



Max 20 Plasma
Cut 125 Cut 160



Operating Manual



Your new product

Thank you for selecting this Jasic product.

This product manual has been designed to ensure that you get the most from your new product. Please ensure that you are fully conversant with the information provided paying particular attention to the safety precautions. The information will help protect yourself and others against the potential hazards that you may come across.

Please ensure that you carry out daily and periodic maintenance checks to ensure years of reliable and trouble free operation.

Please call your Jasic distributor in the unlikely event of a problem occurring.

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 number _____

(The serial number is normally located either on the top or side of the machine)

Disclaimer

We believe we have carried out our due diligence to ensure accuracy with the information offered within this operating manual. Whilst every effort has been made to ensure that the information contained within this manual is complete and accurate, no responsibility for any errors, omissions or changes to local regulations and as such any use of this information contained is done so at the readers/ user's discretion and we do not accept any liability for any consequences that may arise from its use.

When using welding and cuttings systems the legal responsibilities for installation and operation are for both the employer and employee.

Please Note:

- ◆ Products are subject to continual development and may be subject to change without notice.
- ◆ We recommend to regularly check our product pages at www.jasic.co.uk for revision updated operating manuals.
- ◆ No part of this manual may be copied or reproduced by any means without the written permission of Wilkinson Star Limited.
- ◆ This manual is translated from the original manufacturers operating instructions.

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SAFETY INSTRUCTIONS



These general safety norms cover both arc welding machines and plasma cutting machines unless otherwise noted. The user is responsible for installing and operating the equipment in accordance with the enclosed instructions.

It is important that users of this equipment protect themselves and others from harm, or even death. 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 operate the equipment.

Pacemaker wearers should consult their doctor prior to using this equipment.

PPE and workplace safety equipment must be compatible for the application of the work involved.

Always carry out a risk assessment before carrying out any welding or cutting activity.

General electrical safety



The equipment should be installed by a qualified person and in accordance with current standards in operation.

It is the users responsibility to ensure that the equipment is connected to a suitable power supply. Consult your utility supplier if required.

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.

In the case of abnormal behaviour of the equipment, the equipment should be checked by a suitably qualified service engineer.

If earth bonding of the work piece is required, bond it directly with a separate cable with a current carrying capacity capable of carrying the maximum capacity of the machine current.

Cables (both primary supply and welding) should be regularly checked for damage and overheating.

Never use worn, damaged, under sized or poorly jointed cables.

Insulate yourself from work and earth using dry insulating mats or covers big enough to prevent any physical contact.

Never touch the electrode if you are in contact with the work piece return.

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 manufacturers instructions.

The EMC classification of this product is class A in accordance with electromagnetic compatibility standards CISPR 11 and IEC 60974-10 and therefore the product is designed to be used in industrial environments only.

WARNING: This class A equipment is not intended for use in residential locations where the electrical power is provided by a public low-voltage supply system. In those locations it may be difficult to ensure the electromagnetic compatibility due to conducted and radiated disturbances.

General operating safety



Never carry the equipment or suspend it by the carrying strap or handles during welding.

Never pull or lift the machine by the welding torch or other cables.

Always use the correct lift points or handles. Always use the transport under gear as recommended by the manufacturer.

Never lift a machine with the gas cylinder mounted on it.

If the operating environment is classified as dangerous, only use S-marked welding equipment with a safe idle voltage level. Such environments may be for example: humid, hot or restricted accessibility spaces.

SAFETY INSTRUCTION

⚠ CAUTION Use of Personal Protective Equipment (PPE)

PPE REQUIRED AT ALL TIMES Welding arc rays from all welding and cutting processes can produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin.

- Wear an approved welding helmet fitted with an appropriate shade of filter lens to protect your face and eyes when welding, cutting or watching.
- Wear approved safety glasses with side shields under your helmet.
- Never use any equipment that is damaged, broken or faulty.
- Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding and cutting area.
- Ensure that there are adequate warnings that welding or cutting is taking place.
- Wear suitable protective flame resistant clothing, gloves and footwear.
- Ensure adequate extraction and ventilation is in place prior to welding and cutting to protect users and all workers nearby.
- Check and be sure the area is safe and clear of flammable material before carrying out any welding or cutting.



Some welding and cutting operations may produce noise. Wear safety ear protection to protect your hearing if the ambient noise level exceeds the local allowable limit (e.g. 85 dB).

Welding and Cutting Lens Shade Selector Guide

WELDING CURRENT	MMA ELECTRODES	MIG LIGHT ALLOY	MIG HEAVY METALS	MAG	TIG ALL METALS	PLASMA CUTTING	PLASMA WELDING	GOUGING ARC/AIR		
10	8	10	10	10	9	11	10	10		
15										
20										
30	9				10		10		11	11
40										
60					10		11			12
80										
100	11	11		11	11		12			
125										
150		12	12	12	13		13			
175										
200			12	12		13	13	14	11	
225										
250	13	14		14	14	12				
275										
300		13		14		13	14	13		
350	14		15		14			14		
400										
450										
500	14	15	14	15				15		

SAFETY INSTRUCTION

Safety against fumes and welding gases



Warning
Fumes and
Gases

The HSE have identified welders as being an 'at risk' group for occupational diseases arising from exposure to dusts, gases, vapours and welding fumes.

The main identified health effects are pneumonia, asthma, chronic obstructive pulmonary disease (COPD), lung and kidney cancer, metal fume fever (MFF) and lung function changes.

During welding and hot cutting 'hot work' operations, fumes are produced which are collectively known as welding fume. Depending upon the type of welding process being performed, the resultant fume generated is a complex and highly variable mixture of gases and particulates.

Regardless of the length of welding being carried out, all welding fume, including mild steel welding

requires suitable engineering controls to be in place which is usually Local Exhaust Ventilation (LEV) extraction to reduce the exposure to welding fume indoors and where LEV does not adequately control exposure it should also be enhanced by using suitable respiratory protective equipment (RPE) to assist with protecting against residual fume.

When welding outdoors appropriate RPE should be used.

Prior to undertaking any welding tasks an appropriate risk assessment should be carried out to ensure expected control measures are in place.



An example of personal fume protection

Locate the equipment in a well-ventilated position and keep your head out of the welding fume.

Do not breathe in the welding fume.

Ensure the welding zone is well-ventilated and provision should be made for suitable local fume extraction system to be in place.

If ventilation is poor, wear an approved airfed welding helmet or 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.

For further information please refer to the HSE website www.hse.gov.uk for related documentation.

Precautions against fire and explosion



Caution
Risk of fire

Avoid causing fires due to sparks and hot waste or molten metal.

Ensure that appropriate fire safety devices are available near the welding and cutting area.

Remove all flammable and combustible materials from the welding, cutting and surrounding areas.

Do not weld or cut fuel and lubricant containers, even if empty. These must be carefully cleaned before they can be welded or cut.

Always allow the welded or cut 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.

Take care to avoid accidental contact of the torch electrode to metal objects, as this could cause arcs, explosion, overheating or fire.

Know and understand your fire extinguishers

	Water	Foam spray	ABC powder	Carbon dioxide	Wet chemical
Wood, paper & textiles	✓	✓	✓	✗	✓
Flammable liquids	✗	✓	✓	✓	✗
Flammable gases	✗	✗	✓	✗	✗
Electrical contact	✗	✗	✓	✓	✗
Cooling oils & fats	✗	✗	✗	✗	✓

SAFETY INSTRUCTION

The working environment



Ensure the machine is mounted in a safe and stable position allowing for cooling air circulation.
Do not operate equipment in an environment outside the laid down operating parameters.
The welding power source is not suitable for use in rain or snow.

Always store the machine in a clean, dry space.

Ensure the equipment is kept clean from dust build up.

Always use the machine in an upright position.

Protection from moving parts



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 managed 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 towards your body.

Always ensure machine covers and protective devices are in operation.

Risks due to magnetic fields



Warning
Strong magnetic field

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.

Keep the torch cable and work return cable as close to each other as possible throughout their length.

This can help minimise your exposure to harmful magnetic fields.

Do not wrap the cables around the body.

Handling of compressed gas cylinders and regulators



Danger
Compressed gas

Mishandling gas cylinders can lead to rupture and the release of high pressure gas.

Always check the gas cylinder is the correct type for the welding to be carried out.

Always store and use cylinders in an upright and secure position.

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 and never move with regulator and hoses connected.

Use a suitable trolley for moving cylinders.

Regularly check all connections and joints for leaks.

Full and empty cylinders should be stored separately.

Never deface or alter any cylinder

SAFETY INSTRUCTIONS

Fire awareness



The cutting and welding process can cause serious risks of fire or explosion. Cutting or welding sealed containers, tanks, drums or pipes can cause explosions. Sparks from the welding or cutting process can cause fires and burns. Check and risk assess the area is safe before doing any cutting or welding. Ventilate all flammable or explosive vapour from the workplace.

Remove any and all flammable materials away from the working area. If necessary, cover flammable materials or containers with approved covers (following manufacturers instructions) if unable to remove from the immediate area.

Do not cut or weld where the atmosphere may contain flammable dust, gas or liquid vapour.

Always have the appropriate fire extinguisher nearby and know how to use it.

Hot parts



Always be aware that material being cut or welded will get very hot and hold that heat for a considerably long time which will cause severe burns if the appropriate PPE is not worn. Do not touch hot material or parts with bare hands.

Always allow for a cooling down period before working on material recently cut or welded. Use the appropriate insulated welding gloves and clothing to handle hot parts to prevent burns.

Noise awareness



The cutting and welding process can generate noise that can cause permanent damage to your hearing. Noise from cutting and welding equipment can damage hearing.

Always protect your ears from noise and wear approved and appropriate ear protection if noise levels are high.

Consult with your local specialist if you are unsure how to test for noise levels.

RF Declaration



Equipment that complies with directive 2014/30/EU concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not 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



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.

SAFETY INSTRUCTION

Materials and their disposal



Welding equipment is manufactured with BSI published standards meeting CE requirements for materials which do not contain any toxic or poisonous materials dangerous to the operator. Do not dispose of the equipment with normal waste.



The European Directive 2012/19/EU on Waste Electrical and Electronic Equipment states that electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility for disposal.

For more detailed information please refer to the HSE website www.hse.gov.uk

JASIC MAX PLASMA PACKAGE CONTENTS

Supplied within your new Jasic MAX product package will be the following items with each model.

Use care when unpacking the contents and ensure all items are present and not damaged.

If damage is noted or items are missing, please contact the supplier in the first instance and before installing or using the product.

Record the product model, serial numbers and purchase date in the information section found on the inside front page of this operating manual.

Jasic Max Cut MC-125

MC-125 Power Source

UPH-160 Plasma Torch 6m

Work Return Lead

USB Stick with Operating Manual

Jasic Max Cut MC-160

MC-160 Power Source

UPH-160 Plasma Torch 6m

Work Return Lead

USB Stick with Operating Manual



Please Note:

Package contents may vary depending on country location and package part number purchased.

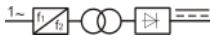
DESCRIPTION OF SYMBOLS



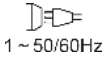
Read this operation manual carefully before use.



Warning in operation.



Single-phase static frequency converter-transformer rectifier.



Symbol will indicate single or three phase AC power supply and rated frequency.



Can be used in the environment which has high risk of electric shock.

IP

Degree of protection, such as IP23S.

U₁

Rated AC input voltage (with tolerance $\pm 15\%$).

I_{1max}

Rated maximum input current.

I_{1eff}

Maximum effective input current.

X

Duty cycle, the ratio of given duration time/the full-cycle time.

U₀

No-load voltage, Open circuit voltage of secondary winding.

U₂

Load voltage.

H

Insulation class.



Do not dispose of electric waste with other ordinary waste. Protect our environment.



Electric shock risk warning.



Current unit "A"



Overheat protection indicator.



Overcurrent protection indicator.



standard cutting mode



Mesh cutting



Cutting/welding mode switch



Gas test check indicator

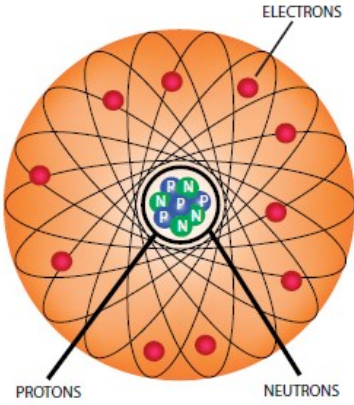
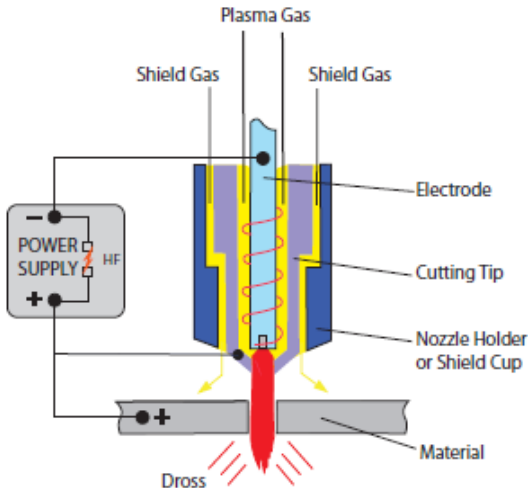


Gas check test button



2T and 4T torch trigger modes

WHAT IS PLASMA?

- Plasma is commonly described as the fourth state of matter (i.e. solid, liquid, gas then plasma).
 - If you increase gas to an extremely high temperature you get the fourth state plasma, the energy begins to break apart the gas molecules and the atoms begin to split. Normal atoms are made up of protons and neutrons in the nucleus surrounded by a cloud of electrons. In plasma, the electrons separate from the nucleus. Once the energy of heat releases the electrons from the atom, the electrons begin to move around quickly. The electrons are negatively charged and they leave behind their positively charged nuclei. These positively charged nuclei are known as ions. When the fast-moving electrons collide with other electrons and ions, they release vast amounts of energy. This energy is what gives plasma its unique status and unbelievable cutting power.
- 
- The diagram shows a cross-section of an atom. At the center is a nucleus, a small circle containing several blue dots labeled 'P' (protons) and red dots labeled 'N' (neutrons). Surrounding the nucleus is a large, orange, cloud-like region representing the electron cloud. Several red dots, representing electrons, are scattered within this cloud. Labels with leader lines point to the nucleus, the electron cloud, and individual protons, neutrons, and electrons.
- Plasma is a gas which has been heated to an extremely high temperature and ionized so that it becomes electrically conductive. An example of naturally occurring plasma is lightning.
 - The plasma arc cutting, gouging and welding processes uses plasma to transfer an electrical arc to the work piece, the electrically conductive gas will transfer the energy from the plasma power source through a plasma torch to the material being cut.
 - The plasma arc cutting process basics can be seen in the illustration. The basic principle is that the arc is formed between the electrode and the work piece by forcing the plasma gas and the electrical arc through a small orifice within the copper tip. This will increase the speed and temperature of the plasma exiting the tip. The temperature of the plasma is in excess of 15000°C and the speed can approach that of sound. This plasma gas flow in conjunction with the high temperature enables a deeply penetrating plasma jet to cut through the work piece material and at the same time molten material is blown away from the cut.
- 
- The diagram illustrates the plasma arc cutting process. On the left, a 'POWER SUPPLY' unit is connected to a 'Plasma Torch'. The torch consists of a 'Nozzle Holder or Shield Cup' and an 'Electrode'. A 'Cutting Tip' is at the end of the electrode. 'Plasma Gas' and 'Shield Gas' are shown flowing through the torch. An electrical arc is shown between the electrode and the 'Material' being cut. The cut is shown with 'Dross' being blown away. Labels with leader lines identify the power supply, plasma gas, shield gas, electrode, cutting tip, nozzle holder, material, and dross.
- The process differs from the oxy-fuel process in that the plasma process works by using the high temperature arc to melt the metal to be cut. With the oxy-fuel process, the oxygen oxidises the metal to be cut and the heat from the exothermic reaction melts the metal. So, unlike the oxy-fuel process, the plasma process can be used to cut metals including those which form protective refractory oxides such as aluminium, stainless steel, non-ferrous alloys and cast iron.
 - The output current (amps) of the power supply will determine the cutting thickness and speed capabilities of the plasma machine.
 - While the primary goal of plasma arc cutting is the separation of metal, plasma arc gouging is also a process that is used to remove metals to a controlled depth and width.
 - Plasma machines consist of a power supply, an arc starting circuit, a plasma torch and a compressed air supply.
 - Direct current (DC) straight polarity is used for plasma cutting with the electrode being - negative and the tip/work piece being + positive.

