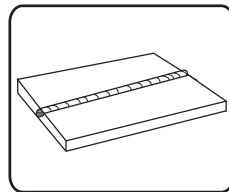


ARC WELDING

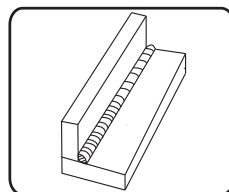
Welded Joints

Butt Joint
Is the joining of two pieces of material together along a single edge in a single plane. Two sheets of metal are laid side-by-side and joined together along a single joint



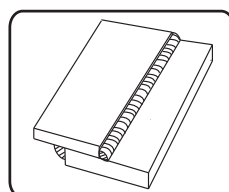
Fillet Joint

Is a type of joint used for welding pieces or plates in which the angle between them varies from 0° to 180°. The edge of one plate is brought against the surface of another not in the same plane. The joint can be welded on one or both sides.



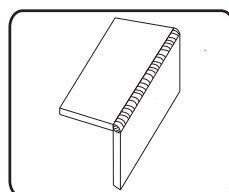
Lap Joint

The edges of a plate are lapped one over the other and the edge of one is welded to the surface of the other.



Corner Joint

A corner joint consists of two pieces of material joined at their edges to form an "L" shape.



Electrodes

Always store the electrodes in a dry place protecting them from moisture. Should electrodes become damp or moist, bake them in an oven at 200 - 250° C for 2 hours. Unless the electrodes are vacuum packed, basic coated electrodes will always require such baking prior to use.

Metal arc welding electrodes consist of a core wire surrounded by a flux coating. The flux coating is applied to the core wire by an extrusion process. The coating on arc welding electrodes has a number of purposes:

- To provide a gaseous shield for the weld metal, and preserve it from contamination by the atmosphere whilst in a molten state.
- To give a steady arc by having 'arc stabilisers' present, which provide a bridge for current to flow across.
- To remove oxygen from the weld metal with 'deoxidised'.
- To provide a cleansing action on the work piece and a protective slag cover over the weld metal to prevent the formation of oxides while the metal is solidifying. The slag also helps to produce a bead of the desired contour.
- To introduce alloys into the weld deposits in special type electrodes.

Arc Length

To strike the arc, the electrode should be gently scraped on the work until the arc is established. A simple rule for the proper arc length: it should be the shortest arc that gives a good surface to the weld. A very long arc produces a crackling or spluttering noise and the weld metal comes across in large, irregular blobs and gives a rough surface finish to the weld. A short arc is essential if a high quality weld is to be obtained but a excessively short arc will cause sticking of the electrode and result in poor quality welds. For down hand welding is to have an arc length no greater than the diameter of the electrode.

Electrode Angle

The angle that the electrode makes with the work is important to ensure a smooth, even transfer of metal. When welding in down hand, fillet, horizontal or overhead the angle of the electrode is generally between 5 and 15 degrees towards the direction of travel. When vertical up welding the angle of the electrode should be between 70 and 80 degrees to the work piece.

Travel Speed

The electrode should be moved along in the direction of the joint being welded at a speed that will give the size of run required. At the same time, the electrode is fed downwards to keep the correct arc length at all times. Excessive travel speeds lead to poor fusion and lack of penetration. While too slow a rate of travel will frequently lead to arc instability, slag inclusions and poor mechanical properties.

Electricity

The electricity flows through the electrode cable to the attached electrode. The electricity will not leave the electrode unless it touches an earthed object.

Electricity always finds the fastest path to the earth. When the earth cable clamp is connected to the metal work piece a direct earth connection is created back to the welder. When the electrode makes contact with the earthed work piece an arc is created. The electricity flows through the electrode, the metal work piece and then through the earth cable straight back to the welder.

Earth Clamp

Prior to connecting the earth clamp it may be necessary to clean the surface of the work piece using the metal brush. Attach the earth clamp firmly to the work piece ensuring there is good metal to metal contact. Clamp it where it will not be in the way. This clamp provides an earth connection back to the welder. Always ensure the welder is disconnected from the power supply before attaching electrodes into the holder.

IMPORTANT INFORMATION

Thermal Overload

IF YOUR WELDER OVERHEATS AND THE THERMAL OVERLOAD PROTECTION ENGAGES DO NOT TURN YOUR WELDER OFF AS THE FAN WILL ASSIST IN REDUCING THE COOLING TIME.

All Welders have a feature called a duty cycle.

Duty cycle on a welder refers to the time in which the welder operates during normal welding.

A welder can only weld for a certain continuous period of time before it requires to cool down.

