597076
INVERTER 200AMP DC HF START TIG/STICK WELDER WITH VRD

TOOLEX® Industrial

INSTRUCTION MANUAL

CONSUMER SERVICE CENTRE
PO BOX 1012
HAMILTON NSW 2303 AUSTRALIA
Made in P.R.C.

SAVE THIS MANUAL

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

IMPROTANT SAFETY INFORMATION

In this manual, on the labeling, and all other information provided with this product:

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING: WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE:NOTICE is used to address practices not related to personal injury.

SAFETY WARNINGS AND PRECAUTIONS

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

WARNING!

READ AND UNDERSTAND ALL INSTRUCTIONS

Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury.

SAVE THESE INSTRUCTIONS

Work Area Precautions

1. **Keep your work area clean and well lit.** Cluttered benches and dark areas invite accidents.
2. **Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
3. **Keep bystanders, children, and visitors away while operating a power tool.** Distractions can cause you to lose control. Protect others in the work area from debris such as chips and sparks. Provide barriers or shields as needed.

Electrical Safety

1. **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances. Never remove the grounding prong or modify the plug in any way. Do not use any adapter plugs. Check with a qualified electrician if you are in doubt whether the outlet is properly grounded.** If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
2. **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation eliminates the need for the three wire grounded power cord and grounded power supply system.
3. **Avoid body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerators.** There is an increased risk of electric shock if your body is grounded.
4. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
5. **Do not abuse the Power Cord. Never use the Power Cord to carry the tool or pull the Plug from an outlet. Keep the Power Cord away from heat, oil, sharp edges, or moving parts. Replace damaged Power Cords immediately.** Damaged Power Cords increase the risk of electric shock.
6. **When operating a power tool outside, sue an outdoor extension cord marker "W-A" or "W".** These extension cords are rated for outdoor use, and reduce the risk of electric shock.

Personal Safety

1. **Stay alert. Watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
2. **Dress properly. Do not wear loose clothing or jewelry. Contain long hair. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewelry, or long hair can be caught in moving parts.
3. **Avoid accidental staring. Be sure the Power Switch is off before plugging in.** Carrying power tools with your finger on the Power Switch, or plugging in power tools with the Power Switch on, invites accidents.
4. **Remove adjusting keys or wrenches before turning the power tool on**. A wrench or a key that is left attached to a rotating part of the power tool may result in personal injury.
5. **Do not overreach. Keep proper footing and balance at all times.** Proper footing and balance enables better control of the power tool in unexpected situations.
6. **Use safety equipment. Always wear eye protection.** Dust mask, non-skid safety shoes, hard hat, or hearing

protection must be used for appropriate conditions.

Tool Use and Care

1. **Use clamps (not included) or other practical ways to secure and support the workpiece to a stable platform.** Holding the work piece by hand to against your body is unstable and may lead to loss of control.
2. **Do not force the tool. Use the correct tool for your application.** The correct tool will do the job better and safer at the rate for which it is designed.
3. **Do not use the power tool if the Power Switch does not turn it on or off.** Any tool that cannot be controlled with the Power Switch is dangerous and must be replaced.
4. **Disconnect the Power Cord Plug from the power source before making any adjustments, changing accessories, or storing the tool.** Such preventive safety measures reduce the risk of starting the tool accidentally.
5. **Store idle tools out of reach of children and other untrained persons.** Tools are dangerous in the hands of untrained users.
6. **Maintain tools with care. Keep cutting tools maintained and clean.** Properly maintained tools are less likely to bind and are easier to control. Do not use a damaged tool. Tag damaged tools “Do not use” until repaired
7. **Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tool’s operation. If damaged, have the tool serviced before using.** Many accidents are caused by poorly maintained tools.
8. **Use only accessories that are recommended by the manufacturer for your model.** Accessories that may be suitable for one tool may become hazardous when used on another tool.

Service

1. Tool service must be performed only by qualified repair personnel. Service or maintenance performed by unqualified personnel could result in a risk of injury.
2. When servicing a tool, use only identical replacement parts. Use of unauthorized parts or failure to follow maintenance instructions may create a risk of electric shock or injury.

