect drive roller	Fit correct type for wire being used
Worn drive roller	Replace with new
Drive roll pressure to high	Reduce Drive roll pressure
Too much tension on wire spool hub	Reduce the spool hub tension brake
<b>There is output current when pushing the torch trigger to feed gas, but the wire feeder does not work.</b>	
The control cable of the wire feeder is broken	Get it repaired or replaced
The wire feeder is clogged.	Unclog it.
The wire feeder fails.	Repair it.
The control PCB or wire-feeder power PCB inside the machine fails	Replace it.

#### 4.2 MMAW (Stick) Welding Trouble Shooting

The following chart addresses some common problems during MMAW Welding.

In the event of equipment malfunction, contact an authorized service agent.

Possible Reason	Suggested Solution
<b>No Arc</b>	
Incomplete welding circuit	Check Earth & Work leads connected
Wrong Mode Selected	Check the MMA/Stick switch is selected
<b>Porosity</b>	
Arc length too long	Shorten arc length
Contaminated base metal	Remove any paint , grease, oil & dirt
Damp or Contaminated Electrodes	Dry Electrode or replace
<b>Lack of Penetration</b>	
Insufficient heat input	Increase amperage
Contaminated base metal	Remove any paint , grease, oil & dirt
<b>Excessive Spatter</b>	
Amperage set to high	Reduce Amperage
Arc length too long	Shorten arc length
<b>Excessive penetration</b>	
Amperage set to high	Reduce Amperage
Incorrect travel speed	Increase travel speed
<b>Distortion</b>	
Excessive heat input	Reduce Amperage
Poor joint preparation	Check joint design and fit up

### 4.3 Electrical Trouble Shooting

In the event of equipment malfunction, contact an authorized service agent

*The following operation requires sufficient professional knowledge on electric aspects and comprehensive safety knowledge. Make sure the input cable of the machine is disconnected from the electricity supply and wait for 5 minutes before removing the machine covers Before taking your unit for servicing, check the list below.*

Possible Reason	Suggested Solution
<b>There is output current when pushing the torch trigger to feed gas, but the wire feeder does not work.</b>	
The wire feeder is clogged.	Unclog it.
The wire feeder fails.	Repair it.
The control PCB or wire-feeder power PCB inside the machine fails	Replace it.
Check the contact tip	Replace & ensure correct type & style used.
<b>When the torch trigger is pushed, there is gas output and the wire feeder works, but there is no output current, and the protection LED is off.</b>	
The earth cable is not well connected with the workpiece	Reconnect it.
The wire feeder cable is not well connected.	Reconnect it.
The wire feeder or welding torch fails	Repair the wire feeder or welding torch
<b>No response when pushing the torch trigger and the protection LED is off</b>	
The welding torch is not well connected with the wire feeder.	Reconnect it
The control cable of the wire feeder is not well connected with the welding power supply	Reconnect it
The torch trigger fails.	Repair or replace the welding torch.
<b>The fan does not work or it works abnormally</b>	
The mains power supply or the mains supply cable is not connected	Reconnect the mains supply cable
Phase failure	Solve the phase failure problem.
The mains voltage is too low	Welding can be carried out after the mains voltage recovers
<b>There is no no-load voltage</b>	
The mains voltage is too low.	Welding can be carried out after the mains voltage recovers.
Phase failure	Solve the phase failure problem.
<b>The no-load voltage is "0", and the overheating LED is on.</b>	
Overheating protection	It will recover automatically after the welding machine is cooled.
<b>The Overheat LED is On.</b>	
Check the welding current & welding time.	Refer to technical specifications
Check the running status of the fan when welding	If the fan is not working, check the power supply of the fan is 230v.
Damaged or Faulty thermal switch	Replace



<b>The power LED is off &amp; there is not welding current</b>	
Check running status of fan	Replace if faulty. If fan works may indicate control PCB PK-63 may be defective
Check fuse , power switch & primary lead	Replace if faulty
<b>There is no response when operating the torch trigger, and protection LED if off</b>	
Check the torch trigger is working	Replace if Faulty
Check the torch is well connected to the Euro connection	Replace or repair
<b>The wire feeder feeds wire when operating the torch trigger, gas feeds but there is no output current &amp; the protection LED is off</b>	
Check the work return is connected	Refit if required
Check the quick plug is connected	Refit if required
Check the Euro connector is intact	Repair or replace
Check Welding Torch for Damage	Repair or Replace
<b>Welding can be carried out when pushing the torch trigger, but the voltage cannot be adjusted</b>	
Check the Voltage feedback inside the machine is in good condition.	If check Ok PCB may be defective
<b>Welding current is unstable</b>	
Check the pressure arm of wire feeder	Correct pressure
Check drive roll matched the wire being used	Ensure correct type & style used
Check the contact tip for wear and matches wire type/size being used	Ensure correct type & style used
Check the welding wire is in good condition.	Use only dry, oil free wire. Replace if required
Check the torch & lead connections	Ensure correctly fitted
<b>Other malfunction</b>	
	Contact the service center of your distributor