If the internal components of the welder should become hot the welder could overheat. If the welder overheats the Thermal Overload Protection feature will automatically shut down the welder.

THIS CAN OCCUR IN HEAVY USE AND DOES NOT INDICATE A FAULT.

The Welder will cease to weld and the Thermal Overload LED light will turn on. This LED indication light is just to inform you that your welder is becoming too hot and requires to cool down to protect the internal components of the welder. Do Not turn your welder Off as the welder has an internal cooling fan and this will assist your welder to cool down quicker. Reducing the cooling time will enable you to get back to your welding job quicker.

Depending on how many Amps or how heavy the welding you are doing the cooling time may take up to 10 Minutes for your welder cool down so you can return to your welding job.

TROUBLESHOOTING

PROBLEM	CAUSE	REMEDY
GENERAL OPERATION		
No Power	Switch on rear is off	Turn on by moving switch to up position
	Power supply	Test supply with another product, avoid using extension leads.
	Circuit breaker tripped	Check the rating of the circuit breaker on the supply and other appliances connected to the circuit. The welder is a high power device and it is recommended that it be the only appliance on the circuit to ensure it has enough power to operate.
Difficulty starting arc	Incorrect settings, cable connection	Check Arc/TIG switch is in correct position. Check earth and electrode cables are in correct terminals. Check cable connections to welder are secure, rotate clockwise until firm.
	Earth clamp connection not adequate	Check earth clamp has good connection to material being welded. Surface for clamp connection needs to be bare metal, remove rust or paint.
	Welding technique	Hold electrode at correct angle, practice on scrap material
Welder cuts out	Thermal overload active	The thermal overload light on the front panel will be on and the welder will not operate until cooled down and the light goes out. This is normal in heavy welding, allow the welder to cool down.
ARC WELDING		
Poor welding	Incorrect or wet welding electrodes	Select electrode type to suit material, electrodes need to be dry.
Sticking welding electrode	Settings	Increase current to recommended
	Material	Clean area being welded to bare metal
	Electrode type and size	Check the electrode type and size is appropriate for the material being used.
Excessive welding electrode consumption	Welding current setting too high	Reduce welding current
	Electrode size to small for material	Change to larger electrode
TIG WELDING		
Poor welding	Electrode tip damaged	Grind tip 1 point. Replace with new TIG electrode
	Gas supply	Check the correct shield gas is being used. Check gas supply connections and flow settings.
Sticking electrode	Settings	Check welder TIG settings
	Technique	TIG welding requires skill and practice, seek assistance from experienced welder.

DESCRIPTION OF SYMBOLS

V	Volts	Hz	Hertz
~	Alternating current	W	Watts
Ø	Diameter	A	Amperes
U₁	Rated AV input voltage (with tolerance ±10%)	U₂	On-load voltage
I_{1max}	Rated maximum input current	I_{1eff}	Maximum effective input current
U₀	Non-load voltage	I₂	Current rating
t_w	Load time	t_r	Reset time
V_{max}	Max. wire feeding speed	IP	Protection class
X	Load duration rate	— — — 	Direct Current (DC)
A/V	Electric current adjustment range, and the relevant on-load voltage	S	Suitable for welding in an environment which has high risk of electric shock
	MAG welding		Gas Tungsten Arc Welding (GTAW)
	Symbol of single-phase AV power and rated frequency	Single-phase transformer- Rectifier	
	Do not operate in the rain		Warning
	Read operator's manual		

ELECTRICAL SAFETY

WARNING! When using mains-powered tools, basic safety precautions, including the following, should always be followed to reduce risk of fire, electric shock, personal injury and material damage.
Read the whole manual carefully and make sure you know how to switch the tool off in an emergency, before operating the tool.
Save these instructions and other documents supplied with this tool for future reference.
Before you connect the equipment to mains supply make sure that the data on the rating plate are identical to the mains data.

If the supply cord is damaged, it must be replaced by an electrician or a power tool repairer in order to avoid a hazard.

Using an Extension Lead
Always use an approved extension lead suitable for the power input of this tool. Before use, inspect the extension lead for signs of damage, wear and ageing. Replace the extension lead if damaged or defective. When using an extension lead on a reel, always unwind the lead completely. Use of an extension lead not suitable for the power input of the tool or which is damaged or defective may result in a risk of fire and electric shock.

GENERAL POWER TOOL SAFETY WARNINGS

WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. Save all warnings and instructions for future reference. The term "power tool" in the warnings refers to your mains-operated (corded) power tool or battery-operated (cordless) power tool.