PRODUCT OVERVIEW

The Jasic plasma cutting inverter range of machines have been designed as integrated portable cutting power supplies incorporating the most advanced IGBT inverter technology in power electronics.

Jasic Max Cut MC-125 & MC-160 Products Feature:

- IGBT plasma cutting inverter
- Wheel mounted, easy to manoeuvre
- Variable cutting control
- Non HF ignition
- LED display panel
- Simple operation with Smooth precise cutting
- Rear panel mounted pressure regulator
- Optional CNC interface* (suitable for most cutting tables)



Product details

The machine uses top quality components from world leading brands with high reliability and adopts advanced inverter technology with the inverter frequency in excess of 20kHz which helps to reduce the size and weight of the plasma machine. There is also a reduction in magnetic and resistance loss which enhances the cutting efficiency and offers energy saving advantages. An in built design feature offers closed loop feedback technology which provides a stable output cutting current, even with a mains voltage fluctuation of $\pm 15\%$.

The constant pilot arc technology features non-contact NON HF ignition and the Max Cut 125 and 160 along with the UPH-160 plasma torch offers excellent arc ignition which can cut through rusty and painted metals along with ferrous and non ferrous easily which can effectively prolong the lifespan of the electrode and nozzle of the cutting torch.

Excellent dynamic characteristics, high arc stiffness, smooth cutting surface and high cutting performance. Current upslope function is available when arc is ignited to carry out cutting which can reduce the arc ignition impact.

The Max Cut 125 and 160 cutting current can be accurately preset with seamless adjustment which is achieved through the preset current function. Thus, the machine can be used to cut work pieces of different thicknesses.

Low current is used when cutting thin plate and high current is used when cutting thick plate to ensure good cutting quality and energy savings.

With protection function of over/under-voltage, thermal overheating and low gas pressure inside the machine; gas-check and 2T/4T function.

Also if purchased from new with the optional CNC feature which offers an automated interface that included remote start/stop, arc established ok to move signal and a divided arc voltage output for a torch height controller making it suitable to connect to most CNC cutting tables when fitted with a 180° cutting torch.

Application

Economic and practical using compressed air as the plasma gas source. The plasma cutter has a wide range of uses, especially for cutting metal plates of carbon steel, alloy steel, stainless steel, galvanized steel, copper and aluminum etc.

It can be widely used in various industries involving metal cutting such as boiler and pressure vessel manufacturing, chemical container manufacturing, power plant installation and construction industry, metallurgy, chemical engineering, aerospace, automobile and engineering vehicles manufacturing and construction etc.

PRODUCT DETAILS AND APPLICATION

Advanced digital control mode

The Jasic plasma cutting machines MC-125 & MC-160 incorporate MUC intelligent digital control technology, and all its major functions are performed using software controls.

The digital control plasma cutting machine offers many improvements in function and performance when compared with the traditional type plasma cutting machines.

With PWM technology and high power component IGBTs, it inverts the DC voltage, which is rectified from 50Hz/60Hz input AC voltage, to 30K~50kHz AC high voltage. The voltage is dropped and rectified to output the DC power supply for cutting. This inverter technology provides a machine which is smaller and much less weight than the traditional style machine. This technology provides a high efficiency unit and a switching frequency which is outside the audible range.

Good consistency and stable performance

In traditional machines consistency and performance is often governed by the tolerances of the components used in manufacture and environmental such as temperature and humidity.

In some cases the same machine brand and type can vary in performance due to tolerance differences.

One of the characteristics of digital control is that it is not sensitive to the change of these parameters.

The performance of cutting machine will not be affected by the change of the parameters of individual parts. Therefore, the consistency and stability of performance of the digital control cutter is better than that of traditional cutter.

Powerful cutting performance

The Jasic MC-125 & MC-160 provides faster economical cutting of metals using compressed air as the plasma gas source. The cutting speed is 1.8 times when compared with oxy acetylene cutting.

These machines can cut steel, stainless steel, copper, cast iron and aluminium easily and quickly.

The arc is easy to ignite and uses a non HF arc ignition technology. There is a post-flow function that allows additional cooling of the torch after cutting. The simple operation, high cutting speed and smooth cutting surface make the plasma process and excellent cutting method.

Product features

The MC-125 & MC-160 cutting current can be accurately preset with seamless adjustment which is achieved through the preset current function. Thus, the machine can be used to cut work pieces of different thicknesses.

Low current is used when cutting thin plate and high current is used when cutting thick plate to ensure good cutting quality and energy savings.

With protection function of over/under-voltage, thermal overheating and low gas pressure inside the machine; gas-check and 2T/4T function.

Also as standard is the automated interface with remote start/stop, arc established ok to move signal and a divided arc voltage output for a torch height controller making it suitable to connect to most CNC cutting tables when fitted with a 180° cutting torch.

The MC-125 & MC-160 plasma machine also comes with the added benefit of being able to fit an optional 'integrated' compressor that offers the ultimate in portable plasma cutting whether in the workshop or when working onsite.

Application

The non HF pilot arc of the MC-125 & MC-160 combined with the UPH-160 plasma torch offers excellent arc ignition which can cut through rusty and painted metals along with ferrous and non ferrous easily which can effectively prolong the lifespan of the electrode and nozzle of the plasma cutting torch.

It can be widely used in various industries involving metal cutting such as boiler and pressure vessel manufacturing, chemical container manufacturing, power plant installation and construction industry, metallurgy, chemical engineering, aerospace, automobile and engineering vehicles manufacturing and construction etc.

TECHNICAL SPECIFICATIONS

Parameter	Unit	Jasic MC-125 (L312II)	Jasic MC-160 (L316II)
Rated input voltage	V	3PH 400V AC $\pm 15\%$ 50/60HZ	3PH 400V AC $\pm 15\%$ 50/60HZ
Rated input power	kVA	23	29.2
Rated input current I _{max}	A	31	42.5
Rated input current I _{eff} *	A	31	33
Cutting current range	A	30 ~ 125	30 ~ 160
Rated open circuit voltage	V	365	320
Rated output voltage	V	130	144
Rated duty cycle	%	125A @ 100% (40°C)	160A @ 60% (40°C)
Clean cut	mm	30	40
Severance cut	mm	50	60
Pierce cut	mm	26	30
Minimum air pressure	-	5 Bar (73psi)	5 Bar (73psi)
Minimum gas flow	-	7.1CFM (220 Ltr/min)	7.1CFM (220 Ltr/min)
Efficiency	%	88	89
Idle State Power	W	< 50	< 50
Power factor	cos ϕ	0.77	0.8
Plasma torch	-	6m UPH-160	6m UPH-160
Standard	-	EN60974-1	EN60974-1
Protection class	IP	IP21S	IP21S
Insulation class	-	H	H
Arc ignition	-	Non HF	Non HF
Noise	Db	<110	<110
Operating temperature	°C	-10 ~ +40	-10 ~ +40
Storage temperature	°C	-25 ~ +55	-25 ~ +55
Overall size	mm	706 x 349 x 717	706 x 349 x 717
Weight	Kg	58	58
Circle cutting guide kit	-	51868	51868

* MC-125, minimum main plug size recommendation would be a 415V 32amp with a Type C breaker fitted.

* MC-160, minimum main plug size recommendation would be a 415V 65amp with a Type C breaker fitted.

Please Note:

Due to variations in manufactured products all claimed performance ratings, capacities, measurements, dimensions and weights quoted are approximate only.

Achievable performance and ratings when in use can depend upon correct installation, applications and use along with regular maintenance and service.

INSTALLATION

Installation

The owner/user are responsible for installing and using this plasma machine according to this operating manual. Before installing this equipment, the owner/user shall make an assessment of potential hazards in the surrounding area.

Unpacking

Check the packaging for any signs of damage. Contact your supplier in the first instance if any item is missing or damaged. Carefully remove the machine and retain the packaging or at least until the installation is complete.

Lifting

The Jasic MC-125 & MC-160 machine has an integrated handle for hand lifting only. Please ensure the machine is lifted and transported safely and securely via the lifting eyes.

Location

The machine should be located in a suitable position and environment. Care should be taken to avoid moisture, dust, steam, oil or corrosive liquids or gases.

Place on a secure level surface and ensure that there is adequate clearance around the machine to ensure natural airflow.

Do not use the system in rain or snow.

Position the plasma power supply near an appropriate power point ensuring you leave at least 30cm of space around the machine to allow for proper ventilation.

Always place the machine on a firm level surface before using ensuring it cannot tip over.

Never use the machine on its side as this will block the panel ventilation slots.

Most metals including stainless steel can give off toxic fume when welded or cut.

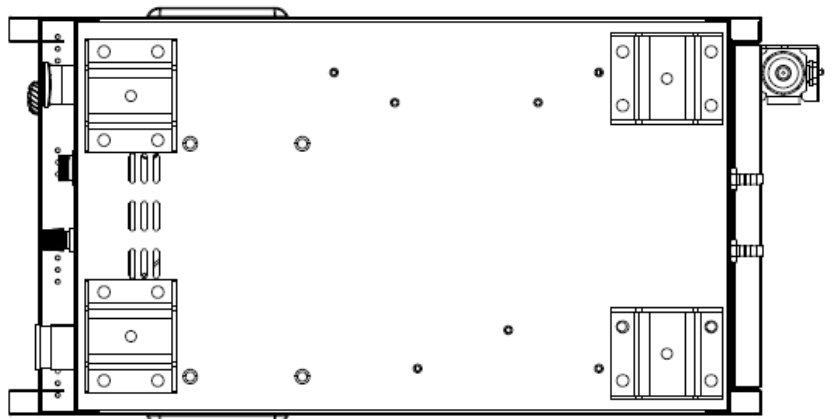
To protect the operator and others working in the area its important to have adequate ventilation in the work area to ensure air quality level meets all local and national standards.



Wheel Mounting

The MC-125 and MC-160 base support allow for wheels and the support at the bottom of the machine can be removed and the wheels installed in the same position.

The image right shows the underneath of the MC-125 and MC-160 and the located on where the wheels are mounted.



INSTALLATION



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Warning!

The following operation requires sufficient professional knowledge on electric aspects and comprehensive safety knowledge. All connections shall be made with the power supply turned off. Incorrect input voltage may damage the equipment.

Electric shock may cause death; after switching off the machine, there are still high voltages within the machine, so if removing the covers do not touch any of the live parts on the equipment for at least 10 minutes. Never connect the machine to the mains supply with the panels removed.

The electrical connection of this equipment shall be carried out by suitably qualified personnel and these shall be made with the power supply off. Incorrect voltage may damage the equipment.

Input mains power connection



Before connecting the machine you should ensure that the correct supply is available.

Details of the machine requirements can be found on the specification data plate of the machine or within the technical parameters shown in the manual.

The equipment should be connected to the mains supply by a suitably qualified competent person. Always ensure the equipment has a proper grounding in accordance with local standards.

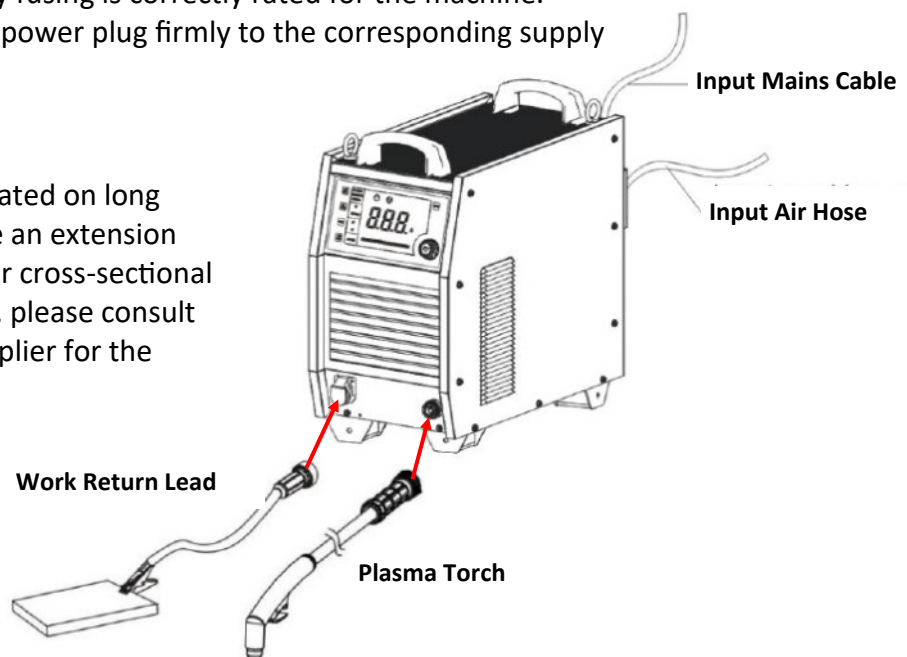
Never connect the machine to the mains supply with the panels removed.

Warning!

1. Using a multi-meter, test and ensure the input voltage value is within the specified input voltage range expected and for the product being installed.
2. Ensure that the power switch of the welder is turned off.
3. Wire the input mains cable wires to the correct sized mains plug, ensuring that the live, neutral and earth (ground) wires are connected correctly.
4. Carry out an electrical test of the machine if required.
5. Ensure that the mains supply fusing is correctly rated for the machine.
6. Connect the machine mains power plug firmly to the corresponding supply socket.

Please Note!

If the machine needs to be operated on long extension leads, then please use an extension lead where the cable has a larger cross-sectional area to reduce the voltage drop, please consult your electrician or electrical supplier for the recommended size.



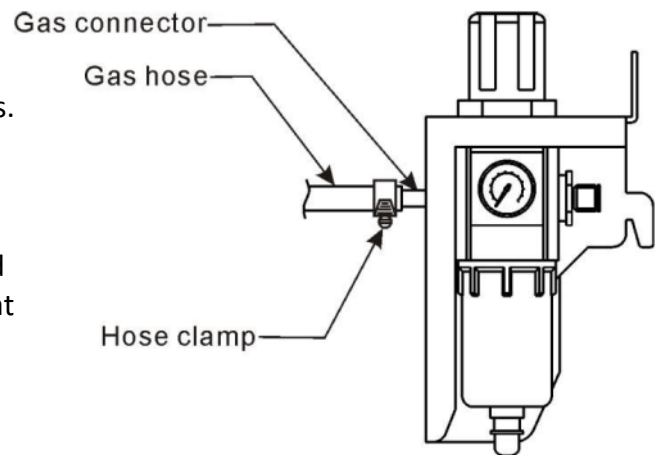
INSTALLATION



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Input air connection (if using workshop supplied compressed air).

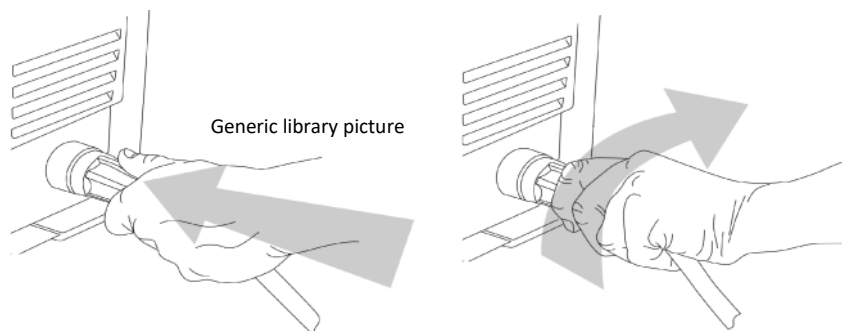
- The Jasic MAX Plasma range of machines are only designed to be used with compressed air (**DO NOT USE OXYGEN or any other gas**) and the compressor or air cylinder air requirements are as follows:
 - Minimum air input: 5 Bar (75psi)
 - Maximum air input: 7 Bar (87psi)
 - Minimum air flow: 4.5CFM (220Ltr/min)
- For cutting, set the flowing air pressure to 5.5bar (approx. 75-80psi)
- For gouging, set the flowing air pressure to 4.5bar (approx. 60-65psi) This can be lower if required.
- Connect the compressed air with the supplied air hose and air fitting to the machine via the inlet connection on the rear panel (max 8 Bar).
- The air regulator for the MC-125 & MC-160 Jasic plasma machines are mounted on the rear panel and are fully adjustable.
To adjust please see page 22 for further instructions.
- Any moisture/water which has been collected by the air regulator will be drained by the auto drain system of the in-built air regulator.
- Ensure your compressor offers only dry compressed air and is capable of delivering the volume of air that is required to run your plasma cutting machine to specification. We recommend minimum air supply requirements of 220 Ltr/min @ 5 Bar (75psi).
- When using either a compressed air cylinder or a compressor ensure it is equipped with a suitably fitted high pressure regulator capable of reducing the pressure to the required amount.