SPECIFIC SAFETY RULES

1. **Maintain labels and nameplates on the tool.** These carry important information. If unreadable or missing, contact TOOLEX INDUSTRIAL for a replacement.
2. **Always wear the approved safety impact eye goggles and heavy work gloves when suing the tool.** Using personal safety devices reduce the risk for injury. Safety impact eye goggles and heavy work gloves are available from Harbor Freight Tools.
3. **Maintain a safe working environment.** Keep the work area well lit. Make sure there is adequate surrounding workspace. Always keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use a power tool in areas near flammable chemicals, dusts, and vapors. Do not use this product in a damp or wet location.

4. **Avoid unintentional starting.** Make sure you are prepared to begin work before turning on the tool.
5. **Never leave the tool unattended when it is plugged into an electrical outlet.** Turn off the tool, and unplug it from its electrical outlet before leaving.
6. **Always unplug the tool from its electrical outlet before performing and inspection, maintenance, or cleaning procedures.**
7. **Prevent eye injury and burns.** Wearing and using the approved personal safety clothing and safety devices reduce the risk for injury.
    a. Wear the approved safety impact eye goggles with a welding helmet featuring at least a number 10 shade lens rating.
    b. Leather leggings, fire resistant shoes or boots should be worn when using this product. Do not wear pants with cuffs, shirts with open pockets, or any clothing that can catch and hold molten metal or sparks.
    c. Keep clothing free of grease, oil, solvents, or any flammable substances. Wear dry, insulating gloves and protective clothing.
    d. Wear an approved head covering to protect the head and neck. Use aprons, cape, sleeves, shoulder covers, and bibs designed and approved for welding and cutting procedures.
    e. When welding/cutting overhead or in confined spaces, wear flame resistant ear plugs or ear muffs to keep sparks out of ears.
8. **Prevent accidental fires.** Remove any combustible material from the work area.
    a. When possible, move the work to a location well away from combustible; protect the combustibles with a cover made of fire resistant material.
    b. Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings.
    c. Enclose the work area with portable fire resistant screens. Protect combustible walls, ceilings, floors, etc., from sparks and heat with fire resistant covers.
    d. If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by mobbing the combustibles to a safe location. If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the welding process and for at least one half hour after the welding is completed.
    e. Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.
    f. Do not dispose of hot slag in containers holding combustible materials. Keep a fire extinguisher nearby and know how to use it.
    g. After welding or cutting, make a thorough examination for evidence of fire. Be aware that easily visible smoke or flame may not be present for some time after the fire has started. Do not weld or cut in

atmospheres containing

h. Dangerously reactive or flammable gases, vapors, liquids, and dust.
i. Provide adequate ventilation in work areas to prevent accumulation of flammable gases, vapors, and dust. Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.

WARNING

INHALATION HAZARD: Welding and Plasma Cutting Produce

TOXIC FUMES.

Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer. Also, some diseases that may be linked to exposure to welding or plasma cutting exhaust fumes are:

a. Early onset of Parkinson's Disease
b. Heart disease
c. Ulcers
d. Damage to the reproductive organs
e. Inflammation of the small intestine or stomach
f. Kidney damage
g. Respiratory diseases such as emphysema, bronchitis, or pneumonia

Use natural or forced air ventilation and wear a respirator approved by NIOSH to protect against the fumes produced to reduce the risk of developing the above illnesses.

9. Avoid overexposure to fumes and gases. Always keep your head out of the fumes. Do not breathe the fumes. Use enough ventilation or exhaust, or both, to keep fumes and gases from your breathing zone and general area.
   - Where ventilation is questionable, have a qualified technician take an air sampling to determine the need for corrective measures. Use mechanical ventilation to improve air quality. If engineering controls are not feasible, use an approved respirator.
   - Work in a confined area only if it is well ventilated, or while wearing an air-supplied respirator.
   - Follow OSHA guidelines for Permissible Exposure Limits (PEL's) for various fumes and gases.
   - Follow the American Conference of Governmental Industrial Hygienists recommendations for Threshold Limit Values (TLV's) for fumes and gases.
   - Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding or cutting situation.
10. **Always keep hoses away from welding/cutting spot.** Examine all hoses and cables for cuts, burns, or worn areas before each use. If any damaged areas are found, replace the hoses or cables immediately.
11. **Read and understand all instructions and safety precautions as outlined in the manufacturer's**

Manual for the material you will weld or cut.