- Keep work areas clean.** Cluttered work areas and benches can cause accidents.
- Consider work area environment.** Do not expose your equipment to high humidity or rain. Do not use your equipment in damp or wet conditions. Keep the work area well lit. Do not use your tool where there is a risk of causing fire or explosion, e.g. in the presence of flammable liquids and gases.
- Keep children away.** Do not allow children, visitors or animals to come near the work area or to touch the equipment or accessories.
- Dress appropriately.** Wear the appropriate protective clothing. Wear a protective hair covering to keep long hair out of the way.
- Guard against electric shock.** Prevent body contact with earthed or grounded surfaces. Electrical safety can be further improved by using a high sensitivity (30 mA / 30 mS) residual current device (RCD).
- Do not overreach.** Keep proper footing and balance at all times.
- Stay alert. Watch what you are doing.** Use common sense. Do not operate the equipment when tired.
- Secure work piece.** If required, use clamps or a vice to hold the work piece.
- Extension leads.** Before use inspect the extension leads and replace if damaged. When using the equipment outdoors, only use extension leads intended for outdoor use and marked accordingly.
- Use appropriate equipment.** Only use the equipment as outlined within this instruction manual. Do not force the equipment to the job of heavier duty equipment. The equipment will do the job better and safer at the rate for which it was intended. Do not force the equipment.

WARNING! The use of any accessory or attachment, or performance of any operation with this equipment other than those recommended in this instruction manual may present a risk of personal injury.

INVERTER WELDER SAFETY WARNINGS

- Under no circumstances should the housing of the welder be opened.
- Always protect your eyes and face with a welding mask.
- Wear appropriate protective clothing such as a welding apron and sleeved gloves etc.
- Avoid exposing skin as UV rays are produced by the arc.
- Screen off the work place to protect others working nearby from UV rays.
- Welding materials with contaminated surfaces may generate toxic fumes. Ensure the surface is clean before welding. Avoid operating on materials cleaned with chlorinated solvents or near such solvents.
- Do not weld metal equipment that holds/contains flammable materials, gases or liquid combustibles.
- Zinc-plated or galvanized material should not be welded as the fumes created are highly toxic.
- Do not use the welder in damp or wet conditions.
- Do not use cables with worn insulation or loose connections.
- Disconnect from the power supply before replacing electrodes.
- Avoid direct contact with the welding circuit.
- Do not use the welder to defrost piping.
- Ensure the welder is placed on a level surface to prevent overturning.
- Provide adequate ventilation or a means for removal of the welding fumes produced (forced circulation using a blower or fan).

Fumes

Toxic gases are given off during the ARC welding process, which may collect in the welding area if the ventilation is poor. Be alert at all times to the possibility of fume build-up. In small or confined areas use a fume extractor.

Glare

The electric arc generated by the ARC process gives direct heat and ultraviolet radiation. It is essential that the eyes of the operator and bystanders are protected from the glare during welding.

ALWAYS USE A FACESHIELD OR WELDING HELMET FITTED WITH THE CORRECT GLASS FILTER.

Heat

It is desirable that welding gloves are worn whilst welding. They will protect the hands from ultra-violet radiation and direct heat of the arc.

OVERALLS should also be worn. They should be of type designed to be buttoned at the wrists and the neck.

Dress

In addition to face shield, welding gloves and overalls, other types of protective clothing should be worn when welding. Additional protective clothing such as a leather apron, sock protectors and a hat will all assist in reducing any injuries due to heat, sparks and slag produced during welding.

ozito

INVERTER ARC/TIG WELDER

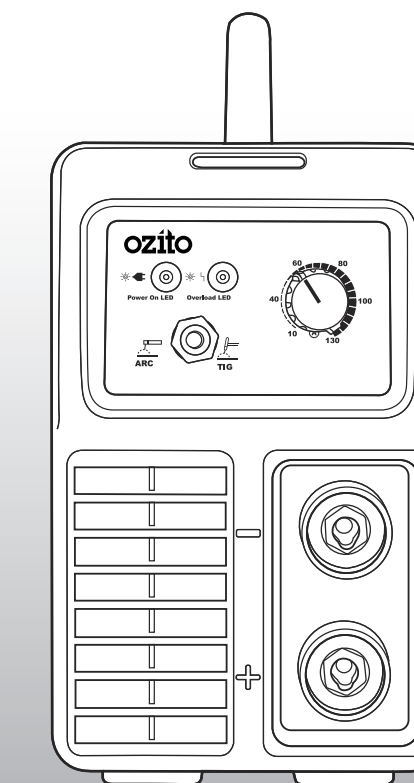
130 Amp
ORIGINAL INSTRUCTIONS

SPECIFICATIONS

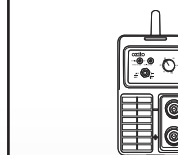
Welding Current:	10 - 130A
Arc Electrode Size:	1.6 - 3.2mm
Duty Cycle:	Arc 25%@130A (25.2V) DC TIG 25%@130A (15.2V) DC
Cord & Plug:	2.0m BS / 13A Plug
Weight:	5.46kg