Output connections

Work return cable

Insert the cable plug of the work return lead into the dinse socket on the front panel of the plasma machine and tighten it clockwise.

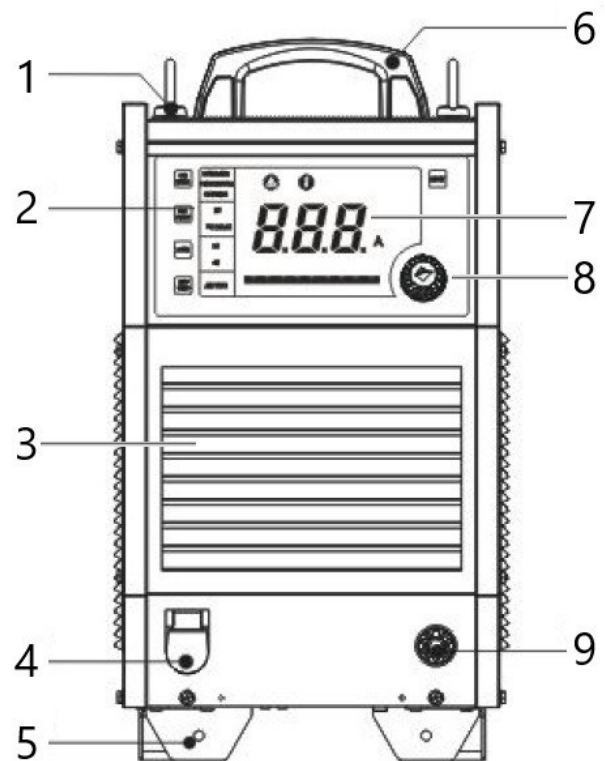


Please Note: Check this power connections daily to ensure they have not become loose otherwise arcing may occur when used under load.

DESCRIPTION OF MACHINE

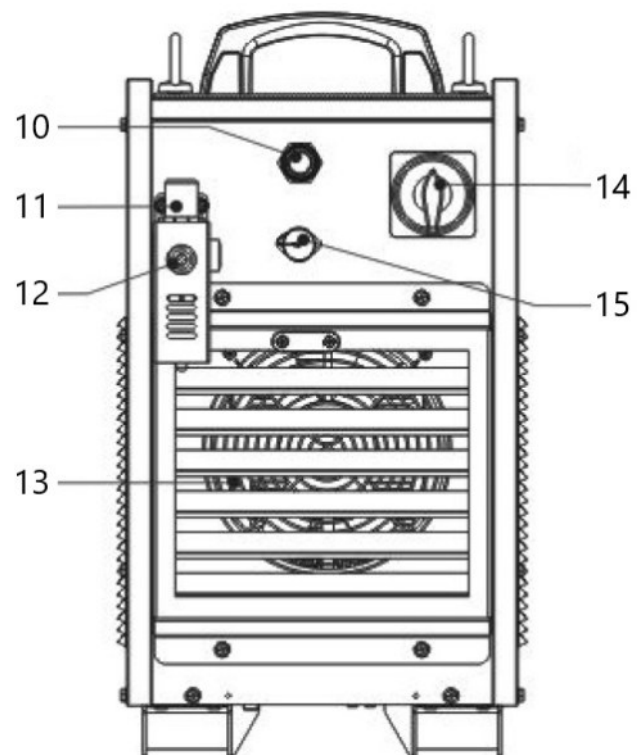
Front view Jasic Cut MC-125 & MC-160

1. Lifting hook: Allows for safe lifting, always ensure when lifting the machine with an overhead crane that these lifting eyes are used.
2. Control panel button: Various controls can be made via the control panel. See page 19 For further details.
3. Front air vents, Cooling air intake which allows for the unit to maintain its correct working temperature.
4. Work return connection, for connecting the work return cable and clamp to (35/50mm Socket).
5. Product support feet. Allows the machine to directly sit on the floor or allows wheel to be fixed to.
6. Product handle
7. Digital display screen,
8. Current control: Allows the user to set the required current demand which will be displayed via the digital screen prior to and during cutting.
9. Torch connector, the plasma torch connection (see page 20 for fitting instructions)



Rear view Jasic Cut MC-125 & MC-160

10. Input mains power cable
11. Air pressure adjuster: This control knob allows you to increase or decrease the required air pressure to the desired pressure requirements
12. Pressure gauge: Used in conjunction with the pressure adjustor, this gauge allows you to accurately set the required air pressure
13. Cooling fan grill with cooling fan located behind.
14. Mains ON/OFF switch. Rotating this switch clockwise or anti clockwise will turn the machine ON or OFF
15. CNC Control socket, this 14pin socket supplies various signal incoming and out going to allow the plasma machine to contact to a CNC plasma cutting table.



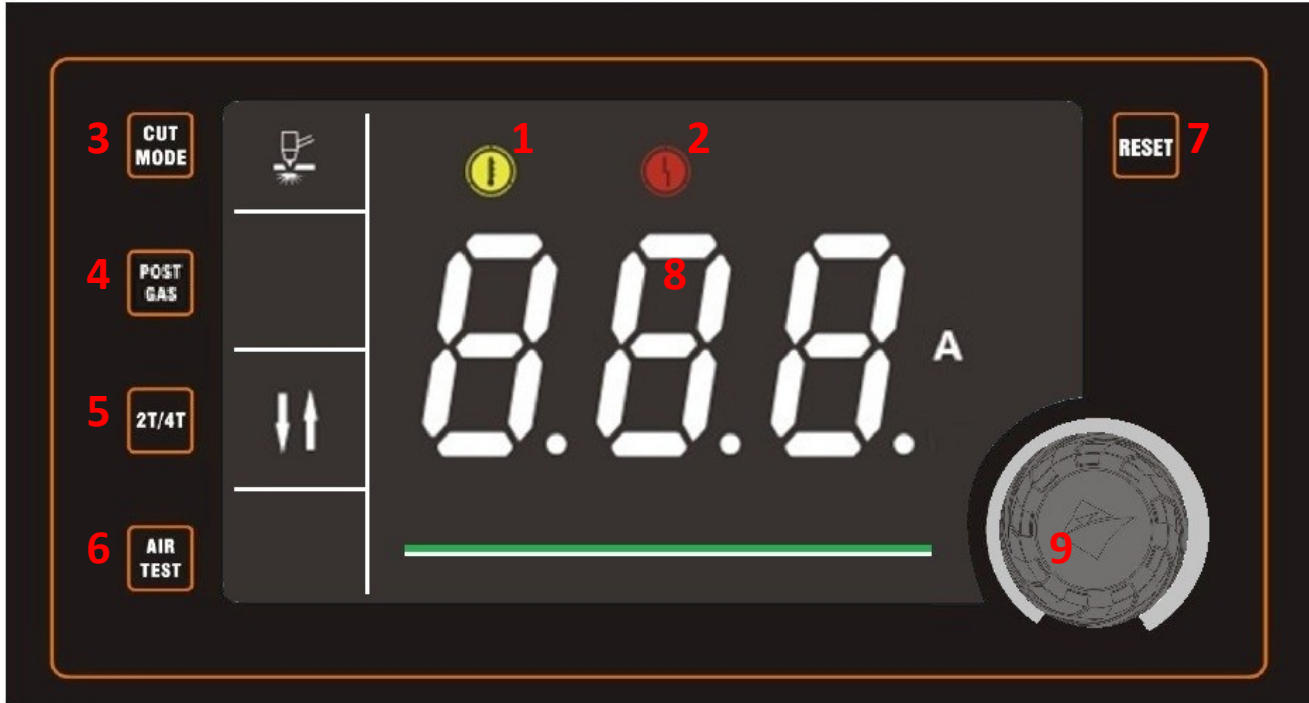
DESCRIPTION OF FRONT PANEL



Before starting any welding or cutting activity ensure that you have suitable eye protection and protective clothing.

Also take the necessary steps to protect any persons within the welding area.

Control Panel view Jasic Cut MC-125 and MC-160



1. Warning Indicator: Fault indicator: If this LED is on it indicates that the temperature inside the machine is too high and the machine is under overheating protection status.
2. Warning Indicator: If this LED is on it indicates that the supply voltage to the machine is either too high or too low.
3. Plasma Cutting Mode Button: Allows the user to switch between plasma cutting modes, pressing the cutting mode selection button (when not cutting) will switch between standard and mesh cutting.
4. Post Gas Time Button: Pressing this switch will allow the operator to set the post gas time of the compressed air once cutting has stopped.
5. 2T/4T torch trigger latch control button: A useful function when carrying out longer cuts, when cutting in 4T mode you can remove your finger off the torch trigger and the arc will remain on until you either press the torch trigger again or you remove the plasma arc away from the material being cut
6. Air Test Button: This gas selector switch allows the user to check and set the air setting for the plasma gas flow
7. Factory Reset Button, pressing and holding this button will factory set the control panel.
8. Display Area: Digital ammeter, displays preset cutting current and actual cutting current when cutting
9. Amperage control dial: Current control adjustment which allows the user to set the required current demand. The MC-125 is adjustable between 30A - 125amps and the MC-160 is 30A - 160amps.

Plasma cutting

Check that all connections have been made as required. Check the following before starting the machine.

- Check if the machine is reliably grounded according to the relevant local standards.
- Check that there are no bad contacts.
- Check if the mains power cable is connected to the correct input voltage and rated supply.
- Check if the plasma torch, connecting cables and gas hoses are in good condition and are not twisted.

OPERATION - USER SET UP



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Output connections

Plasma torch

The plasma torch supplied with your Jasic MAX machine has the 'euro style' power/gas connection (in this case the gas used is compressed air), pilot cable and the torch switch pin connections.

The Jasic plasma cutting systems and torches incorporate a safety circuit to prevent operator injury when changing consumables etc.

This is a simple ring circuit that breaks the electrical torch switching as soon as the retaining cap is removed preventing machine operation.

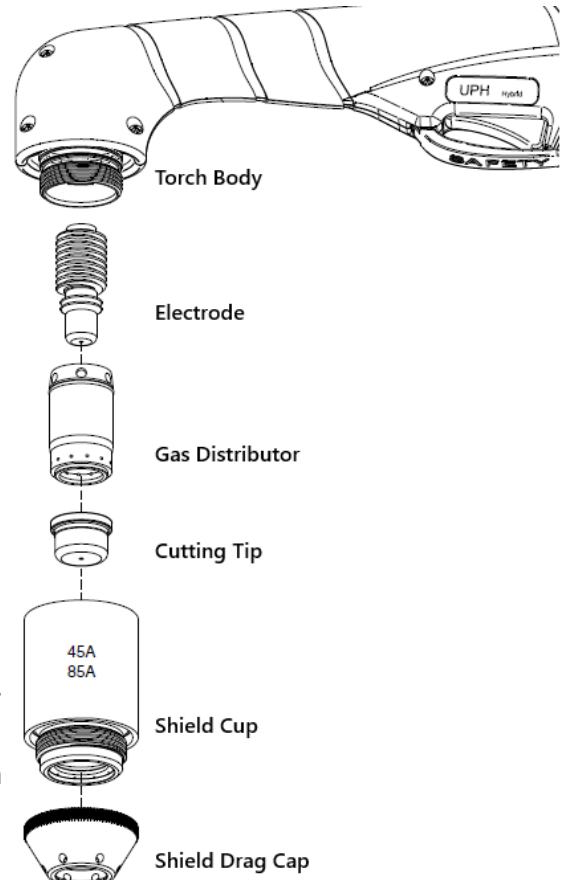


Without such protection circuitry, as previously mentioned, the open circuit voltage could be as high as 350V DC at the torch head.

The torch head encompasses a full set of consumables as shown right, these consumables are made up of a cooling tube, torch

electrode, swirl ring for gas distribution, cutting tip, retaining cap and if required a stand off device to ensure the same distance between tip and material being cut.

Do not overtighten the shield cup body to the torch head.



Fitting the supplied plasma torch

On the Jasic MAX plasma machine range, the torch fitting instructions (shown below) need to be observed.

- ⇒ Locate plasma torch plug into euro connector socket as shown in image 1
- ⇒ Push the torch as shown in image 2
- ⇒ Rotate the locking nut clockwise until fully connected and tight as shown in image 3

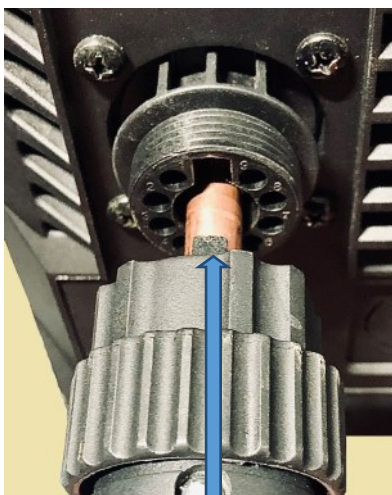


Image 1

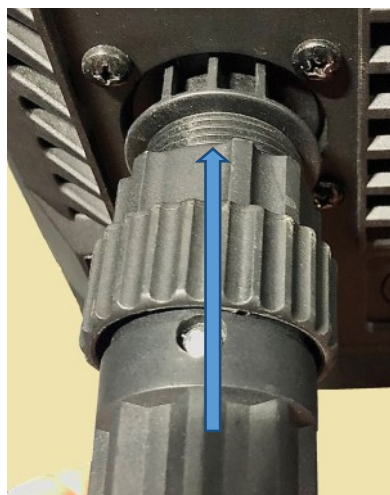


Image 2



Image 3

OPERATION - USER SET UP



Before starting any welding or cutting activity ensure that you have suitable eye protection and protective clothing.

Also take the necessary steps to protect any persons within the welding area.

Plasma cutting

Check that all connections have been made as required. Check the following before starting the machine.

- Check if the machine is reliably grounded according to the relevant local standards.
- Check that there are no bad contacts.
- Check if the mains power cable is connected to the correct input voltage and rated supply.
- Check if the plasma torch, connecting cables and gas hoses are in good condition and are not twisted.

Operation

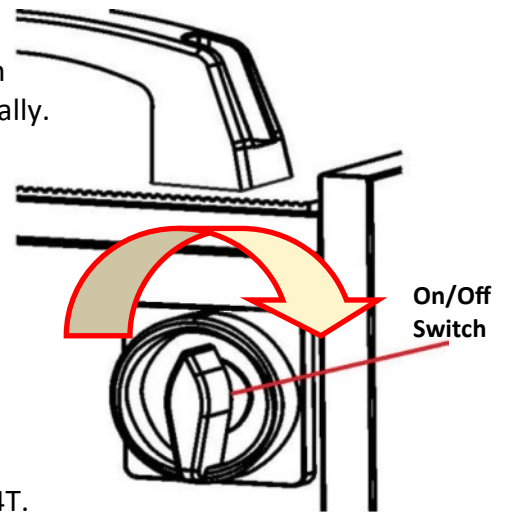
1. Turn on the power switch to the 'ON' position via the back panel of the machine and the control panel will light up, the cooling fan fan will start to rotate and the machine is ready to operate normally.

Please Note: The MC-125/160 have inbuilt smart fan technology.

When the power supply is turned on for a period before welding or cutting the fan will automatically stop running.

Once cutting starts, the fan will run automatically.