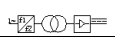
12. **Proper cylinder care.** Secure cylinders to a cart, wall, or post, to prevent them from falling. All cylinders should be used and stored in an upright position. Never drop or strike a cylinder. Do not use cylinders that have been dented. Cylinder caps should be used when moving or storing cylinders. Empty cylinders should be kept in specified areas and clearly marked “empty.”
13. **Never use oil or grease on any inlet connector, outlet connector, or cylinder valves.**
14. **Use only supplied Torch on this Inverter Air Plasma Cutter.** Using components from other systems may cause personal injury and damage components within.
15. People with pacemakers should consult their physician(s) before using this product. Electromagnetic fields in close proximity to a heart pacemaker could cause interference to, or failure of the pacemaker.
16. USE PROPER EXTENSION CORD.

    Make sure your extension cord is in good condition. When using an extension cord, be sure to sue one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. A 50 foot extension cord must be at least 12 gauges in diameter, and a 100 foot extension cord must be at least 10 gauges in diameter. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

SPECIFICATIONS

Model / Parameters	ANVAN TIG 200
Rated Input Voltage (V)	1PH ~ 220V±15% (50/60HZ)
Rated Input Power (KVA)	6
Rated Input Current (A)	28
Related output (V)	200A/18 V
Output Current Range (A)	10 ~ 200
Duty Cycle (%)	35% 200A 60% 153A 100% 118A
No Load Voltage (V)	66
Efficiency (%)	85
Protection Class	IP21S
Dimension (mm)	367*185*320
Insulation Grade	F
Weight (kg)	8.9

Note:

A Amp.	I_2 Rated welding current	⎓ DC
V Voltage	U_2 Rated input voltage	~ AC
U_0 No-load voltage	X Rated duty cycle	 TIG welding
U_1 Rated input voltage	S_1 KVA	 Manual Arc welding
I_1 Input current	IP Protection degree	 Single phase, AC/DC power supply
I_{1eff}	OFF Connected	 power supply under very dangerous situation
I_{1max}	ON Disconnected	IP21S cover protection degree

Duty Cycle

Duty Cycle is the equipment specifications which defines the number of minutes within a 10 minute period that a piece of equipment can safely operate.

ADVAN (IGBT module) TIG machines with 60% duty cycle at maximum welding output, which means that it continuously operates for 6 minutes at maximum output during a 10 minute period.

CAUTION: Failure to observe the duty cycle limitations of this TIG MACHINE can easily damage this equipment, and will void warranty.

UNPACKING

When unpacking, checks to make sure the following parts are included.

Inverter welding machine with
TIG torch with Power Cord
Ground cable with Clamp
Back-up Accessories for torch

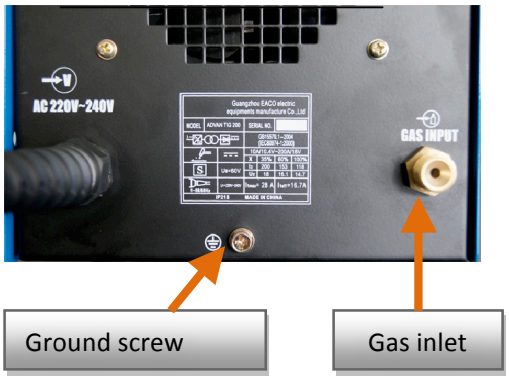
If any parts are missing or broken, please call EACO ELECTRIC at the number on the cover of this manual.

Preparing Your Work Area

1. You must have a sturdy work table that is open below the area you are welding. Molten slag will be blown through the work metal, and must be able to fall away freely
2. Your work table must allow the work metal to be firmly clamped to prevent it accidentally falling or moving.
3. The floor and surrounding area of your work site must not be flammable. A clean cement floor is recommended. The cutting process will eject molten metal slag onto the floor, and it will scatter for 8-10 feet or more in any direction. Have an adequate fire extinguisher available if needed.