ozito-diy.co.uk

3 YEAR REPLACEMENT WARRANTY



WHAT'S IN THE BOX



Inverter Welder



TIG Torch



Arc Electrode Holder



Earth Clamp



Accessories

IWT-130U

WARRANTY

All of our products undergo strict quality checks to ensure that they reach you in perfect condition. In the unlikely event that your device develops a fault, please contact our service department at the address shown on this guarantee card. You can also contact us by telephone using the customer service number shown. Please note the following terms under which guarantee claims can be made:

1. These warranty terms regulate additional warranty services, which the manufacturer mentioned below promises to buyers of its new products in addition to their statutory guarantee claims are not affected by this guarantee. Our guarantee is free of charge to you.

2. The warranty services only covers defects due to material or manufacturing faults on a product which you have bought from the manufacturer mentioned below are limited to either the rectification of said defects on the product or the replacement of the product, whichever we prefer. Please note that our devices are not designed for use in commercial, trade or professional applications. A guarantee contract will not be created if the device has been used by commercial, trade or industrial business or has been exposed to similar stresses during the guarantee period.

3. The following are not covered by our guarantee:
- Damage to the device caused by a failure to follow the assembly instructions or due to incorrect installation, a failure to follow the operating instructions (for example connecting it to an incorrect mains voltage or current type) or a failure to follow the maintenance and safety instructions or by exposing the device to abnormal environmental conditions or by lack of care and maintenance.
- Damage to the device caused by abuse or incorrect use (for example overloading the device or the use of unapproved tools or accessories), ingress of foreign bodies into the device (such as sand, stones or dust, transport damage), the use of force or damage caused by external forces (for example by dropping it).
- Damage to the device or parts of the device caused by normal or natural wear or tear or by normal use of the device.

4. Your Product is guaranteed for a period of 36 months from the original date of purchase and is intended for DIY (Do It Yourself) use only. Warranty excludes consumable parts. Guarantee claims should be submitted before the end of the guarantee period within two weeks of the defect being noticed. No guarantee claims will be accepted after the end of the guarantee period. The original guarantee period remains applicable to the device even if repairs are carried out or parts are replaced. In such cases, the work performed or parts fitted will not result in an extension of the guarantee period, and no new guarantee will become active for the work performed or parts fitted. This also applies if an on-site service is used.

IN ORDER TO MAKE A CLAIM UNDER THIS WARRANTY YOU MUST RETURN THE PRODUCT TO THE PLACE OF PURCHASE WITH YOUR REGISTER RECEIPT.

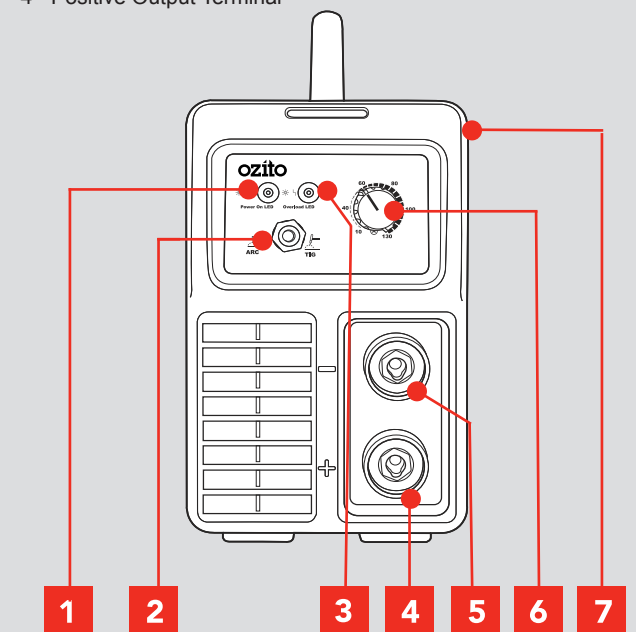
Please refer to the restrictions of this warranty concerning wearing parts, consumables and missing parts as set out in the service information in these operating instructions.