2. Set the cutting current according to the thickness of the material being cutting.
3. Ensure that the cutting tip and consumables fitted matches the application and the cutting amperage set on the machine control panel display.
4. Select trigger mode required via the front control panel: 2T and 4T.
 - **2T continuous cutting:** When the main arc is extinguished due to lack of base material, the cutting machine automatically cuts off the output. You must release the torch trigger and press it again to re-establish the pilot arc and keep cutting.
 - **4T continuous cutting:** When the main arc is extinguished due to lack of base material, the cutting machine automatically transfers to pilot arc output, and the pilot arc can be re-established and cutting continued without releasing the torch trigger.
5. Select 'mesh cutting' mode if the material or application requires.
 - **Mesh cutting:** When the main arc is extinguished due to missing workpieces, the cutting machine will automatically re-establish the pilot arc and maintains it for a certain period of time. When the pilot arc contacts the workpiece and ignites the main arc, cutting can continue. In mesh cutting mode, the machine will automatically be in 2T mode (4T is unavailable). Mesh setting is also beneficial for Gouging, as it assists in maintaining the gouging arc.
6. Check the air pressure by placing the purge/run switch into purge to set the correct pressure.
7. Press the air pressure switch again to put the machine into ready mode, when in air pressure check/test mode the corresponding LED will light up.
8. Depending on application and consumable setup, bring the copper nozzle of the plasma torch at a distance of about 2mm between the copper nozzle (tip) of the torch and the work piece and then press the torch trigger. For other modes of cutting/gouging, please see 'Modes of cutting' from page 24 and torch setup page 28.
9. After the arc has ignited, cutting starts and you can now start moving the torch at a regular speed along the material you are cutting.



Please note:

The electrode and nozzle will wear out quicker if the operator holds the trigger when in pilot arc mode for too long prior to cutting. Always keep the time between piloting and cutting to a minimum.

OPERATION - USER SET UP



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Please note: The following should only be carried out by the authorised operator.

Air pressure setting

The external air pressure regulator is mounted on the MAX machines rear panel and is only present and used when workshop compressed air is connected.

Checking and testing air quality should be carried out periodical as adjustment can often be required, this process is easily carried out following the instructions below:

Image 1

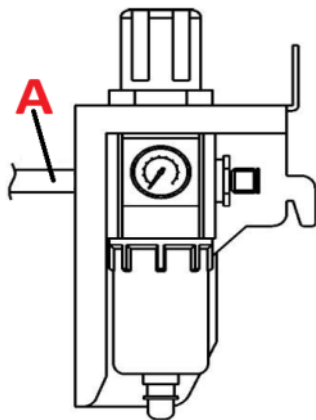


Image 2

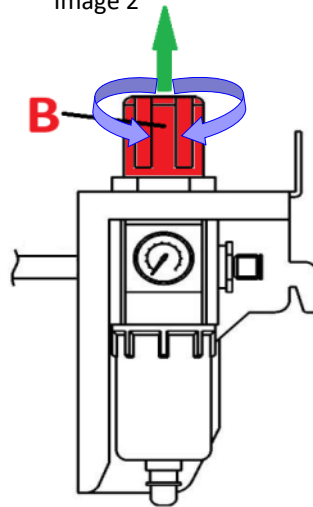
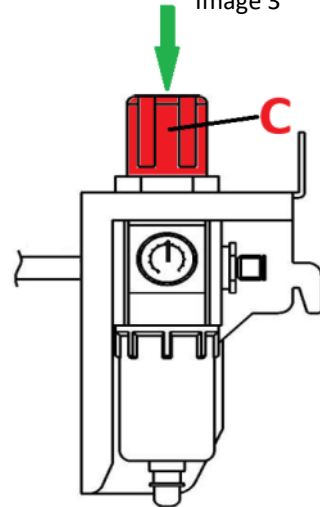


Image 3



1. Ensure the plasma torch is securely in place (see page 20).
2. Connect the workshop air supply to the machine via the air regulator inlet (A) mounted on the rear panel (image 1).
3. Connect the machine to the mains supply and switch the machine ON (located on the rear panel the machine (see pages 16).
4. Depending on which control panel your machine has, activate the test air option which will then activate air purging to start the air flow through the machine and plasma torch (refer to pages 19 for further information).
5. Using your fingers, lift up the pressure control knob (B) of the pressure regulator to 'unlock' it shown in image 2.
6. Now (if required) adjust the air pressure by rotating the knob (B) in either clockwise direction to increase the air pressure setting or anticlockwise to reduce the pressure which will be noted on the pressure gauge.
7. When the correct air pressure is set on the regulator gauge, push down the adjusting knob (B) in image 3 to lock it.

Please Note:

- ♦ Any water which has been collected by the air regulator will be drained by the auto drain of the regulator when the airline is connected.
- ♦ Always ensure that your compressed air supply is clean and dry, this can be achieved by installing air filters and air driers as required.
- ♦ Due to condensation build up in supply pipes from the compressor, its good practice to always have an air filter and/or air drier mounted inline at the outlet (connection point) for the plasma machine.

OPERATION - USER SET UP



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Operation continued

Standard cutting mode



Normal cutting - this mode is the most commonly used for edge start or piercing cutting. When edge cutting, hold the torch perpendicular to the edge of the material being cut with the cutting tip near (but not touching) the edge of the workpiece at the point where the cut is to start.

Press and hold the trigger and once the pilot arc has initiated slowly move the torch over the material until the cutting arc is established then 'cutting' movement can commence. Generally the direction of cutting is towards the user.

To stop cutting just release the torch trigger.

However if the plasma torch is either pulled away from the material or you come to the end of the material being cut and you run off the plate the plasma cutting arc will automatically stop and to re-initiate the plasma arc you would have to release the torch trigger to repress the trigger, so in the case of cutting grid or perforated material we have the following option that should be used.

Mesh (Perforated) cutting mode



Mesh cutting - This setting is ideal if you are cutting mesh, grid or perforated type material (as image 1 shows below) where you have gaps between the material being cut.

When cutting in 'normal' mode the plasma arc will automatically 'cut out' if it can't find metal to complete the electric circuit, so switching the machine to perforated cutting mode will keep the plasma arc ON otherwise, you'll have to keep releasing/pressing the trigger to restart the plasma arc over and over.

When in perforated cutting mode and when cutting in the travel direction as shown in the example image 2 below, the torch plasma arc circuit will switch between piloting mode and cutting mode automatically, depending if your torch is above the material or not.

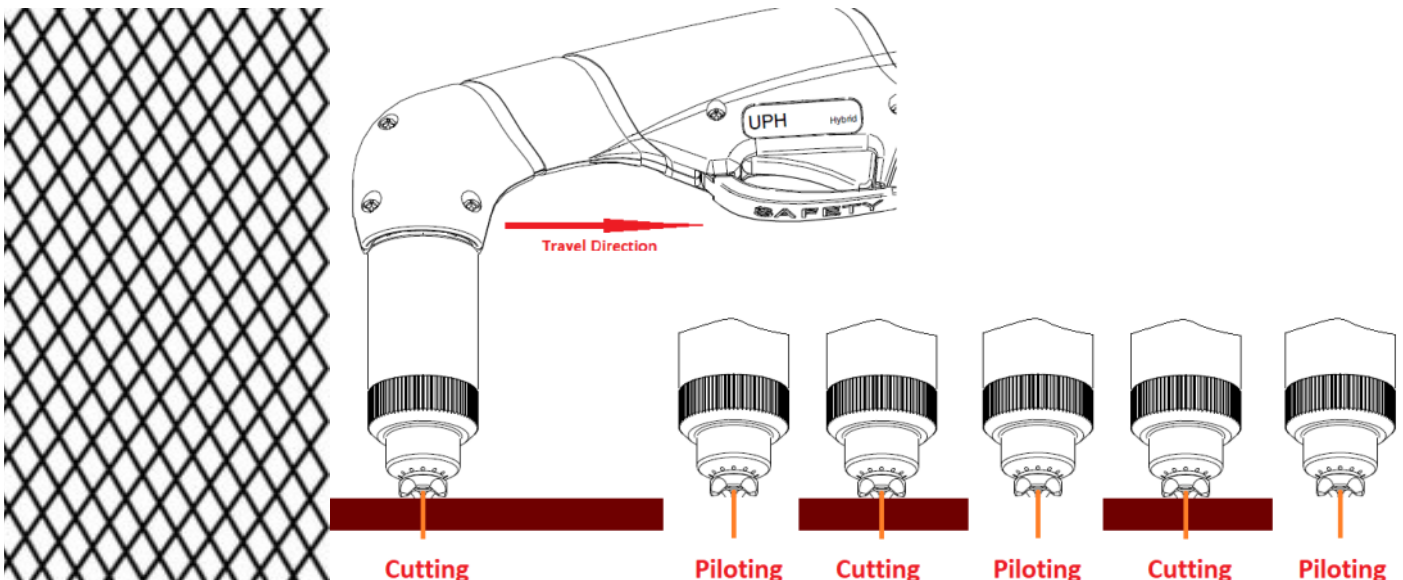


Image 1

Image 2

Note: Using the Mesh setting when gouging can sometimes be useful in assisting the operator in reactivating the plasma arc quickly if the arc is lost while gouging. During gouging you may over stretch the arc, if this occurs the arc will be lost, by having the mesh setting turned ON, the pilot arc will reactive quickly and re-establish the gouging arc quicker.

OPERATION - MODES OF CUTTING

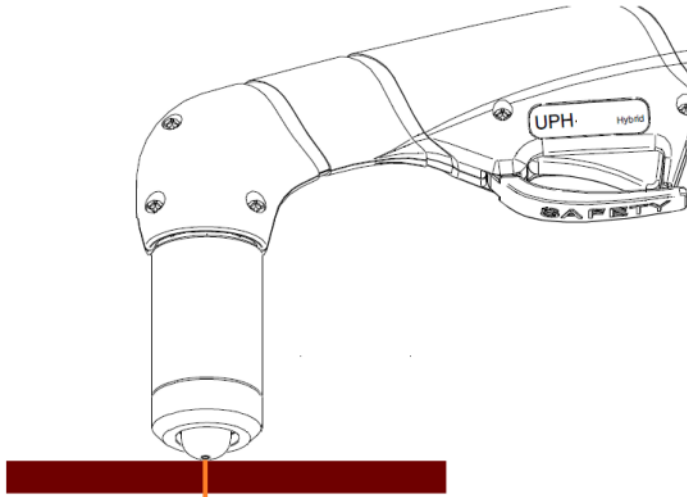


Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

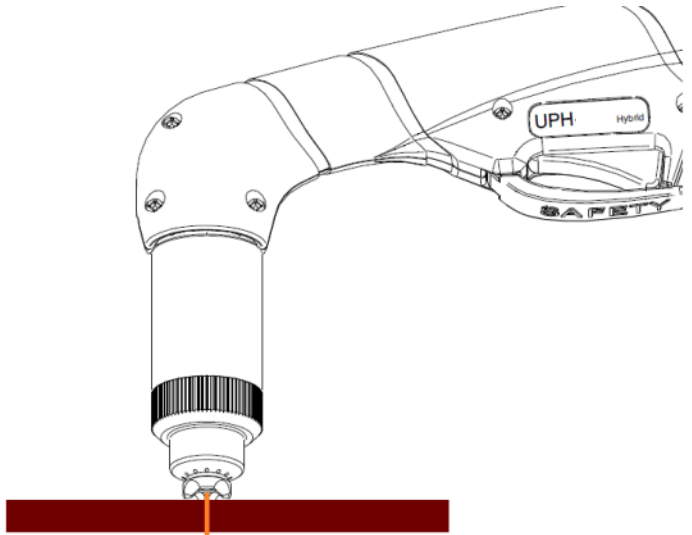
Modes of cutting

The example images below show two different ways by using different consumable configurations that allows the operator to cut material with the plasma torch.

See pages 28 - 31 for the full consumable selection options for the supplied plasma torch.



Drag Tip Cutting



Drag Cap Cutting

Drag Tip Cutting

Drag tip cutting is the process of dragging the tip of the torch along the workpiece to cut the metal.

This is often the easiest way to cut while minimizing heat input but usually only on cutting currents of 40/45 amps and below. This technique works best when the material being cut is 5mm or less.

Drag tip cutting does require a 'drag' cutting tip and you need to ensure that the plasma machines output amperage is matched to the amperage of the cutting tip.

It can often be helpful to use a non-conductive straight edge to help maintain a straight cut.

Drag Shield Cap Cutting

The drag shield cap option allows the same technique to be used as above but having the cutting tip insulated (shielded) from the material being cut. Using a drag shield cap allows you to rest the torch (via the drag cap) on the workpiece while maintaining an optimal 2 ~ 3mm standoff without touching the cutting tip to the material for amperages of 40amps and above. (When cutting at above 40amps, touching the tip to the work material will adversely affect your cut quality and consumable life). When you start to drag cut, you would place the tip/cap of the torch on the workpiece and begin dragging (moving) the torch across the workpiece. You should always start with the torch placed at the furthest point from you and then cut by pulling the torch towards you while making sure to keep the torch upright to the material being cut throughout the cutting process.

As you are drag cutting ensure you maintain a smooth and consistent travel speed to make a clean, precise cut.

The main benefits of drag cutting is:

- Much easier for the operator because you don't need to maintain a distance between the cutting tip and the workpiece. You can simply drag the end of the plasma torch along a template or a straight edge. This process usually ensures a more accurate cut.
- Drag cutting produces less spatter and blow back and improves the life of the front end torch parts.
- Best cut quality for material of 5mm or less.

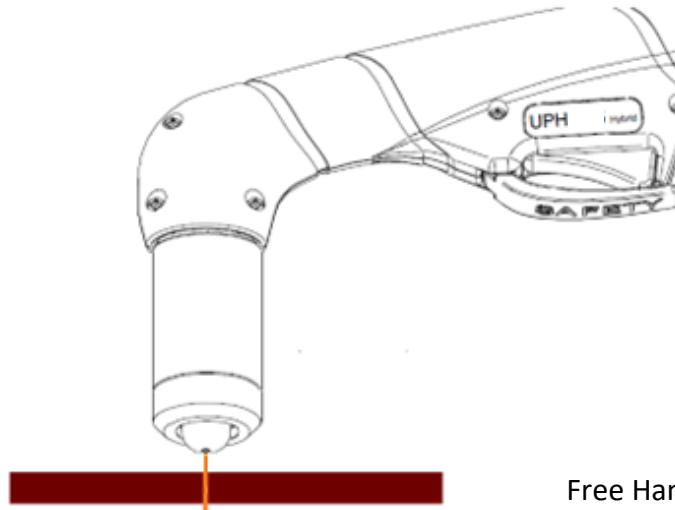
OPERATION - MODES OF CUTTING



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Modes of cutting

The following pages are as examples and describes the various ways that different consumable configurations can be used that allows the operator to cut material with the plasma torch. See pages 28 - 31 for the full consumable selection options for the UPH-160 plasma torch.



Free Hand Stand-off Cutting

Stand-Off Cutting

The stand-off cutting technique is the process of holding the tip of the torch between 3 ~ 4mm from the workpiece to achieve the optimum cut.

Stand-off cutting requires a cutting tip that you need to ensure that the plasma machines output amperage is matched to the amperage with the tip.

Depending on the application, the operator may choose to hold the torch 'free hand' away from the plate or could choose to use a stand-off guide to help hold the torch away from the plate at a fixed height. Also available are roller guides and circle cutting guide kits which can be very helpful in creating the cuts you want.

To begin cutting you would start at the edge of the plate, placing the torch above work piece of about 3 ~ 4mm, press the torch and begin by drawing the tip over and across the workpiece.

You should always start with the torch placed at the furthest point from you and then cut by pulling the torch towards you.

Make sure to keep the torch upright to the material being cut throughout the cutting process.

As you are cutting, ensure you maintain a smooth and consistent travel speed to make a clean and precise cut.

There are 3 main reasons why plasma machine operators prefer to use the stand-off technique rather than drag tip cutting

- ⇒ It allows for a smoother movement of the torch above the material being cut without any part of the torch touching the material.
- ⇒ You can comfortably stand the torch while making the contouring process or following a certain pattern.
- ⇒ Because the cutting tip is not touching the material, this helps to prevent any blowback of molten material.

OPERATION - MODES OF CUTTING



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Modes of cutting

Piercing

When not starting your cut from the material edge, most likely you will be piercing the material when starting the cut which is the process in which a quick hole is made in the work piece.

Piercing is often just a starting hole that will be used to make a 'circular' cut within the material.