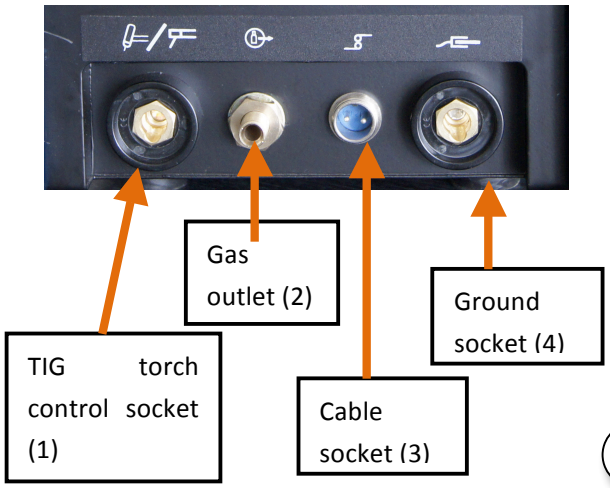
ASSEMBLY

Grounding the tool and attach air supply:



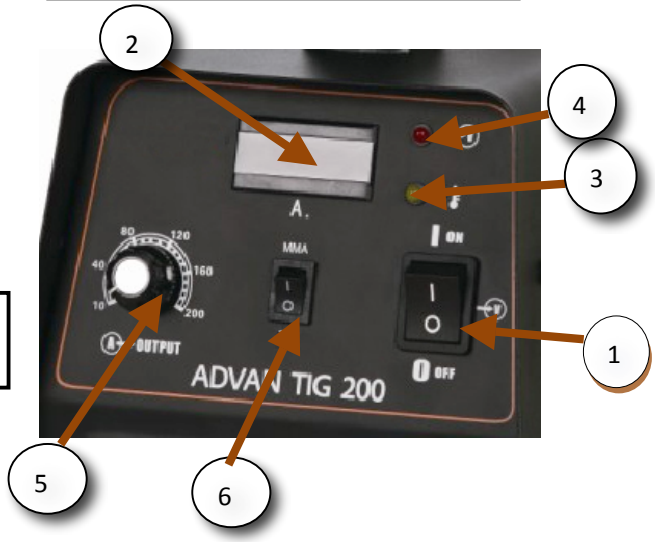
1. Attach a ground wire (not supplied) to the screw in the lower the back of the machine. Connect the gas air inlet to your supply Argon by one air hose (not supplied). And remember to fasten it with coupling.
   WARNING: Only use dry Argon as the gas in this tool. Use of any other gas, such as oxygen, acetylene, etc. may cause explosion.

TIG Torch Connector and Instruction

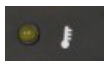
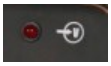


1. **TIG torch cable socket:** Connect TIG torch control (1B) of the TIG torch left to this socket. (1).
2. **Gas outlet:** Screw the gas outlet hose (2B) of the torch to this connector;
3. **TIG torch cable socket :**Connect the TIG cable plug (3B) to this aviation socket(3);
4. **Ground socket:** Plug ground cable to this socket.

Front Panel



The front panel of MAX TIG 160 and MAX TIG 200 is absolutely the same; we take MAX TIG 200 for example hereby.

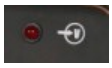
1. **Power Switch.** Up is ON, down is OFF.
2. **Digital Amps Meter.** Shows actual welding current, which will vary during operation.
3. “  ” **Thermal Overload Indicator Lamp.** This light will come on, and the device will shut down if the tool becomes overheated. Stop trying to use the cutter while leaving the power switch onto allow the cooling fan to operate, and the lamp will turn off automatically when the machine cools down. ***Please pay attention to the Rated Duty Cycle discussed on page 2.***
4. “  ” **Working Indicator Light.** It will be on during welding operation.
5. **Power Supply Controller:** It can adjust welding current.
6. Mode selector :Select MMA welding or TIG welding:

“ MMA ” means MMA welding, when you chose this welding mode, please plug the welding plug with cable to the TIG control socket (refer to page 9, (1)).