CUSTOMER SERVICE HELPLINE
GB: 0151 294 4488
IRL: 1850 882711
Ozito-diy.co.uk

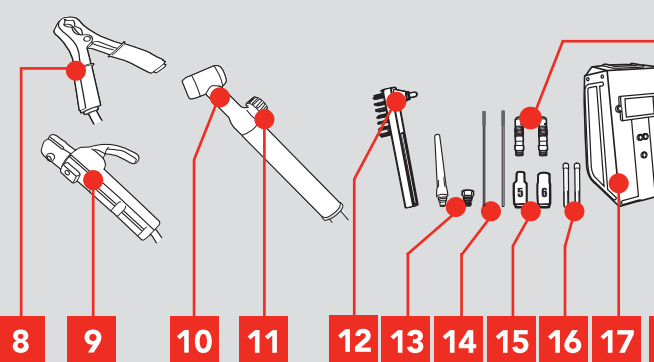
KNOW YOUR PRODUCT

INVERTER WELDER

- 1 Power On LED
- 2 Process Selection Switch
- 3 Thermal Overload LED
- 4 Positive Output Terminal
- 5 Negative Output Terminal
- 6 Welding Current Control
- 7 On/Off Switch (rear)



- 8 Earth Clamp
- 9 Arc Electrode Holder
- 10 TIG Torch WP-17V
- 11 Gas Flow Dial
- 12 Hammer Brush
- 13 Back Caps, Short & Long
- 14 Tungsten Electrode, $\phi 1.6\text{mm}$ & $\phi 2.4\text{mm}$
- 15 TIG Nozzles, 5 & 6
- 16 Collets $\phi 1.6\text{mm}$ & $\phi 2.4\text{mm}$
- 17 Welding Mask
- 18 Collet Body, $\phi 1.6$ & $\phi 2.4\text{mm}$



ONLINE MANUAL

Scan this QR Code with your mobile device to take you to the online manual.

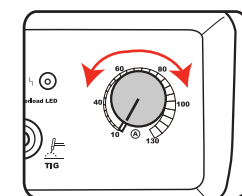


OPERATION

1. CONTROLS

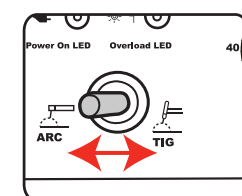
Welding Current Control

The welding current can be increased or decreased by turning the Welding Current control knob. The welding current should be set according to the specific application and material.



Process Selection Switch

Select either ARC or TIG welding process.



Power ON LED

The Power ON Indicator illuminates when the power cord is connected to a live mains outlet and the ON/OFF switch is in the ON position



Note: Cooling fan operates when ON.

Thermal Overload LED

When illuminated, wait for the LED to extinguish before resuming welding.

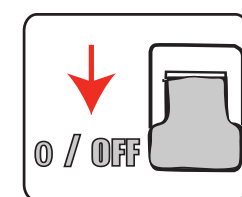
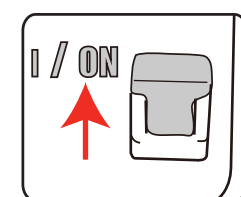


Note: This can occur in heavy use and does not indicate a fault.

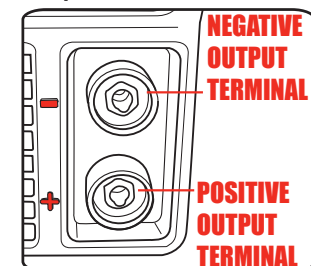
On/Off Switch

Is located on the rear of the Inverter welder.

1. To turn the welder on, select the ON (I) position
2. To turn the welder off, select the OFF (O) position



Output Terminals



Negative (-) terminal is used with the TIG Torch lead when TIG welding.

Positive (+) terminal is used with the ARC electrode lead when ARC welding.

NOTE: Fully insulated lock-type connectors should be used with the Inverter Welders Output Terminals

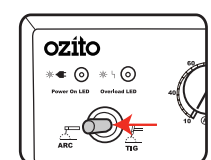
ARC

2. ARC WELDING ASSEMBLY

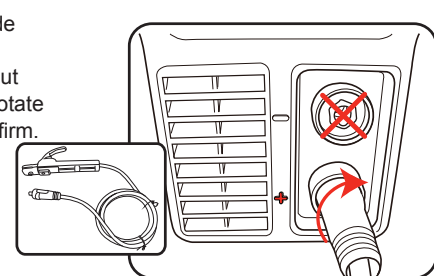
WARNING! ENSURE THE TOOL IS DISCONNECTED FROM THE POWER SUPPLY BEFORE PERFORMING ANY OF THE FOLLOWING OPERATIONS.