You can use standard cutting tips for piercing although you must ensure the plasma machines output amperage matches the cutting tip amperage rating. The thickness of the material to be pierced will need to fall in the correct amperage range for the machine and cutting tip installed. If the material is slightly thicker than the machines piercing capacity, you can pre-drill a hole and treat your cut like an edge start cut.

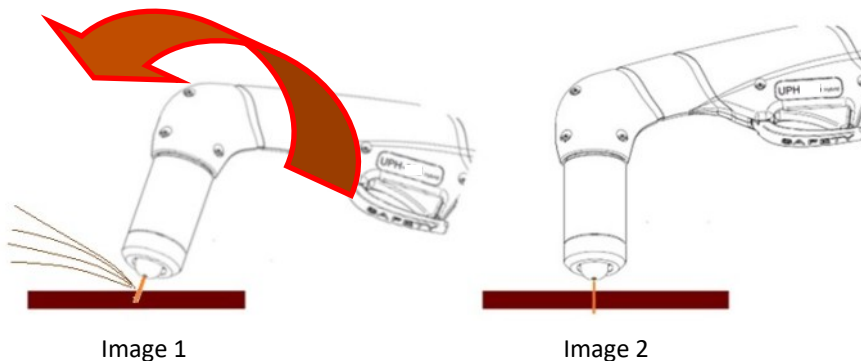
Piercing with a plasma cutter isn't a difficult process if using the correct technique and below are some tips that detail how you approach the material, the best angle that will offer you a clean pierce.

There are two different techniques for piercing depending on the thickness of the work piece:

If the work piece is less than 2mm sheet metal, the torch can be held at a 90° (perpendicular) angle to the material being cut with the cutting tip or torch stand off touching or about 2mm away from the work piece (this can depend on which consumable configuration you have installed). Begin by establishing the pilot arc and as soon as the pilot arc/main cutting arc penetrates the work piece maintain your normal cutting height and the cutting process can then begin.

If the material being cut is thicker than 3mm the torch should be held at an approximate angle of 60°, 2 ~ 3mm above the work piece ensuring that the 'blown back' particles are blown away from the plasma torch cutting tip, torch handle the operator and any bystanders. As shown in image 1 below. Begin by establishing the pilot arc and when the pilot arc transfers to main cutting arc, use a smooth, slow rolling motion to move the torch to a 90° (perpendicular) angle as shown in image 2 below.

At this point, the pierce should have been created (if not hold the torch still until the cutting arc sparks exits the bottom of the work piece). Now the pierce has been made, the cutting process can begin.



Please Note:

- Sometimes pre-drilling a hole can be carried out if your wanting to cut material that is close to the maximum cut thickness of the plasma machine you are using. This allows the operator to 'edge' cut start rather than piercing.
- Piercing does result in a shorter consumable life than with edge start cutting.

OPERATION - MODES OF CUTTING



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Modes of cutting

Gouging

Gouging creates a smooth, clean concaved groove within the material being gouged which is often weld ready. This process is primarily used for weld removal or back gouging.

With the Jasic Max MC-125/MC-160, the gouging process does require specific consumables being fitted which includes the gouging tip and shield cup specific to gouging, see page 29 for the plasma torch breakdown chart.

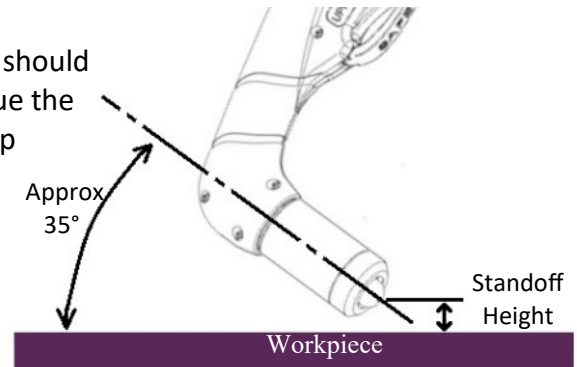
To begin the gouging process, hold the tip of the torch approximately 15mm from the work piece angling the torch approximately $20^{\circ} \sim 40^{\circ}$ to the surface, engage the pilot arc and once established slowly move the tip closer to the work piece until the main arc has transferred.

Once the main arc is established, retract the tip until the distance from the work piece to the tip is approximately 4 ~ 6 mm, making sure that you keep the gouging tip of the torch angled approximately $30^{\circ} \sim 40^{\circ}$ during this entire gouging process.

To create a narrow u-groove in the work piece, the operator should maintain a constant, smooth travel speed. With this technique the gouge created will be approximately 6mm wide by 6mm deep but this does depend on the gouging tip profile.

To create a wider groove, you can oscillate the plasma torch from side to side in a half-moon sequence while maintaining a constant, smooth travel speed. The gouge created will be wider but not as deep.

Due to the nature of the gouging process, lead covers, gouging deflectors and torch covers are some accessories that will help to protect the equipment used in the gouging process. Gouging can be performed on all conductive materials.



Gouging Tips

When gouging, you should generally lower the input air pressure compared to standard cutting, and switch to the dedicated gouging consumables. Normal cutting requires an air pressure of around (72~85 PSI) to blow through metal, lower pressure is required for gouging to prevent blowing away too much molten metal, which creates a better, wider and shallower groove.

Why Lower Pressure for Gouging?

- **Prevent Excess Metal Removal:** Too much pressure makes the arc too narrow and aggressive, which can lead to digging too deep or cutting completely through the workpiece, rather than just washing away the surface.
- **Better Control:** Lower pressure allows for a more stable, wider arc that is easier to manage, resulting in a cleaner, more controlled gouge profile.
- **Reduced Turbulence:** It keeps the arc focused on the surface rather than scattering the molten metal, which can cause rough, uneven surfaces.

Setting the Machine up for Gouging

1. Fit the required Gouging consumables (see page 29).
2. Manual adjust the air regulator pressure to typical 60PSI, though this may vary depending on application and performance (see page 22).
3. Set the control function to Mesh cutting (see page 19).

OPERATION - MODES OF CUTTING



Before starting any welding activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any personnel within the welding area.

Modes of cutting

Bevelling

Bevelling allows you to angle the edge of a flat plate or pipe to allow for deeper weld penetration. This bevel process is normally used for materials of at least 9mm or thicker.

You can utilize standard cutting tips for bevelling, but again, you need to ensure you utilize the correct plasma machine current matches the cutting tips used.

Ensure that the thickness of the material to be bevelled falls in the amperage range of the plasma machine and cutting tip that you will be using.

If bevelling by hand, a roller and/or angle guide can be helpful in maintaining the consistent bevel face and the desired angle which is usually determined by the weld joint design.

- The industry standard bevel angles, generally range from 15 ~ 45°.
- The cutting tip would normally be between 3 ~ 6mm from the work piece.
- Bevel type roller guide kits (basic version shown in both images below) can also be very helpful in creating the required bevel cuts.

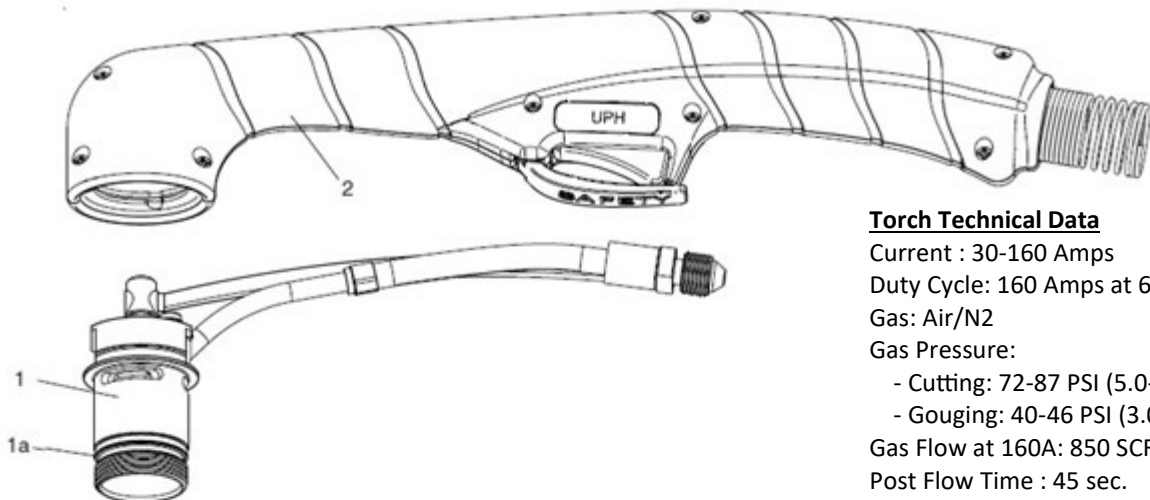


Please Note:

The images above are for reference only as they may not show the correct plasma torch referenced within this operating manual.

HAND TORCH CONSUMABLE BREAKDOWN

The Jasic MAX MC-125 plasma machine is supplied with the 6m UPH-160 85° plasma hand torch (Pt No 03921CX). The 12m UPH-160 85° plasma torch option is Pt No 03926CX

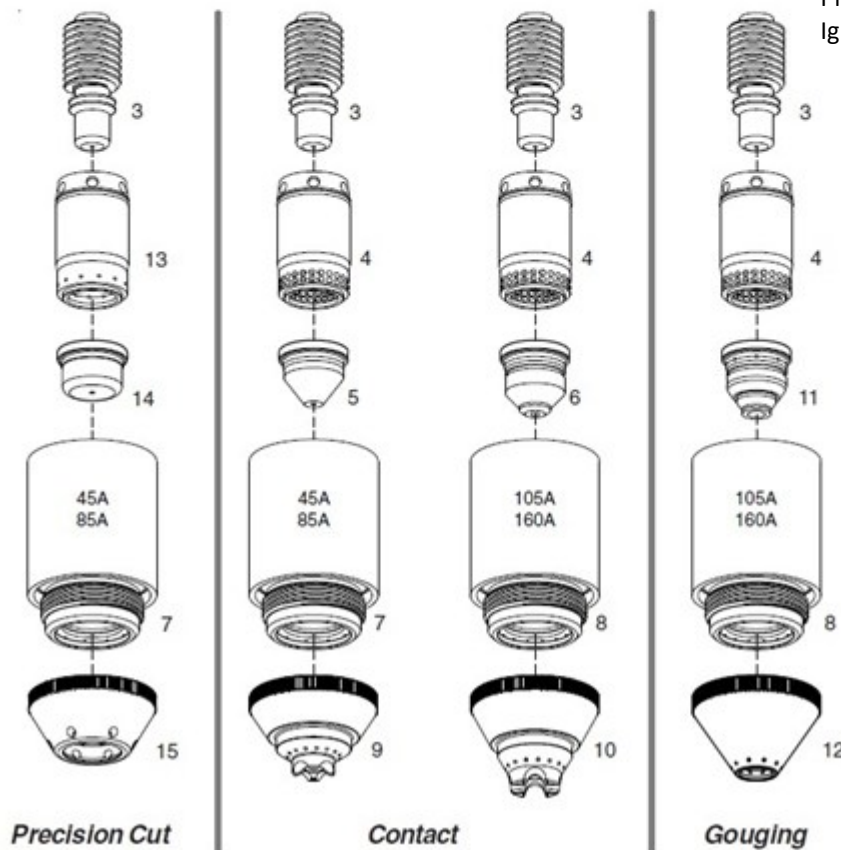


Torch Technical Data

Current : 30-160 Amps
 Duty Cycle: 160 Amps at 60%
 Gas: Air/N2
 Gas Pressure:
 - Cutting: 72-87 PSI (5.0-6.0 bar)
 - Gouging: 40-46 PSI (3.0-3.5 bar)
 Gas Flow at 160A: 850 SCFH (420 lpm)
 Post Flow Time : 45 sec.
 Pilot : Electrode to Tip (22-25)
 Ignition: Blow Apart (without HF)

Please Note:

The Jasic Plasma MC-125 has an output current rating of 125amps and the supplied plasma torch is the UPH-160 which has a current rating of 160amps. When ordering replacement cutting tips please take note that the maximum sized tip to be used would be the 125amp cutting tip Pt No 51425.



The MAX Cut 125 package is supplied with the consumable spare parts kit: Pt No BLKITUPH160/125A

When cutting thinner material you may choose to fit smaller sized cutting tips. Ensure that whichever cutting tip you fit, you also match the amperage on the output current dial on the front control panel.

The UPH-160 Circle Cutting Guide Kit is Pt No 51868

The UPH-160 Straight line Guide Kit is Pt No 51865

The UPH-160 Bevel Cutting Guide Kit is Pt No 51886

Please Note:

Configuration above only to be used on the Jasic MAX MC-125 Plasma Machine

The JASIC MAX MC-125 PLASMA MACHINE UPH-160 HAND TORCH CONSUMABLE BREAKDOWN



Item No	Part Number	Description	Pack Qty
1	03900	UPH-160 85° Torch Head	1
1A	03900.60	Torch head 'O' Ring	1
2	05505	Handle c/w Switch	1
3	52678	Electrode	5
4	60039	Swirl Ring	1
5	51420	Cutting Tip 45A	10
5	51421	Cutting Tip 65A	10
5	51422	Cutting Tip 85A	10
6	51425	Cutting Tip 105 - 125A	10
7	60311TA	Shield Cup Body 45-85A	1
8	60311TB	Shield Cup Body 105-160A	1
9	51916T	Shield Cap (Hand) 45-85A	1
10	51917T	Shield Cap (Hand) 100-160A	1
11	51424G	Gouging Tip 105-125A	10
12	51919G	Gouging Shield Cap	1
13	60033	Swirl Ring - Precision Cut (Hand)	5
14	51428	Cutting Tip 30-45A - Precision Cut	10
15	51915	Deflector, Precision Cut	10
N/A	51868	Circle Cutting Guide Kit Attachment	1
N/A	51886	Bevel Cutting Guide Kit Attachment	1
N/A	51865	Straight Line Cutting Kit	1
N/A	BLKITUPH160/45A	45 Amp Consumable Pack	1
N/A	BLKITUPH160/65A	65 Amp Consumable Pack	1
N/A	BLKITUPH160/85A	85 Amp Consumable Pack	1
N/A	BLKITUPH160/105A	105 Amp Consumable Pack	1
N/A *	BLKITUPH160/125A	125 Amp Consumable Pack	1

* This consumable kit is supplied with the plasma torch/machine package when first purchased.

Please Note:

Hand tighten only when fitting the shield cup body to the torch head. **Do not overtighten this cup.**

If you feel any resistance when fitting the cup ensure that the threads are all OK or if the torch head 'o' ring requires lubricating before proceeding.

When operating the plasma torch, a small flow of compressed air vents through the gap between the shield cup body and the torch handle and this is normal operation.

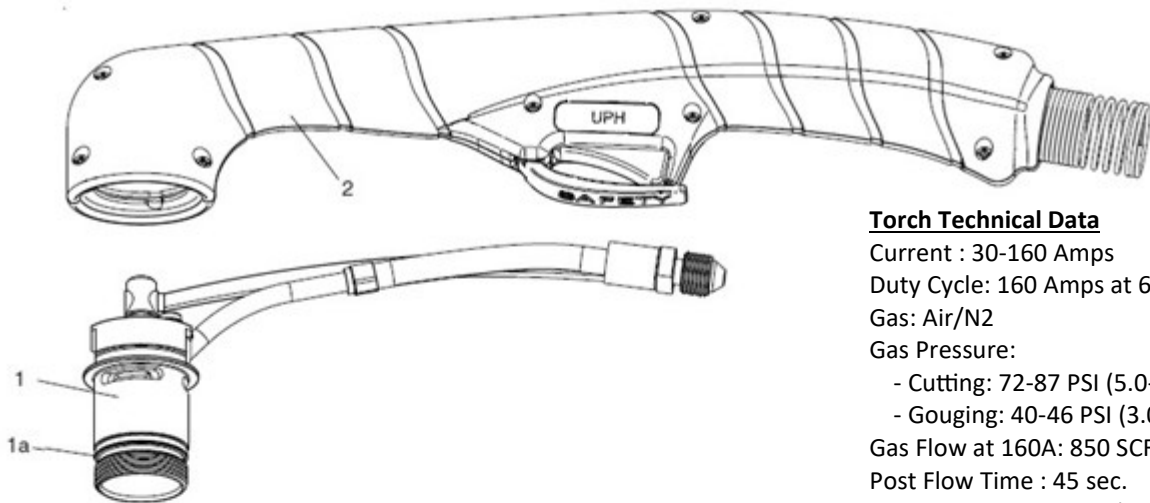
Do not attempt to overtighten or force the shield cup body to reduce or close the gap as you may damage the torch head and as a result experience no or erratic pilot arc starting which could cause internal components damage as well.