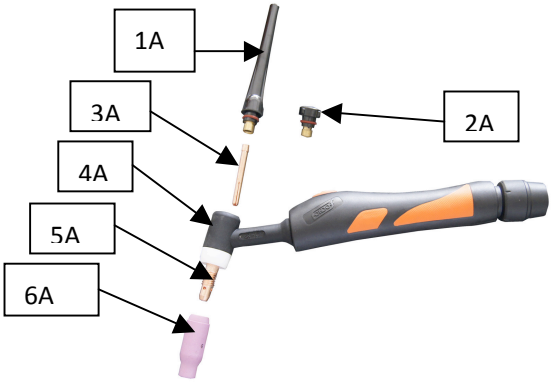
“ TIG ” means TIG welding, when this TIG welding mode is selected, please plug the TIG torch control cable in to TIG control socket (refer to page 9, (1)).

OPERATION

Note: Before beginning, please read and understand all the safety precautions staring on page 1 and especially the section “Specific Safety Rules” starting on page 3.

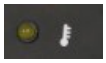
1. Put the metal to be welded on the metal weeding-cutting table. Ensure the metals to be welded are clean, so good welding efficiency can be promised.
2. Place the TIG welding unit no closer than six feet from the workpicece to be welded
3. Connect the TIG torch control, cable plug, and gas outlet hose as shown on page 9. Twist to lock in place.
4. Plug in the Grounding Cable into the Ground Connector on the lower left of the unit front. Twist to lock.
5. Securely place the clamping end of the Grounding Cable Clamp to a part of the workpiece or metal table that is clean of paint, oil, or dirt. Clamp as close as possible to the workpiece without damaging the cable during welding.
6. Assemble the desired accessories and rod inside the tip of the TIG Torch handle.
   a. Unscrew the Ceramic Nozzle (6A) on the Torch Handle (4A).
   b. Unscrew the Collect Housing (5A).
   c. Place a 5/32” prepared tungsten welding rod (not included) into the torch.
   d. Screw the Collect Housing and Ceramic Nozzle back onto the Torch.
7. Connect a hose and coupling from the gas regulator on an Argon gas tank (none included) to the Argon Gas Inlet on the back of the unit. Follow the gas cylinder manufacturer’s instructions for set-up and use.
8. Verify that the Power Switch is in the off position, then plug the 220V~line cord plug into an appropriate 220V~outlet.
9. When everything is in place for welding, press the Power Switch UP to the ON position. The Power Light”  will illuminate, but the Torch is not yet energized.
10. Press the torch and orient yourself to one side of the area to be welded, and move the Welding Helmet Face Shield (not included, see page 4 item 7) over your eyes.
11. **Caution**: The Torch handle is now energized. Be careful not touch anything else with the Torch except the workpiece to be welded.

DANGER! To prevent serious injury and death: The TIG Welder will immediately turn on when the trigger is held down.



Part	Description	Qty
1A	Long Back Cap	**1**
2A	Short Back Cap	**1**
3A1	Collet 1/16" (1.6mm)	**1**
3A2	Collet 2/25" (2.0mm)	**1**
3A3	Collet 3/32" (2.4mm)	**1**
3A4	Collet 1/8" (3.2mm)	**1**
4A	Torch Handle	**1**
5A	Collets Housing	**1**
6A1	Ceramic Nozzle size 4; 10N50	**1**
6A2	Ceramic Nozzle size 5; 10N49	**1**
6A3	Ceramic Nozzle size 6; 10N48	**1**
6A4	Ceramic Nozzle size 7; 10N47	**1**

(Refer to parts diagram above for Torch Handle components.) **Direct torch away from people and flammables**, while you press (and hold) the Torch Handle Trigger (2A) to energize the Torch Electrode (4A).

12. Hold the Trigger down and tilt the torch forward. Keep a constant distance between the torch and the workpiece but do not contact it.
13. Stroke the workpiece lightly to ignite the arc. Do not strike like a match. Never tap the electrode wire to ignite the arc; it will damage the electrode.
14. When the arc ignites, tilt the electrode forward and hold it near the workpiece.
15. If too much current is drawn from the welder; the Thermal Overload protector  will activate, the Overload indicator will light, and the welder will turn off until it cools down. It will automatically reset.