Before starting you will require a suitable Electrode according to the specific material type and thickness.

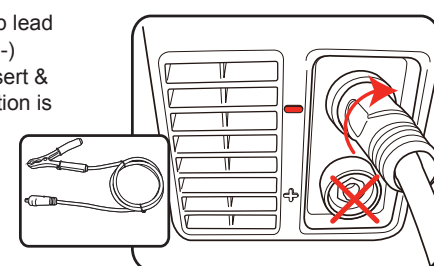
1. Set Process Selection Switch to ARC WELDING process.



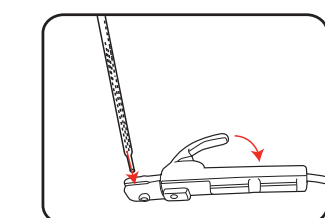
2. Attach Arc Electrode Holder lead to the POSITIVE (+) output terminal. Insert & rotate until connection is firm.



3. Attach Earth Clamp lead to the NEGATIVE (-) output terminal. Insert & rotate until connection is firm.

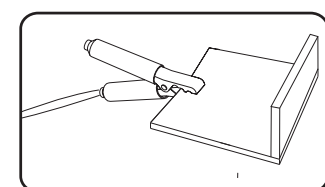


4. Install thin (uncoated) end of Electrode into the arc electrode holder.



WARNING! Do not touch the electrode while the welder is turned on

5. Attach the Earth Clamp to the work piece ensuring area is free from paint or dirt so that there is a good electrical connection.



6. Connect the Inverter welder power cord into a power outlet.

NOTE: Avoid use of long extension leads.

3. ARC WELDING

Preparation

Before welding ensure that:

- You have read and understand the safety section of this manual.
- There is sufficient ventilation, particularly at the front and rear of the unit.
- You have an adequate fire-fighting devices on hand.

WARNING! ENSURE ALL OIL, PETROL AND FLAMMABLE CONTAINERS HAVE BEEN REMOVED FROM WELDING AREA.

Electrodes & Welding Current

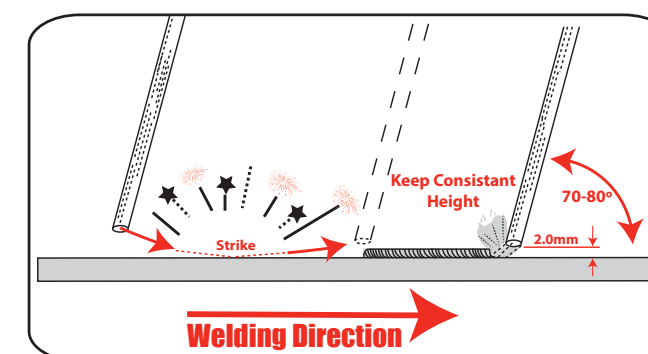
The welding current must be regulated in accordance with the diameter of the electrode and the thickness of the steel being used. This will vary with the type of electrodes and material you are using. Below is a guide suggesting suitable currents & thickness for welding steel.

Electrode Diameter	Welding Current (Amps)	Thickness of Steel
1.6mm	35 - 45	1.5 - 2mm
2.5mm	60 - 100	2 - 4mm
3.2mm	100 - 130	3 - 6mm

Striking the Arc

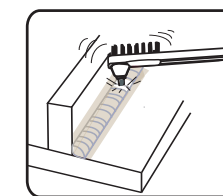
CAUTION! Ensure approved protective clothing and welding helmet/mask is worn at all times to protect your face and eyes from arc UV radiation and sparks.

Lower the electrode slowly and proceed to strike the electrode tip against the desired join area on the work piece as if you are striking a match. As soon as you have the arc, try to maintain a distance from the work piece equal to the diameter of the electrode being used, eg 2.0mm electrode, 2.0mm gap.



Slag

Slag is refuse left around the weld after welding, this should only be removed after the weld has cooled down and is no longer glowing. Face shield must be worn during removal of slag.