Please Note:

A consumable pack contains the relevant sized cutting tip, electrode, gas distributor, shield cup and the shield drag cap.

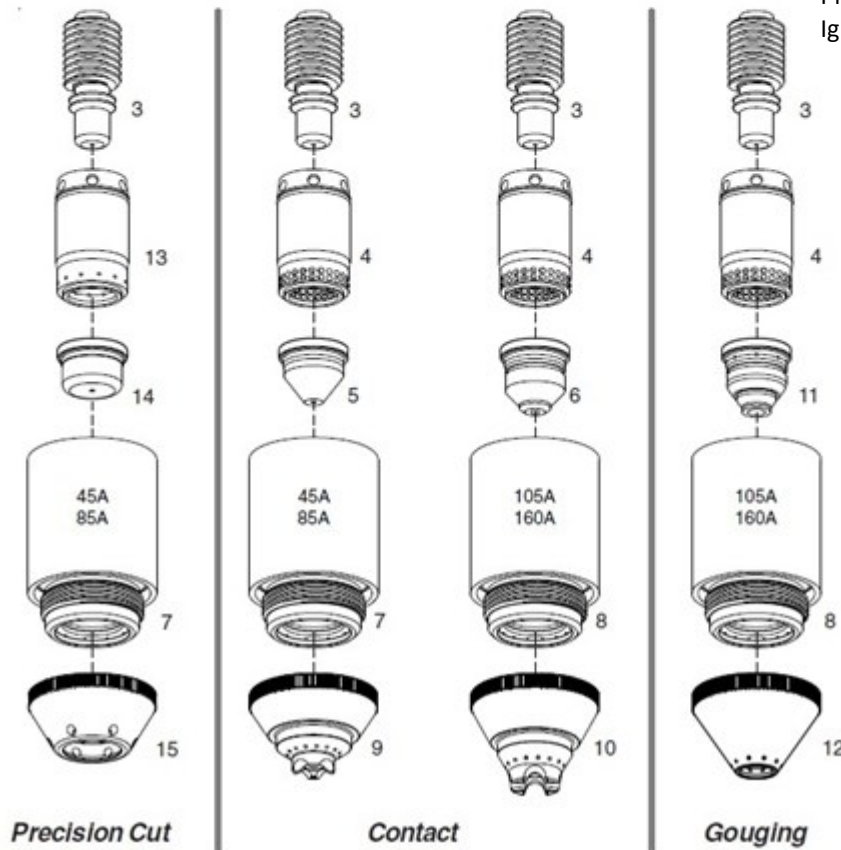
HAND TORCH CONSUMABLE BREAKDOWN

The Jasic MAX MC-160 plasma machine is supplied with the 6m UPH-160 85° plasma hand torch (Pt No 03921CX). The 12m UPH-160 85° plasma torch option is Pt No 03926CX



Torch Technical Data

Current : 30-160 Amps
 Duty Cycle: 160 Amps at 60%
 Gas: Air/N2
 Gas Pressure:
 - Cutting: 72-87 PSI (5.0-6.0 bar)
 - Gouging: 40-46 PSI (3.0-3.5 bar)
 Gas Flow at 160A: 850 SCFH (420 lpm)
 Post Flow Time : 45 sec.
 Pilot : Electrode to Tip (22-25)
 Ignition: Blow Apart (without HF)



Please Note:

The Jasic Plasma MC-160 has an output current rating of 160amps and the supplied plasma torch is the UPH-160 which has a current rating of 160amps. When ordering replacement cutting tips please take note that the maximum sized tip to be used would be the 160amp cutting tip Pt No 51426.



The MAX Cut 160 package is supplied with the consumable spare parts kit: Pt No BLKITUPH160/160A

When cutting thinner material you may choose to fit smaller sized cutting tips. Ensure that whichever cutting tip you fit, you also match the amperage on the output current dial on the front control panel.

The UPH-160 Circle Cutting Guide Kit is Pt No 51868

The UPH-160 Straight line Guide Kit is Pt No 51865

The UPH-160 Bevel Cutting Guide Kit is Pt No 51866

Please Note:

Configuration above only to be used on the Jasic MAX MC-160 Plasma Machine

The JASIC MAX MC-160 PLASMA MACHINE

UPH-160 HAND TORCH CONSUMABLE BREAKDOWN



Item No	Part Number	Description	Pack Qty
1	03900	UPH-160 85° Torch Head	1
1A	03900.60	Torch head 'O' Ring	1
2	05505	Handle c/w Switch	1
3	52678	Electrode	5
4	60039	Swirl Ring	1
5	51420	Cutting Tip 45A	10
5	51421	Cutting Tip 65A	10
5	51422	Cutting Tip 85A	10
6	51425	Cutting Tip 105 - 125A	10
6	51426	Cutting Tip 160A	10
7	60311TA	Shield Cup Body 45-85A	1
8	60311TB	Shield Cup Body 105-160A	1
9	51916T	Shield Cap (Hand) 45-85A	1
10	51917T	Shield Cap (Hand) 100-160A	1
11	51424G	Gouging Tip 105-125A	10
11	51425G	Gouging Tip 160A	10
12	51919G	Gouging Shield Cap	1
13	60033	Swirl Ring - Precision Cut (Hand)	5
14	51428	Cutting Tip 30-45A - Precision Cut	10
15	51915	Deflector, Precision Cut	10
N/A	51868	Circle Cutting Guide Kit Attachment	1
N/A	51886	Bevel Cutting Guide Kit Attachment	1
N/A	51865	Straight Line Cutting Kit	1
N/A	BLKITUPH160/45A	45 Amp Consumable Pack	1
N/A	BLKITUPH160/65A	65 Amp Consumable Pack	1
N/A	BLKITUPH160/85A	85 Amp Consumable Pack	1
N/A	BLKITUPH160/105A	105 Amp Consumable Pack	1
N/A	BLKITUPH160/125A	125 Amp Consumable Pack	1
N/A *	BLKITUPH160/160A	160 Amp Consumable Pack	1

* This consumable kit is supplied with the plasma torch/machine package when first purchased.

Please Note:

Hand tighten only when fitting the shield cup body to the torch head. **Do not overtighten this cup.**

If you feel any resistance when fitting the cup ensure that the threads are all OK or if the torch head 'o' ring requires lubricating before proceeding.

When operating the plasma torch, a small flow of compressed air vents through the gap between the shield cup body and the torch handle and this is normal operation.

Do not attempt to overtighten or force the shield cup body to reduce or close the gap as you may damage the torch head and as a result experience no or erratic pilot arc starting which could cause internal components damage as well.

Please Note:

A consumable pack contains the relevant sized cutting tip, electrode, gas distributor, shield cup and the shield drag cap.

GENERAL CUTTING INFORMATION



Before starting any welding or cutting activity ensure that you have suitable eye protection and protective clothing. Also take the necessary steps to protect any persons within the welding area.

Notes for cutting operation

1. Do not touch the hot work piece with bare hands to avoid burning.
2. It is recommended not to ignite the pilot arc in the air if not necessary, for it will shorten the lifespan of the electrode and nozzle consumables of the torch.
3. It is recommended to initiate the cutting process from the edge of the workpiece unless penetration is needed, this process is called piercing.
4. Ensure spatter comes from the bottom of work piece while cutting. If spatter comes upwards from the top of work piece, it indicates that the work piece has not been fully cut through. This could be due to not enough cutting power, the material is too thick for the machine or the cutting torch is being moved too fast.
5. For cutting a round work piece or to meet precise cutting requirement, a stencil board or other tools are often needed to assist with cutting shapes.
6. It is recommended when cutting, if possible, to pull the plasma torch while cutting.
7. Keep the nozzle of the cutting torch upright over the work piece and check if the arc is moving with the cutting line. Do not bend the cable too much, step on or press upon the cable to avoid restricting the air flow. The cutting torch may overheat if the air flow is too low. Keep the plasma torch cable away from sharp edges.
8. When the work piece is nearly cut off, slow down the cutting speed and release the torch trigger to stop cutting.
9. Check the torch consumables frequently to prolong the life.
10. Always ensure the correct consumables are fitted in the torch. Incorrect items may cause damage to the torch or machine.
11. It is recommended that a plasma torch of maximum length of 6m is used. If the torch cable is too long, the performance of this cutting machine such as arc ignition will possibly be affected due to the fact that the inner resistance of the cable will reduce the output voltage.

Please Note:

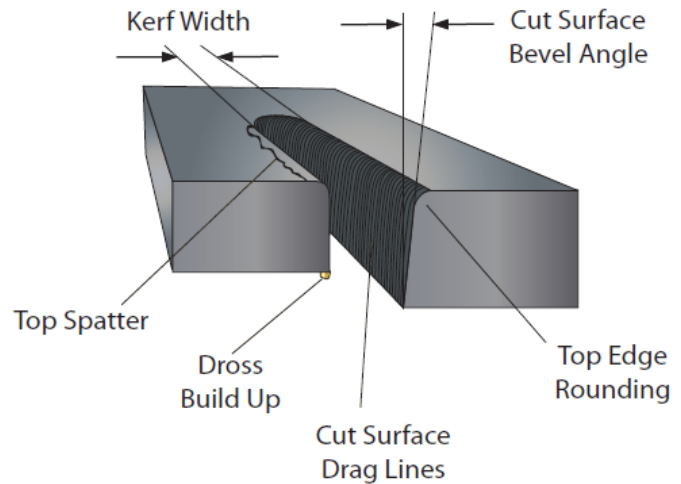
- * Your air supply must be free of moisture, water, oil or any other contaminants. Excessive water or oil may cause double arcing, excessive electrode/tip wear or even torch head failure. Contaminants will also cause poor cut quality.
- * When starting the arc, ensure you keep the pilot arc time to a minimum to avoid excessive wear on the cutting tip.
- * Do not overtighten the electrode when fitting a new set of consumables. Over tightening may cause damage to the head thread, the tip not to seat correctly
- * Only use the supplied or recommended 'O' ring lubricant or grease for your plasma torch head, using the wrong lubricant which cannot withstand high temperatures could cause damage to the plasma torch head.

CUT QUALITY

The plasma process cuts by melting the material and therefore a characteristic feature is the greater degree of melting towards the top of the metal resulting in poor edge squareness, top edge rounding or a bevel on the cut edge.

Cut quality can often depend on setup and your application parameters with torch height, cutting speeds compressed air pressures along with the user abilities to maintain these during the cutting process.

To help understand cut quality, it is best that the characteristics of the finished cut are looked at in close detail, the image adjacent will help explain this.



Cutting or torch angle

Generally when cutting with a plasma torch, the torch should be held perpendicular to the piece being cut.

Stand off distance

The distance between the torch tip and the work piece during the cutting process will have an effect on the bevel angles. The greater the distance, the greater the bevel angle will be. Typically, smaller hand cutting systems (40 amps and under) are designed to drag the tip on the plate.

For higher amperage hand cutting systems, use of a drag shield cup, a standoff guide or a cutting guide will help keep a consistent tip to work distance for best results.

Kerf width

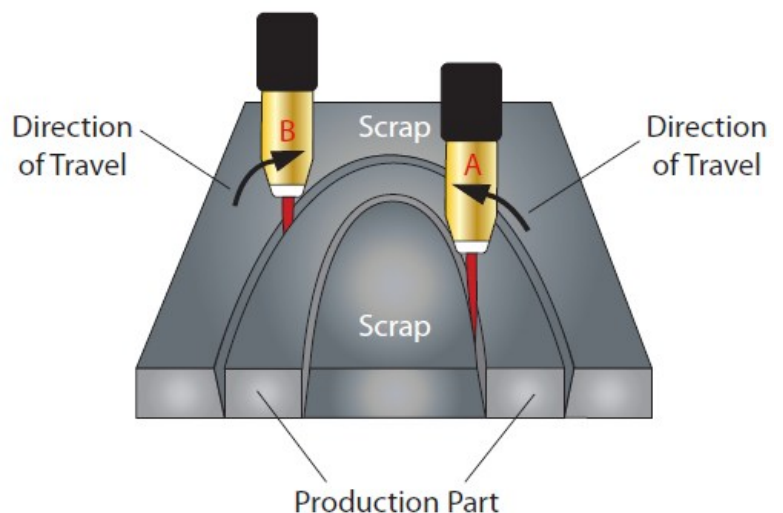
While plasma cutting a void is left behind which is called the kerf in the material being cut.

Bevel angle

In an ideal cut, the bevel angle or angle of the cut surface would be perfectly square. The plasma cutting process does result in a slight angle which is called a bevel angle, on both the cut and scrap side of the work piece. This is why direction of cut is important. When the plasma gas flows, it has a swirling action as it leaves the cutting tip's orifice. This swirl is generally in a clockwise direction which results in one side of the material being cut being squarer than the other. This means it is very important to consider the travel direction in relation to the piece being cut.

In the image adjacent, a circle shaped object is being cut. The inside cut (A) is performed in the anti-clockwise direction and the outside cut (B) is done in a clockwise direction.

So remember, if you are making a circular cut and plan to keep the inside round piece as your finished work, move in a clockwise direction. If you plan to keep the piece from which the circle was cut from then move in an anti-clockwise direction.



Jasic Plasma Cut MC-125 & MC-160 Circle Cutting Guide Kit – Part number 51865.

CUT QUALITY

Dross

The formation of dross on the bottom of the plate can be caused when cutting parameters such as speed, amperage, arc voltage, gas pressure/flow and type of gas are not correct for the metal type and thickness being cut.

Most commonly, incorrect cutting speeds are to blame for excessive dross.

High cutting speeds can result in high speed dross that can be very hard to remove without grinding.

Low speed dross can be easily removed with a brush or chip hammer.

Top edge rounding

This is when the top edge of the cut face has eroded away and is not square which is created from the plasma cutting process. It is generally caused when cutting with excessive current or standoff distance.

This can be a common occurrence when cutting thickness materials.

TYPICAL CUTTING SPEEDS

Cutting speeds can vary according to power source output, cutting table quality, material thickness along with material type being cut as well as the operators skill set.

Travel Speed are noted by the trail of the arc which is seen below the plate. This arc is noted as one of the following:

- A. straight arc is perpendicular to the workpiece surface. This arc is generally recommended for the best cut using air plasma on stainless or aluminium.
- B. The leading arc is directed in the same direction as torch travel. A five degree leading arc is generally recommended for air plasma on mild steel.
- C. The trailing arc is directed in the opposite direction as torch travel.

Speeds shown below are offered as a guide only for our Jasic hand cutting systems using compressed air, cutting mild steel material with the stated output currents ensuring that the cutting tip fitted matches the stated amperages.