## 5.0 Maintenance

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The utilization level of the power source and its working environment should be taken into consideration in planning the frequency of maintenance of the machine. Appropriate use and preventive maintenance guarantee the trouble-free use of the equipment. This allows you to avoid interruptions in use and increases the productivity of the machine.

### 5.1 Cables

Check the condition of welding and mains cables daily. Do not use damaged cables. Also make sure that all extension cables used in the mains connection are in proper condition and compliant with regulations.

**NOTE!** The mains cables may be repaired and installed only by electrical contractors and installers authorized to perform such operations.

### 5.2 Power source

Before cleaning the interior of the machine, you need to remove the case by unscrewing the mounting screws at the top and sides of the machine.

**NOTE!** To prevent damage, wait approximately two minutes after disconnecting the mains cable before removing the machine's case. Perform the following cleaning and maintenance at least every six months:

1. Clean the interior of the machine and the fan grill's net of any dust and stains – for Example, with a soft brush and vacuum cleaner.

- Do not use pressurized air. The stain may become compressed into the grooves of the coolers.
- Do not use a pressure-washing device.

2. Check the electrical connections of the machine. Clean any oxidized connections, and tighten the loosened ones.

- Check for the right tension before you start repairing the connections.

**NOTE!** Remember that the machine may be repaired only by an electrical contractor or installer authorized to perform such operations.

### 5.3 Regular maintenance

Authorized service agents perform regular maintenance by agreement. Tasks included in regular maintenance:

- Cleaning Equipment
- Inspection and maintenance of the welding gun.
- Checking of connectors, switches, and control knobs.
- Checking electrical connections.
- Checking the mains cable and plug
- Replacement of damaged or worn parts.
- Calibration testing, with adjustment of the functions and operational values of the machine, if necessary

## 6.0 Warranty Terms & Conditions

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**Weldtronic International P/L: ABN 99 149 754 263**

Weldtronic International P/L (Weldtronic) warrants to the original retail purchaser that the products supplied by us and purchased by you from an authorized Weldtronic distributor are free of material and faulty workmanship defects except for those products listed under Warranty Exclusions.

All warranty periods are from **date of purchase** from the retailer/distributor of the product. Unless otherwise stated the warranty period includes parts and labour.

If a defect in material or workmanship becomes evident during the warranty period, Weldtronic will, at its opinion, either:

- Repair the Product (or pay for the costs of repair of the product); or
- Replace the Product if repair is not possible.

In the unlikely event of such a defect, the customer should return the product to the original place of purchase, with a proof of purchase, or contact Weldtronic on 03 9702 9366 to locate a authorized service agent.

Any handling and transportation costs (and other expenses) incurred in claiming under this warranty are not covered by this warranty and will not be borne by Weldtronic.

Weldtronic will return the replacement or repaired product, if original found to be faulty, freight free to the customer.

The obligation of Weldtronic International P/L under this warranty is limited to the circumstances set out above and is subject to:

- The customer being able to provide proof of purchase of the product and the purchase price paid for the product;
- The relevant defect in materials or workmanship;
- The product not having been altered, tampered with or otherwise dealt with by any person in a manner other than as intended in respect of the relevant product; and
- The product not having been used or applied in a manner that is contrary to customary usage or application for the relevant product or contrary to any stated instructions or specification of Weldtronic International.

Our products come with a guarantee that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of an acceptable quality and the failure does not amount to a major failure. The benefits given by this warranty are in addition to the other rights and remedies which may be available to the customer under any law in relation to goods and services to which this relates.