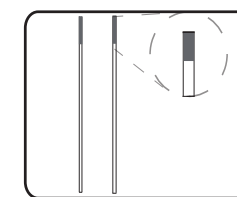


TIG

4. TIG WELDING ASSEMBLY

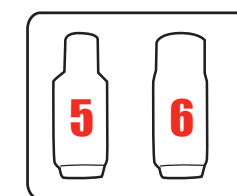
TIG Torch Parts (included)

Tungsten Electrode
2% Cerium Tungsten (grey tipped). This tungsten requires less amperage to start so it is recommended for thinner metals, it can be used to weld every type of metal
Size $\phi 1.6\text{mm}$ x 175mm
 $\phi 2.4\text{mm}$ x 175mm



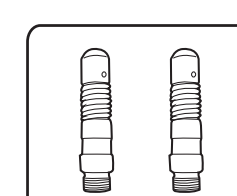
TIG Nozzles

Come in a wide variety of shapes and sizes depending on your torch and your welding application.
Size #5, $\phi 8\text{mm}$
#6, $\phi 10\text{mm}$



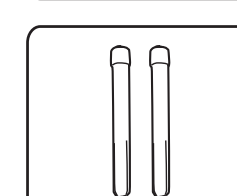
Collet Body

Collet bodies screw into the TIG torch and accommodate various size tungsten and their respective collet.
Size 1.6mm I/D
2.4mm I/D



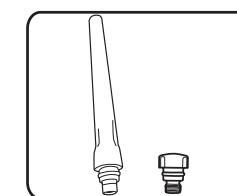
Collets

Directly hold the tungsten in place when you tighten the back cap and create the electrical contact necessary for good current transfer.
Size 1.6mm I/D
2.4mm I/D



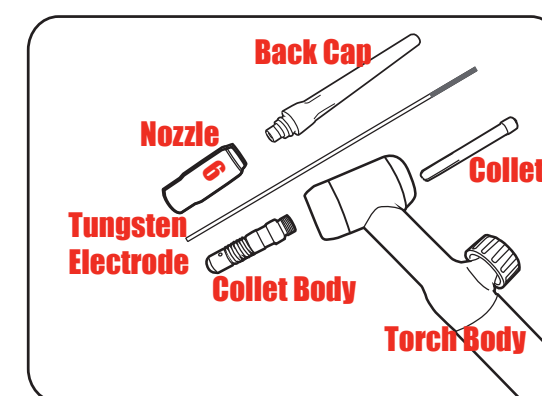
Back Caps

Apply pressure to the back end of the collet to fit against the collet body. This pressure holds the tungsten in place and seals the torch head from the atmosphere. Back caps simply twist into the back of the torch to prevent the tungsten from slipping.



Basic TIG Torch

The components parts of a WP-17V TIG torch, collet bodies and collets are sized to match the electrode and should be fitted in matched sets.



Preparation

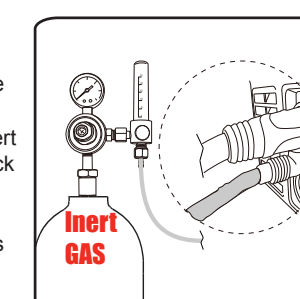
Before welding ensure that:

- If you have not TIG welded before we recommend consulting external information and practicing first.
- You have read and understand the safety section of this manual.
- There is sufficient ventilation, particularly at the front and rear of the unit.
- You have an adequate fire-fighting devices on hand.

WARNING! ENSURE ALL OIL, PETROL AND FLAMMABLE CONTAINERS HAVE BEEN REMOVED FROM WELDING AREA.

Gas

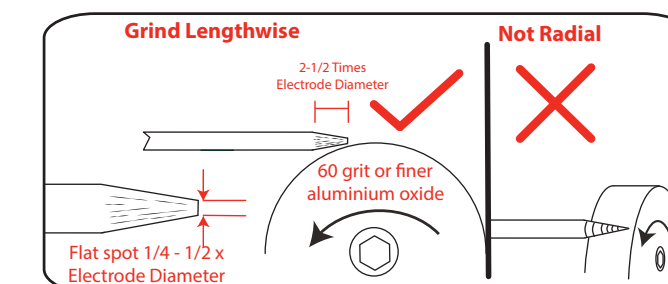
When using the TIG function with the Inverter welder, you will require a gas regulator (flowmeter & tank gauge) connected to a bottle of inert gas. We recommend that you check for gas leakage prior to operation of your machine and you close the cylinder valve when the machine is not in use.