Material Thickness	45A (mm/min)	65A (mm/min)	85A (mm/min)	105A (mm/min)	125A (mm/min)	160A (mm/min)	Air Pressure (Bar/PSI)
1.0 mm	5000	6000	7000	8000	9000	10000	5 - 6 / 72 - 87
1.5 mm	4000	5000	6000	7000	8000	9000	5 - 6 / 72 - 87
2.0 mm	3000	4000	5000	6000	7000	8000	5 - 6 / 72 - 87
3.0 mm	2000	3000	3500	4500	5500	6500	5 - 6 / 72 - 87
4.0 mm	1500	2200	2800	3500	4200	5000	5 - 6 / 72 - 87
5.0 mm	1000	1800	2200	2800	3500	4200	5 - 6 / 72 - 87
6.0 mm	800	1500	1800	2300	2800	3500	5 - 6 / 72 - 87
8.0 mm	600	1200	1500	1800	2200	2800	5 - 6 / 72 - 87
10.0 mm	400	900	1200	1500	1800	2200	5 - 6 / 72 - 87
12.0 mm	-	700	900	1200	1500	1800	5 - 6 / 72 - 87
15.0 mm	-	500	700	900	1200	1500	5 - 6 / 72 - 87
20.0 mm	-	-	500	700	900	1200	5 - 6 / 72 - 87
25.0 mm	-	-	350	500	700	900	5 - 6 / 72 - 87
30.0 mm	-	-	-	400	500	700	5 - 6 / 72 - 87
35.0 mm	-	-	-	300	400	500	5 - 6 / 72 - 87
40.0 mm	-	-	-	-	300	400	5 - 6 / 72 - 87

UPM-160 MACHINE TORCH BREAKDOWN

The Jasic Plasma Machine Torch Options:

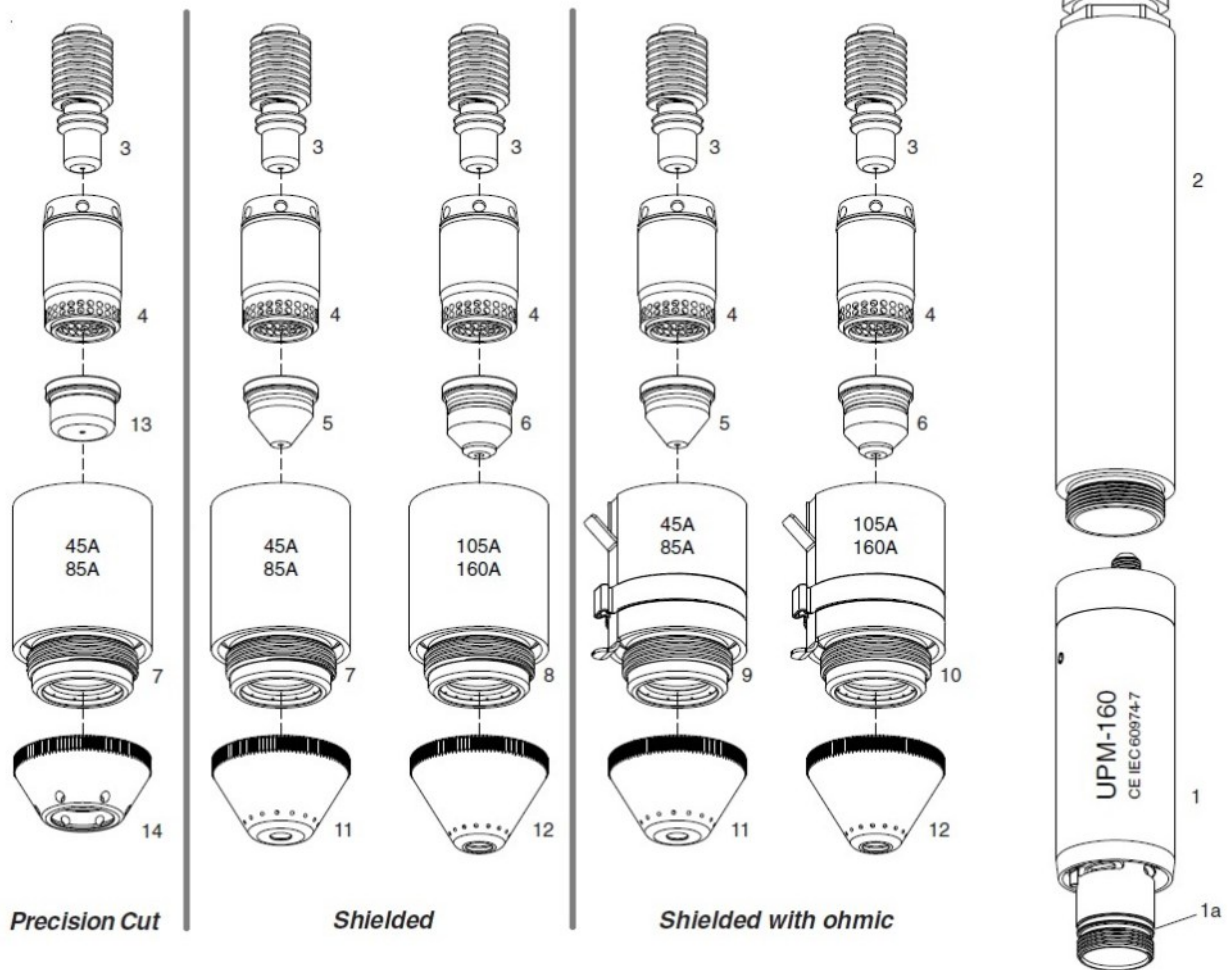
UPM-160 6m Euro - Pt No 03931CX

UPM-160 12m Euro - Pt No 03936CX



Torch Technical Data

Current:	30-160 Amps
Duty Cycle:	160 Amps at 60%
Gas:	Air/N2
Gas Pressure:	Cutting: 72-87 PSI (5.0-6.0 bar)
Gas Flow at 160A:	850 SCFH (420 lpm)
Post Flow Time:	45 sec.
Pilot:	Electrode to Tip (22-25)
Ignition:	Blow Apart (without HF)



Note:

Hand tighten only when fitting the shield cup body to the torch head. **Do not overtighten this cup.**

If you feel any resistance when fitting the cup ensure that the threads are all OK or if the torch head 'o' ring requires lubricating before proceeding.

When operating the plasma torch, a small flow of compressed air vents through the gap between the shield cup body and the torch handle and this is normal operation.

Do not attempt to overtighten or force the shield cup body to reduce or close the gap as you may damage the torch head and as a result experience no or erratic pilot arc starting which could cause internal components damage as well.

Please Note:

Configuration above can be used for the MC-125 and MC-160 Jasic Plasma Machines

The JASIC MAX MC-125 & MC-160 PLASMA MACHINE UPM-160 MACHINE TORCH CONSUMABLE BREAKDOWN



Item No	Part Number	Description	Pack Qty
1	03910	UPM-160 180° Torch Head	1
1A	03900.60	Torch head 'O' Ring	1
2	03916	Fibreglass Positioning Tube	1
3	52678	Electrode	5
4	60039	Swirl Ring	1
5	51420	Cutting Tip 45A	10
5	51421	Cutting Tip 65A	10
5	51422	Cutting Tip 85A	10
6	51425	Cutting Tip 105 - 125A	10
6	51426	Cutting Tip 160A	10
7	60311TA	Shield Cup Body 45-85A	1
8	60311TB	Shield Cup Body 105-160A	1
9	60311TA	Shield Cup Body, 45-85A Ohmic	1
10	60311THB	Shield Cup Body, 105-160A Ohmic	1
11	60311THA	Shield Cap (Machine) 45-85A	1
12	60311THB	Shield Cap (Machine) 105-160A	1
13	60033	Swirl Ring - Precision Cut (Hand)	5
14	51428	Cutting Tip 30-45A - Precision Cut	10

Note:

Hand tighten only when fitting the shield cup body to the torch head. **Do not overtighten this cup.**

If you feel any resistance when fitting the cup ensure that the threads are all OK or if the torch head 'o' ring requires lubricating before proceeding.

When operating the plasma torch, a small flow of compressed air vents through the gap between the shield cup body and the torch handle and this is normal operation.

Do not attempt to overtighten or force the shield cup body to reduce or close the gap as you may damage the torch head and as a result experience no or erratic pilot arc starting which could cause internal components damage as well.

Please Note:

Configuration above can be used for the MC-125 and MC-160 Jasic Plasma Machines

CNC REMOTE CONTROL SOCKET

Jasic MAX MC-125 & MC-160 Plasma CNC Connections

14 Pin CNC Control Socket Layout

Pin 3: Remote Start/Stop

Pin 4: Remote Start/Stop

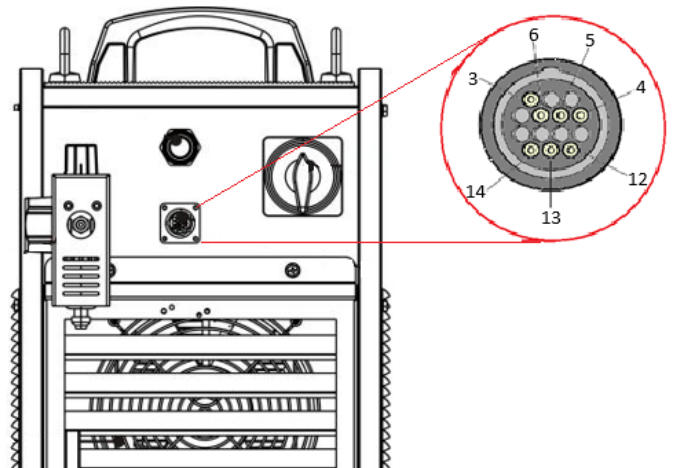
Pin 5: Divided Arc Signal output -

Pin 6: Divided Arc Signal output +

Pin 13: Ground Connection

Pin 12: OK to move signal

Pin 14: OK to move signal



Signal	Type	Description	Pin Number
OK to Move Signal (Arc transfer signal to start cutting table torch motion)	Output	Output, provides the OK to move signal output which is normally an open, dry contact closure when the plasma arc transfers	Pin 12 & 14
Start Signal (Initiate plasma arc)	Input	Input, which requires a normally open 'dry' contact closure to activate the plasma	Pins 3 & 4
Divided Arc Signal Output *	Output	Output voltage, which provides the divided arc (OCV) output voltage for a plasma torch height controller (THC). The factory divided voltage options are 50:1, 30:1 and 20:1 **	Pins 5 & 6
Ground	-	Ground connection	Pin 13
The 14 pin CNC plug part number is: 51006273			

* Prior to any CNC installation, always check the internal divided arc setting to ensure its correctly set for your THC table controller and installation!

** Factory setting for the divided arc voltage is 50:1



The following operation requires sufficient technical knowledge on electrics and comprehensive safety knowledge. Ensure the input cable of the machine is disconnected from the electricity supply and then wait for 5 minutes before removing the machine covers.

To set the Jasic Plasma's divided arc voltage to be compatible with a CNC tables Torch Height Controller (THC) you will need to have a technician remove the covers of either the MC-125 or the MC-160 plasma machines, locate the DIP switch and switch the link to the desired setting that matches the torch height controller installed on your cutting table.

Please NOTE: For further information or assistance please contact your supplier.

MAINTENANCE



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.

In order to guarantee that your cutting and welding machine works efficiently and in safety, it must be maintained regularly. Operators should understand the maintenance methods and means of cutting and welding machine operation.

This guide should enable customers to carry out simple examination and safeguarding by oneself, try to reduce the fault rate and repair times of the welding and cutting equipment, so as to lengthen the service life of your plasma machine.

Period	Maintenance item
Daily examination	Check the condition of the machine, mains cables, welding cables and connections. Check for any warnings LEDs and machine operation. Check the torch consumable condition and replace if worn. Check the compressor air supply and adjust as required.
Monthly examination	Disconnect from the mains supply and wait for at least 5 minutes before removing the cover. Check internal connections and tighten if required. Clean the inside of the machine with a soft brush and vacuum cleaner. Take care not to remove any cables or cause damage to components. Ensure that ventilation grills are clear. Check inline air filters. Check compressor air inlet filters Carefully replace the covers and test the unit. This work should be carried out by a suitably qualified competent person.
Yearly examination	Carry out an annual service to include safety check in accordance with the manufacturers standard (EN 60974-1). This work should be carried out by a suitably qualified competent person.

Please note:

Do not use compressed air to blow the dirt/dust out of the power supply or compressor unit.

- Your air supply must be free of moisture, water, oil or any other contaminants. Excessive water or oil may cause double arcing, excessive electrode/tip wear or even torch head failure. Any contaminants will also cause poor cut quality and shorter consumable life.
- When starting the pilot arc, ensure you keep the pilot arc time to a minimum to avoid excessive wear on the cutting tip.
- Do not overtighten the electrode when fitting a new set of consumables. Over tightening may cause damage to the head thread, the tip not to seat correctly
- Only use the supplied or recommended 'O' ring lubricant or grease for your plasma torch head, using the wrong lubricant which cannot withstand high temperatures could cause damage to the plasma torch head.

TROUBLESHOOTING



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 any welding and cutting machines are dispatched from the factory, they have already been checked thoroughly. The machine should not be tampered with or altered. Maintenance must be carried out carefully. If any wire becomes loose or is misplaced, it may be potentially dangerous to the user!

There are dangerous voltages present within this plasma power supply unit. Only professionally trained maintenance personnel should repair the machine!

Ensure the power is disconnected before working on the machine. Always wait 5 minutes after power switch off before removing the panels.

Description of fault	Possible cause
Mains power switch is on, although the power indicator doesn't light up.	Check input power that it is turned on. Check the input power fuse. Check the input cable plug and connections. Check the ON/OFF switch for function and continuity.
Primary power switch is on, but the cooling fan does not work.	Check fan is not being blocked by debris. Check fan for functionality. Check fan supply.
No air flow at torch when either torch trigger is pressed or air purge switch is activated.	Check the compressor. Check all the input air connections and fittings. Internal connection is disconnected or loose. Check the purge switch for functionality.
Overheat error code is lit.	Machine operated outside duty cycle, allow the machine to cool and the unit will reset automatically. Fan not working - check for obstruction blocking the fan.
Nothing happens when plasma torch switch is closed	Check and test the plasma torch and leads (switch circuit)
Pilot arc does not initiate when the torch switch is activated.	Gas pressure too low to the machine. Check and replace the torch consumables.
The pilot arc extinguishes soon after igniting	Check and replace the torch consumables. Check and adjust the air pressure. Check and if required drain any water build up in the filter cup of the regulator on the rear panel.
Pilot arc is ON but the cutting arc will not establish	Work cable not connected to work piece or damaged/broken. Check and replace the torch consumables.
Panel displays E30 when power fault indicator on the panel illuminates.	Check the input voltage for being remains too low. If the input voltage is within specification and the alarm persists, contact an approved technician.
Panel displays E80 when low pressure indicator on the panel illuminates.	Check to ensure that gas supply line is connected to gas source and is opened. Check if gas supply line has leakage and verify the inlet pressure.

TROUBLESHOOTING ERROR CODES



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 any welding and cutting machines are dispatched from the factory, they have already been checked thoroughly. The machine should not be tampered with or altered. Maintenance must be carried out carefully. If any wire becomes loose or is misplaced, it may be potentially dangerous to the user!

There are dangerous voltages present within this plasma power supply unit. Only professionally trained maintenance personnel should repair the machine!

Ensure the power is disconnected before working on the machine. Always wait 5 minutes after power switch off before removing the panels.

Error Code	Categories	Alarm mode	Causes	Measures
E10	Over current	The panel displays E10. The alarm light on the panel comes on. While the error is active, the machine will not	The load current is too big or the over-current protection of the main power device	Restart the device after shutting it down. If the phenomenon cannot be eliminated, shut it down and contact the professional maintenance personnel.
E10	Over current	The panel displays E10. The alarm light on the panel comes on. While the error is active, the machine will not	The load current is too big or the over-current protection of the main power device	Restart the device after shutting it down. If the phenomenon cannot be eliminated, shut it down and contact the professional maintenance personnel.
E80	The gas pressure is abnormal.	The panel displays E80. The alarm light on the panel comes on. While the error is active, the machine will not function.	Lack of or no air pressure at the machine. The gas pressure sensor circuit is faulty.	Check whether the gas pressure at the gas inlet of the machine is at least 6bar. If the input pressure is good, then check the gas pressure switch for correct function. Then, observe whether the gas shortage indicator is off. If it is off although cutting can still not be performed, please contact your product supplier.

TROUBLESHOOTING - PLASMA CUTTING PROBLEMS

The proper installation, application and operation of plasma arc cutting equipment can save many man hours and reduce costs which will give you the promised cut quality and longer consumable parts life.

Cut quality issues or poor consumable life are generally the most experienced problems seen with plasma cutting systems and more often than not are caused by the same thing, for example, low or too high air pressure, low air flow, water or oil in the supply airline will all give you poor cut quality and premature consumable wear. It's often difficult to diagnose cutting issues without understanding the machines use and setup and there are various questions that need to be asked to be able to give the best advice.

Below is listed a few pointers to help you on your way to obtaining consistently good cut quality:

- Ensure your mains power supply is suited to the plasma cutting machines specifications.
- Ensure the supplied gases or air supply is in keeping with the requirements of the plasma machine.
- Ensure your plasma machines amperage setting matches the amperage of the cutting tips.
- Clean and service the plasma machine and torch regularly, it is important that the operator watch the torch for signs of contamination or worn consumables being used.