These terms and conditions supersede and exclude all former and other representations and arrangements relating to any warranties on these products

## Warranty Periods

We offer the following Warranty Periods **from date of purchase**;

### Equipment Power Sources

TitanTIG, TitanMIG, TitanARC Inverter Series (Power Source)	2 Years	(Clause 2)
TronicTig, TronicMIG, TronicPlas Inverter Series (Power Source)	2 Years	(Clause 2)
EuroMIG Transformer MIG Series (Power Source)	3 Years	(Clause 1&2)
TronicCool Water Coolers	1 Year	(Clause 2)
Electrode Ovens	1 Year	(Clause 2)
Straight Line & Pipe Cutters (Power source only)	1 Year	(Clause 2)
Positioners & Rotators (power source only)	1 Year	(Clause 2)

### Gas apparatus

TronicFlame Gas & Welding Kits	3 Months	(Clause 2&4)
TronicFlame Regulators	1 Year	

### Automatic Welding Helmets

Clearwelding® CWH720S Series Automatic Helmet	1 Year	(Clause 4)
Clearwelding® CWH800S / 815S / 820S Series Automatic Helmet	2 Years	(Clause 4)

### Welding Accessories

MIG , TIG & Plasma Torches	3 Months
Earth & Work Leads	3 Months
Gas Hose & Interconnecting Cables	3 Months

**(Clause 1)** 3 Year warranty on transformer, inductor, & Rectifier. 2 Year Warranty on PCB and all other components.

**(Clause 2)** This only covers manufacture defaults on all accessories for the first three months after date of purchase (e.g. MIG/TIG/Plasma Torches, Earth Leads, Gas hose, etc.).

**(Clause 3)** Gas Hose & Flashback arrestors are subject to and covered by the manufacturer's individual warranty.

**(Clause 4)** 1 & 2 Year warranty on ADF Lens. 3 Month warranty on Helmet shell, harness & fittings.

## Warranty, Returns & Exchanges

**(1)** Subject to the conditions of warranty set out in the warranty period, Weldtronic International P/L warrants that if any defect in any workmanship on any product has occurred then the conditions applicable to the warranty period are;

**(a)** The warranty applies on the basis of the goods being used on the equivalent of single daily eight (8) hour shift.

**(2)** The warranty shall not cover defect or damage which may be caused or partly caused by or arise through:

**(a)** Failure on the part of the buyer to properly maintain any goods.

**(b)** Failure on the part of the buyer to follow any instructions or guidelines provided by Weldtronic.

**(c)** Any use of any goods otherwise than for any application specified on a quote or order form.

**(d)** The continued use of any goods after any defect becomes apparent or would have become apparent to a reasonably prudent operator or user.

**(e)** Fair wear and tear of goods or any part thereof including but not limited to items listed in warranty exclusions.

**(f)** Misuse, neglect, accident, vandalism or damage in transit or natural disaster.

**(3)** The warranty shall cease and Weldtronic International P/L shall thereafter in no circumstances be liable under the terms of the warranty if the workmanship is repaired, altered or overhauled without Weldtronic International consent.

**(4)** In respect of all claims Weldtronic International P/L shall not be liable to compensate the buyer for any delay in either replacing or remedying the workmanship or in properly assessing the buyers claim.

**(5)**For goods not manufactured by Weldtronic International P/L, the warranty shall be the current warranty provided by the manufacturer of the goods. Weldtronic International shall not be bound by nor be responsible for any term, condition, representation or warranty other than which is given by the manufacturer of the goods.

**(6)**We understand that sometimes you may need to return a product you have purchased from Weldtronic International p/l authorized dealer, to assist you , we have set out below the Weldtronic International P/L Returns Policy that you should know.

Our Returns Policy includes the rights you have under the Australian Consumer Law and other relevant laws.

Your rights under the Australian Consumer Law;

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

You shall inspect the goods on delivery and shall within seven (7) days of delivery notify Weldtronic International P/L of any alleged defect, shortage in quantity, damage or failure to comply with the description or quote.

You shall also afford Weldtronic International P/L the opportunity to inspect the goods within a reasonable time following delivery if you believe the goods are defective an any way.

If you fail to comply with these provisions the goods shall be presumed to be free from any defect or damage. For defective goods, which Weldtronic International P/L has agreed in writing that you are entitled to reject, Weldtronic International P/L liability is limited to either (at Weldtronic discretion) replacing the goods or repairing the goods except where you have acquired goods as a consumer within the meaning of the Trade Practices Act 1974 or the Fair Trading Acts of the relevant state or territories of Australian, and is therefore also entitled to, at the consumers discretion either a refund of the purchase price of the goods, or repair of the goods, or replacement of the goods.