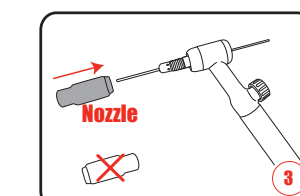
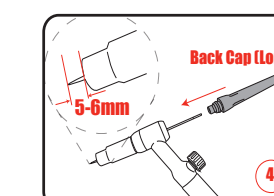
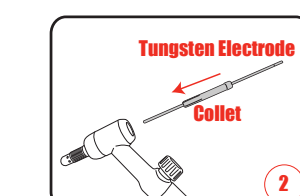
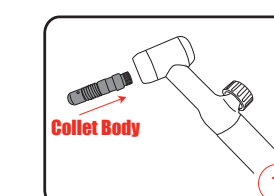
These additional accessories are available at your local gas supplier

Tungsten Electrode Preparation

Sharpening tungsten is very important for a nice fine arc strike. Grind lengthwise, not radial



TIG Torch Assembly

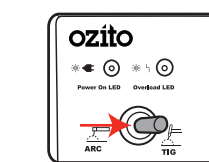


5. TIG WELDING

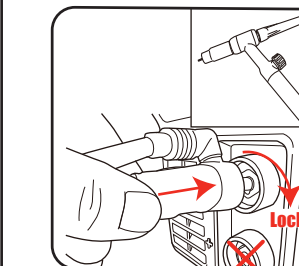
WARNING! ENSURE THE TOOL IS DISCONNECTED FROM THE POWER SUPPLY BEFORE PERFORMING ANY OF THE FOLLOWING OPERATIONS.

Before starting you will require a suitable Regulator and bottle of Inert Gas.

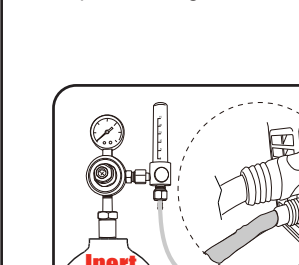
1. Set Process Selection Switch to TIG WELDING process.



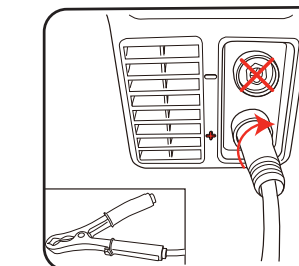
2. Attach TIG Torch lead to the NEGATIVE (-) output terminal. Insert & rotate until connection is firm.



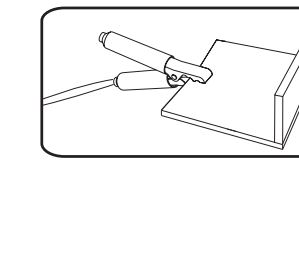
4. Set up the gas hose and pressure regulator.



3. Attach Earth Clamp lead to the POSITIVE (+) output terminal. Insert & rotate until connection is firm.



5. Attach the Earth Clamp to the work piece ensuring area is free from paint or dirt so that there is a good electrical connection.



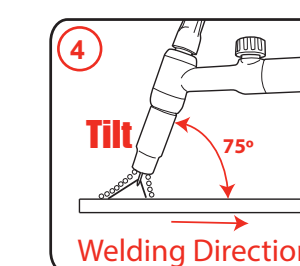
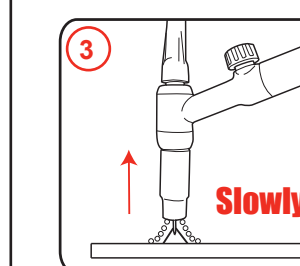
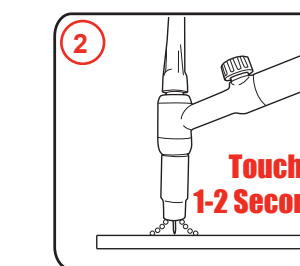
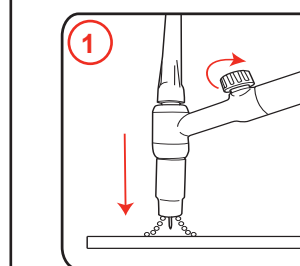
6. Connect the Inverter welder power cord into a power outlet.

Note: Avoid use of long extension leads.

Starting Arc

CAUTION! Ensure approved welding helmet/mask is worn at all times to protect your face and eyes from arc rays and sparks.

1. Hold electrode above work piece at weld start point and enable output of inert gas.
2. Touch electrode to work piece for 1-2 seconds.
3. Slowly lift electrode, arc is formed when electrode is lifted
4. Tilt torch and travel at a consistent speed



IMPORTANT! Check for gas leakage prior to operation of your inverter welder. Close the cylinder valve when the inverter welder is not in use.

Different Types of Electrodes

Tungsten electrodes are colour coded at the end for easy identification.

A couple of the most commonly used tungsten electrodes available in Australia and New Zealand are listed below.

Tungsten Type:

2% Cerium Tungsten (Grey tipped). This tungsten requires less amperage to start so it is recommended for thinner metals, it can be used to weld every type of metal.

2% Thoriated Tungsten (Red tipped). They are most commonly used electrodes and are preferred for their longevity and ease of use. Best stability is achieved at medium currents, good arc starts. Commonly used for steel and stainless steel applications.