DANGER! To prevent serious injury and death: If the operator is not holding the Torch, it must be sitting on a nonconductive, nonflammable surface.

Arc (stick) Connection

1. Connect the Electrode Clamp and Cable to the torch control connector (as 7 shown on page 9 and twist to lock in place.
2. Plug the cable of the Grounding Clamp into the DC ground connector and secure the clamp to a clean, exposed metal part of the workpiece.
3. Place the metal portion of the welding rod inside the jaws of the Electrode Clamp. Welding rod types vary for welding different metals.

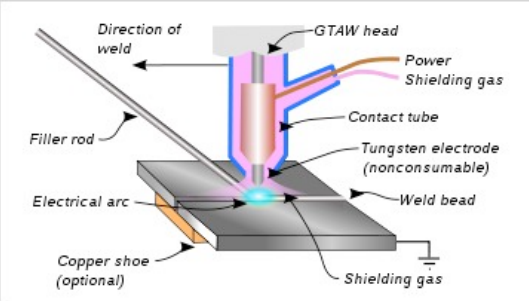
When finished welding

a. Release the Torch handle trigger and lift the Torch handle from the workpiece,
b. Press the Power Switch to the Off (O) position.
c. Set the Torch handle down on the metal workbench,
d. Turn the air supply off,
e. Unplug the line cord from the

electrical outlet.

Tungsten Inert Gas (TIG) Welding

Gas tungsten arc welding (**GTAW**), also known as **tungsten inert gas** (**TIG**) **welding**, is an arc welding process that uses a no consumable tungsten electrode to produce the weld. The weld area is protected from atmospheric contamination by a shielding gas (usually an inert gas such as argon), and a filler metal is normally used, though some welds, known as autogenously welds, do not require it. A constant-current welding power supply produces energy which is conducted across the arc through a column of highly ionized gas and metal vapors known as plasma. TAW is most commonly used to weld thin sections of stainless steel and non-ferrous metals such as aluminum, magnesium, and copper alloys. The process grants the operator greater control over the weld than competing procedures such as shielded metal arc welding and gas metal arc welding, allowing for stronger, higher quality welds. However, GTAW is comparatively more complex and difficult to master, and furthermore, it is significantly slower than most other welding techniques. A related process, plasma arc welding, uses a slightly different welding torch to create a more focused welding arc and as a result is often automated.



TIPS FOR TIG WELDING

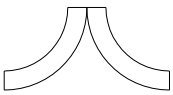
Welding current(A)	Tungsten diameter(mm)	Argon flux(L/min)
5～15	0.5	3～7
10～65	1.0	4～8
55～120	1.6	6～9
85～150	2.0	6～10
120～200	2.4	7～10
200～320	3.2	10～15
320～400	4.0	12～20
400～640	4.8	15～25

4. STAINLESS STEEL（SUS304）WELDING PARAMETER:

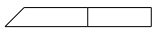
Steel thickness (mm)	Tungsten diameter (mm)	Wire diameter (mm)	Welding current (A)	Argon flux (L/min)	Clearance size (mm)	Clearance form
0.6	1.0～1.6	0～1.0	15～30	4～5	1	a、b
1.0	1.0～1.6	0～1.6	25～30	4～7	1	a、b
1.5	1.0～1.6	0～1.6	50～70	6～9	1	b
2.5	1.6～2.4	1.6～2.4	65～95	6～9	1	b
3.0	1.6～2.4	1.6～2.4	90～120	7～10	1～2	b、c
4.0	2.4	1.6～2.4	110～150	10～15	2～3	c、d
5.0	2.4～3.2	2.4～3.2	120～180	10～15	2～3	c、d
6.0	2.4～3.2	2.4～3.2	150～200	10～15	3～4	c、d
8.0	3.2～4.0	3.2～4.0	160～220	12～18	4～5	d
12.0	3.2～4.0	3.2～4.0	180～240	12～18	6～8	d