**(7)**Returns will only be accepted provided that;

**(a)**You have complied with the provisions outlined above, and...

**(b)**Where the goods are unable to be repaired, the goods are returned at your cost within thirty (30) days of the delivery date, and...

**(c)**Weldtronic International P/L will not be liable for goods which have not been stored or used within the proper manner, and...

**(d)**The goods are returned in the condition in which they were delivered and with all packaging material, brochures and instruction material in as new condition as is reasonably possible in the circumstances. Failure to comply to this point may mean that a re-stocking fee is charged to compensate Weldtronic for any lost materials and labour.

**(8)**Weldtronic International P/L accepts no responsibility for products lost, damaged or mislaid whilst in transit.

**(9)**Weldtronic International P/L (at their sole discretion) accepts the return of goods for credit but this may incur a handling fee of up to twenty percent (20%) of the value of the returned goods plus any freight costs.

**(10)**Where the failure does not amount to a major failure, Weldtronic International P/L is entitled to choose between providing you with a repair, replacement or other suitable remedy.

**(11)**Your rights under the Australian Consumer Law are not limited by a defined time. However, the Australian Consumer Law does recognize the relevant time period can vary from product to product, depending on factors such as the nature if the product and price. Weldtronic International P/L adopts the same approach. As you can appreciate, the type of remedy we can offer you may also vary depending on how long it takes you to return the product to use.

### **Making a Claim**

**(12)** If you wish to make a claim under this warranty you should;

**(a)** Return the product to the point of purchase either in person or on a prepaid courier; or

**(b)** Contact us by telephone on 03 9702 9366 or mail to PO 2096 Rowville VIC 3178

**(c)** When returned, the product must be accompanied with the original invoice including the purchase price and disclosing the purchase date.

**(d)** All costs of installation, cartage, freight, travelling expenses, hiring tools and insurance are paid by the Customer.

**(e)** To the extent permitted by law, our total liability for loss or damage of every kind related to the product in any way whatsoever is limited to the amount paid to the retailer by you for the product or value of the product.

### **Warranty Exclusions**

**(13)** This warranty covers material and faulty workmanship defects only. This warranty does not cover damage caused by

**(a)** Normal wear and tear due to usage

**(b)** Misuse or abusive use of the instructions supplied with the product

**(c)** Failure to clean or improper cleaning of the product

**(d)** Failure to maintain the equipment such as regular services etc.

**(e)** Incorrect voltage or non-authorized electrical connections

**(f)** Improper installation

**(g)** Use of non-authorized/non-standard parts

**(h)** Abnormal product performance caused by any ancillary equipment interference or other external factors.

**(i)** Failure or breakage caused by overload, dropping or abusive treatment or use by the customer

**(j)** Repair, modifications or other work carried out on the product other than by an authorized Weldtronic service dealer.

**(14)** This warranty does not cover the following parts:

**(a) MIG , TIG & Stick (MMA) Welding Torches & Consumables such as;**

*Gas nozzles, Gas diffusers, contact tip holder, contact tip, swan necks, trigger, handle, liners, wire guide, drive roller, neck spring, connector block, insulator, gas nipple , cap, euro block, head assembly, gas block, trigger spring, cable support, neck insulator, lock nut, arc leas, welding cable, electrode holders & earth clamps, tungsten Electrodes, Collect, Back Cap, Collet body, Torch head, gaskets, gas lens & O-rings.*

**Plasma (b) Cutting Torches & Consumables such as;**

*Cutting tips, Air diffuser, Swirl ring, Electrode, retaining cap, nozzle spring, spaces, air & power cables, O-rings, guides, torch bodies, air filter*

**(c) Straight Line & Pipe Cutting consumables such as; Hoses, fittings, track, cutting nozzles, torch**

**(15)** This warranty does not cover for products purchased:

**(a)** From a non-authorized Weldtronic dealer (such as purchases from unauthorized retailers and purchases over the internet from unauthorized local/international sites such as EBay)

**(b)** At an auction

**(c)** From a private seller

**(d)** Unless it is a manufacturing fault, this warranty does not apply for products sold to hire companies.

These conditions may only be varied with the written approval of the directors of Weldtronic International P/L.

**REMEMBER TO RETAIN YOUR ORIGINAL INVOICE FOR PROOF OF PURCHASE.**





**Weldtronic International P/L**

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