Problem	Possible cause	Suggested action
Excessive use of consumables (short life time of consumables)	Low air pressure or low air flow (or too high)	Check for low air pressure to the plasma machine (low flow can be caused by a long air hose with a small internal diameter or leaks). Ensure your compressor is set to deliver the correct CFM as detailed in the plasma owner's manual and can keep this level maintained during your cutting operation (consider other equipment being used on the same airline).
	Contaminated gas or excessive moisture in the air supply	Use suitable airline filters or air dryers and service the devices as required as per the user manual. If using a compressor, ensure the receiver is drained regularly.
	Drag cutting at high amperages	Refer to the torch spare parts of this manual for the correct use of cutting tips and their amperage ratings.
	Dragging the cutting tip against a metallic straight edge	Ensure you use a non-metallic straight edge to guide the torch along.
	Excessive piloting	Keeping the pilot arc maintained will erode the consumables much faster than when cutting, keep piloting to a minimum.
Poor cut quality	Improper travel speed	Check the cutting guide chart (page 35) for the correct settings for the material being cut.
	Cutting amps not correct	
	Stand-off height not correct	
	Using incorrect torch consumables	Refer to the plasma spare parts breakdown on from page 28 of this user manual for the correct consumable configuration for the application.
	Worn consumables	Check and replace as necessary.
	Plasma not delivering enough output current	Have a technician check the output current of the plasma to ensure it is meeting demand.
	Incorrect air pressure or air flow to the machine	Check machines air demand specifications, refer to page 22 within this user manual to ensure the air supply meets the minimum requirements.

TROUBLESHOOTING - PLASMA CUTTING PROBLEMS

Common Plasma Cutting complaints regarding poor cut quality or excessive consumable wear

When troubleshooting plasma cutting machine cut performance, generally, the problem is often associated with consumable/machine setup, application or the machines installation.

A concern for some operators, is excessive/premature consumable wear which can be caused by a number of factors and listed below most causes for consumables wearing out too quickly are usually associated with the following....

- Moisture in the air, which is created by the compressor
- Low air pressure and or low air flow
- Dragging the cutting tip against a metallic straight edge
- Using the incorrect consumable configuration for the application
- Worn out spacer for contact cutting... hole dimension has been enlarged etc
- Excessive wear on the tip orifice, enlargement of the tip at its rated current causes improper gas flow rates
- Excessive electrode wear, causing premature wear on the cutting tip orifice
- Long supply air hose with too small internal (ID) bore size!
- Incorrect distance between cutting tip and material being cut
- Incorrect pierce practice or cutting spatter going back and hitting the cutting tip/electrode

To help establish a cause, please consider the following:

- ◆ Length of plasma torch lead?
- ◆ Does the preset current on the machine control panel match the cutting tip installed in the torch
- ◆ Does the actual amps while cutting, match the preset amps set (use clamp on ammeter)?
- ◆ Are the consumables discoloured i.e. blackened etc? if yes then low air flow could be the cause.
- ◆ Has the mains supply to the machine in question been checked by an electrician?
- ◆ What material is being cut, is the material capable of being cut via the plasma process.
- ◆ What is the thickness of material being cut? Is this material too thick for the plasma machine being used.
- ◆ Length of the average cut? Is the machines or the plasma torch's duty cycle being exceeded
- ◆ Are you using a metallic straight edge to cut with?
- ◆ Could the cutting tip be touching the material being cut (even accidentally)
- ◆ Capabilities of the compressor:
 - ⇒ Air pressure to machine? (Has this been checked or just guessed?)
 - ⇒ Air pressure set on the plasma machine (when in stand by and when cutting and does the air pressure drop?)
- ◆ Is the cut of the material:
 - ⇒ Straight, rough or angled
 - ⇒ Is there much dross on the underneath of the material being cut

TROUBLESHOOTING - PLASMA CUTTING PROBLEMS

Common Plasma Cutting complaints regarding poor cut quality or excessive consumable wear

When trying to establish fault causes with Plasma machines, in my experience its often associated with user error in regards to consumable setup, application or the machines installation.

To recap, here are the more popular plasma cutting tips to consider:

- Always use the correct configuration of consumables.
- Always ensure the air supply is set correctly on the gauge, to low or too high will effect cut quality and consumable life.
- Using the wrong amperage setting to cutting tip size will again effect the cut quality and consumable life.
- Touching down with an exposed tip when cutting will either destroy or wear your consumables out very quickly, normally only under 30amps is the only way to contact cut with a cutting tip!

Double Arcing

Double arcing is a phenomenon that can effect consumable life when cutting and is a condition which allows the cutting tip to stay in the plasma circuit. The cutting tip should only be electrical active in the circuit during pilot arcing and when the main cutting arc is engaged the cutting tip acts only as a plasma stream guide, but if its reintroduced into the circuit while cutting the cutting amperage will destroy the cutting tip and many of the arrowed bulletin points above can possibly cause double arcing.

It could be caused by the pilot current being too high although it would have to be very high to destroy the tip quickly as cutting current is much higher than pilot current (a clamp-on type ammeter should always be used to check output cutting currents, although to check the pilot arc current you will need to go inside the machine, and to do this will require the skills of a qualified technician to do so).

What is also very important to consider, is to use the correct sized cutting tip compared to cutting amperage and material thickness etc.

With the Cut MC-125 & MC-160 machines, the UPH-125 and the UPH-160 torch consumable range configurations are quite extensive.

First, you also have the choice to setup the machine up with 3 different consumable configurations:

- a) Stand-off consumables,
- b) Standard drag consumables and
- c) Extended drag consumables

Then match the cutting tip with machine cutting amperage and material thickness, see from pages 28 to 31 for further details.

WEEE 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 and United Kingdom's Directive The Waste Electrical and Electronic Equipment (WEEE) regulations 2013 states that electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.

Jasic has a relevant recycling system which is compliant and registered in the UK with the environment agency. Our registration reference is WEEMM3813AA.

In order to comply with WEEE regulations outside the UK you should contact your supplier.

RoHS Compliance Declaration

We herewith confirm, that the above mentioned product does not contain any of the restricted substances as listed in EU Directive 2011/65/EU and the UK directive ROHS Regulations 2012 in concentrations above the limits as specified therein.

Materials and their disposal



Welding equipment is manufactured with BSI published standards meeting CE requirements for materials which do not contain any toxic or poisonous materials dangerous to the operator. Do not dispose of the equipment with normal waste.



The European Directive 2012/19/EU on Waste Electrical and Electronic Equipment states that electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility for disposal.

For more detailed information please refer to the HSE website www.hse.gov.uk

Disclaimer:

Please note that this confirmation is given to the best of our present knowledge and belief.

Nothing herein represents and/or may be interpreted as warranty within the meaning of the applicable warranty law.

EC Declaration of Conformity



EU Declaration of Conformity

The manufacture or its legal representative Wilkinson Star Limited declares that the equipment listed described below is designed and produced according to the following EU directives:

Low Voltage Directive (LVD)	2014/35/EU
Electromagnetic Compatibility Directive (EMC)	2014/30/EU
ROHS2.0:	2011/65/EU
Annex 11 of RoHS2	2015/863
Eco Design Requirements for Welding Equipment Pursuant 2009/125/EC	2019/1784

Inspections in compliance with the following standards were applied:

EN 60974-1:2018 + A1:2019
EN 60974-10:2014 + A1:2015
EN 62822-1:2018

Any alterations or change to these machines by any unauthorised person makes this declaration invalid.

Wilkinson Star Model

MC-125
MC-160

Jasic Model

CUT 125 L312II
CUT 160 L316II

Authorised Representative

Wilkinson Star Limited
Shield Drive, Wardley Industrial Estate,
Worsley, Salford, M28 2WD.
Tel: +44 161 793 8127

Signature:

Dr John A Wilkinson OBE

Position:

Date:



Manufacture

Shenzhen Jasic Technology Co Ltd
No3 Qinglan, 1st Road,
Pingshan District,
Shenzhen, China.

Signature:

Shenzhen Jasic Technology Co Ltd

Position: Deputy Director of INTL Business

Date: 11th Feb 2025



Company Stamp

Company Stamp

Authorized representative established within the EU: JTE S.R.L Via Fogazzaro CAP 36030 Calogno (VI) Vicenza Italy

STATEMENT OF WARRANTY

All new JASIC welders, plasma cutters and multi-process units sold through our partner Wilkinson Star Limited within the United Kingdom and Ireland shall be warrantied to the original owner, non transferable, against failure due to defective materials or production. The original invoice is documentation for the standard warranty period. The warranty period is based on a single shift pattern.

Defective units shall be repaired or replaced by the company at our workshop. The company may opt to refund the purchase price (less any costs and depreciation due to use and wear). The company reserves the right to alter the warranty conditions at any time with effect for the future.

A prerequisite for the full warranty is that products are operated in accordance with the operating instructions supplied, observing the relevant installation and any legal requirements recommendations and guidelines and carrying out the maintenance instructions shown in the operator manual. This should be carried out by a suitably qualified competent person.

In the unlikely event of a problem, this should be reported to Jasic technical support team to review the claim.

The customer has no claim to loan or replacement products whilst repairs are being performed.

The following falls outside the scope of the warranty:

- Defects due to natural wear and tear
- Failure to observe the operating and maintenance instructions
- Connection to an incorrect or faulty mains supply
- Overloading during use
- Any modifications that are made to the product without the prior written consent
- Software errors due incorrect operation
- Any repairs that are carried out using non-approved spare parts
- Any transport or storage damage
- Direct or indirect damage as well as any loss of earnings are not covered under the warranty
- External damage such as fire or damage due to natural causes e.g. flooding

NOTE: Under the terms of the warranty, welding torches, their consumable parts, wire feed unit drive rolls and guide tubes, work return cables and clamps, electrode holders, connection and extension cables, mains and control leads, plugs, wheels, coolant etc. are covered with a 3 month warranty.

Jasic shall in no event be responsible for any third party expenses or expenses/costs or any indirect or consequential expenses/costs.

Jasic will submit an invoice for any repair work performed outside the scope of the warranty. A quotation for any non warranty will be raised prior to any repairs being carried out.

The decision about repair or replacement of the defective part(s) is made by Jasic. The replaced part(s) remain(s) Jasic property.

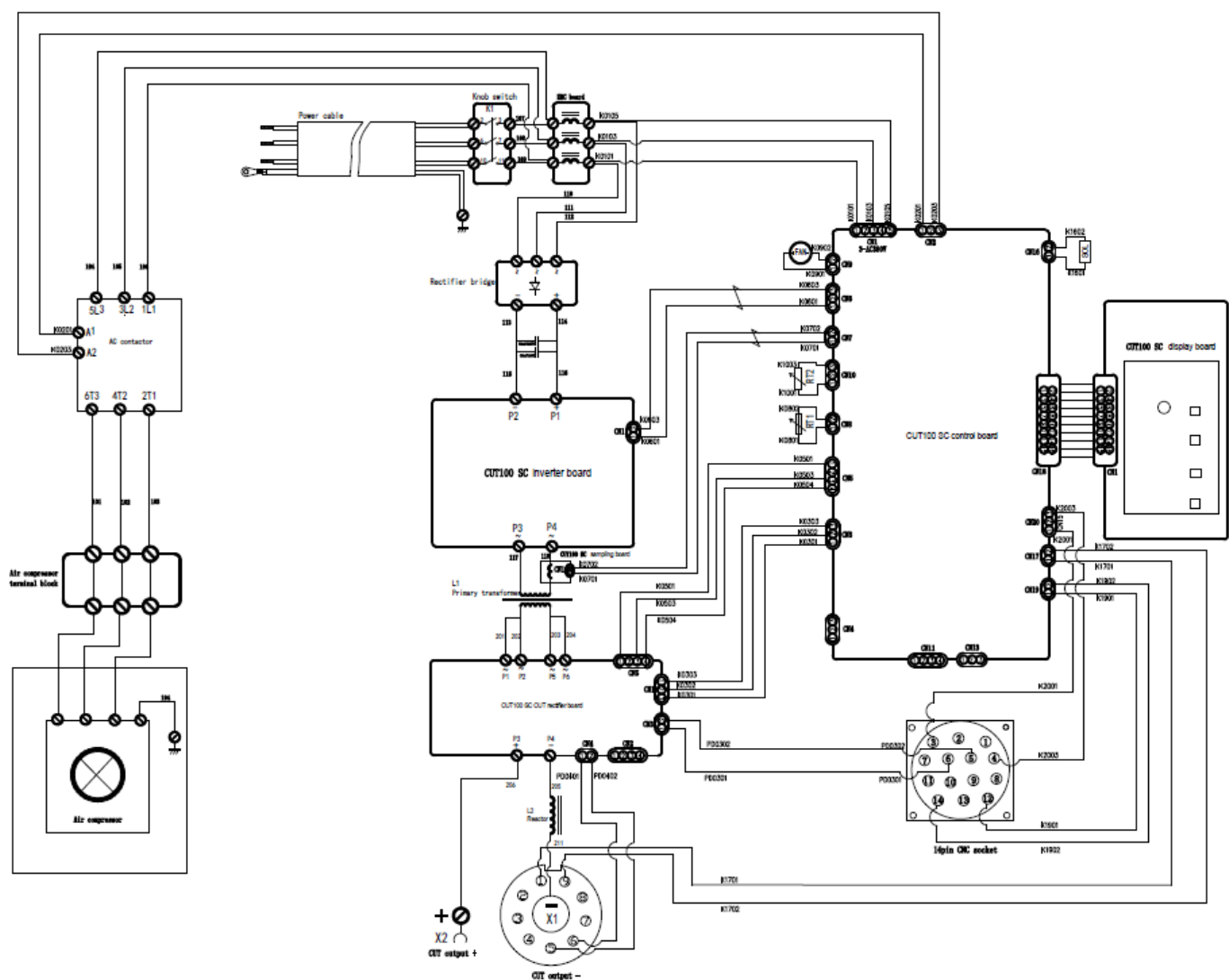
Warranty extends only to the machine, its accessories and parts contained inside. No other warranty is expressed or implied. No warranty is expressed or implied in regards to the fitness of the product for any particular application or use.

For further information on Jasic product warranty terms and product warranty registration please visit:

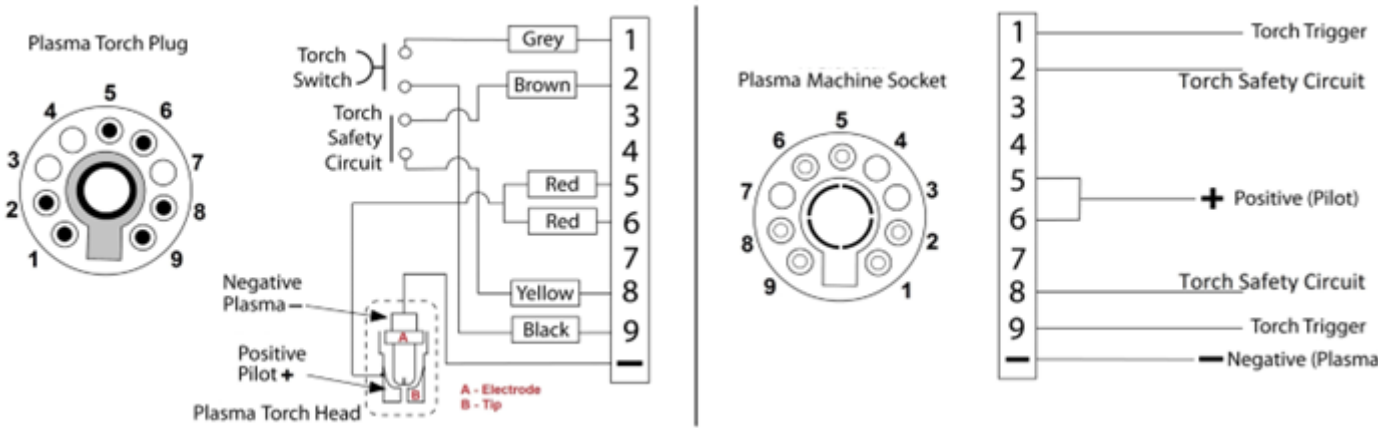
www.jasic-warranty.co.uk/terms

www.jasic-warranty.co.uk

SCHEMATIC



PLASMA TORCH SOCKET



NOTES

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook or legal stationery. There are no margins, text, or other markings on the page.