5. ALUMINUM WELDING PARAMETER

Aluminum thickness (mm)	Tungsten diameter (mm)	Wire diameter (mm)	Welding current (A)	Argon flux (L/min)	Clearance size (mm)	Clearance form
0.6	1.0～1.6	0～1.0	25～40	4～5	1	a、b
1.0	1.0～1.6	0～1.6	40～60	4～7	1	a、b
1.5	1.0～1.6	0～1.6	60～90	6～9	1	b
2.5	1.6～2.4	1.6～2.4	80～120	6～9	1	b
3.0	1.6～2.4	1.6～2.4	100～160	7～10	1～2	b、c
4.0	2.4	1.6～2.4	130～200	10～15	2～3	c、d
5.0	2.4～3.2	2.4～3.2	150～250	10～15	2～3	c、d
6.0	2.4～3.2	2.4～3.2	200～280	10～15	3～4	c、d
8.0	3.2～4.0	3.2～4.0	200～300	12～18	4～5	d



(a)



(b)

(c)

(d)

MAINTENANCE

WARNING! Make sure the Power Switch of the welder is in its "OFF" position and that the tool is unplugged from the electrical outlet before performing any inspection, maintenance, or cleaning procedures.

1. Before each use, inspect the general condition of the Welder. Check for loose cable connections, misalignment or binding of the fan, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. Do not use damaged equipment.
2. Periodically recheck all nuts, bolts, and screws for tightness.
3. Periodically blow the dust from the cooling vents with compressed air.
4. Verify that the cooling fan is operational before cutting.
5. If the unit repeatedly shuts down from thermal overload, stop all use. Have the welder inspected and repaired by a qualified service technician.
6. Store the welder and accessories in a clean and dry location.
7. Periodically disassemble and clean the Torch Head components with steel wool. Replace burnt, cracked, distorted, or coated components, Refer to the assembly drawing on page 11.
8. To gain access to the internal components of the unit, remove screws from Main Body Cover. The home user is strongly advised not to remove the tool covers and not to attempt any electronic repairs. Any repairs must be completed by a qualified technician. Opening the tool will void any warranties, and may result in damage to equipment or possible personal injury. Don't do it.
9. On a daily basis check for any of the following problems: If any are found, take the tool to a qualified repair technician.
   a. Abnormal vibration, sound or smell.
   b. Abnormal heating at any cable connection.
   c. Then fan does not work properly.
   d. Any switch or control does not work properly.
   e. Any damage to cables.

TROUBLESHOOTING

IMPORTANT!

Be CERTAIN to shut off the Welder and disconnect it from power and air before adjusting, cleaning, or repairing the unit. A technician should discharge all capacitors before performing and internal procedures.

Problem	Possible Causes	Likely Solutions
Tool will not start	1. No power at outlet. 2. Cord not connected. 3. Line voltage incorrect.	1. Check power at outlet. 2. Check that cord is plugged in. 3. Make sure the welder is plugged into a 230V electrical outlet.
No weld output with ready light on	1. Weld cable loose. 2. Bad work clamp to workpiece connection.	1. Tighten weld cable connection at welder 2. Make sure the area where the clamp is attached is clean, exposed metal; free of dirt, paint and oil.
No weld output; high temperature light on	1. Welder overheated. 2. Duty cycle or amps too high. 3. Airflow is blocked.	1. Allow unit to cool with the fan on. 2. Reduce duty cycle or amps. 3. Clean vents and fan out with compressed air.
Erratic or improper arc or welding output	1. Bad weld connections. 2. Polarity incorrect. 3. Workpiece painted or dirty. 4. Ceramic Nozzle obstructed by welding spatter.	1. Clean and tighten weld connections. 2. Connect polarity correctly. 3. Clean workpiece thoroughly. 4. Clean or replace nozzle.
Fan not operating	1. Fan blocked/dirty. 2. Fan broken.	1. Remove obstruction and clean with compressed air. 2. Have the fan replaced by a qualified service technician.
Main Supply Fuse shuts off frequently	Circuit Breaker rating is too low.	Install a circuit breaker rated for greater than 20 Amps.