



Safe System
Of Work &
Risk
Evaluation

Plasma Cutting

Plasma Cutting

Revision II 20/04/2015

*Be Safe When
Cutting*



SAFE SYSTEM OF WORK – PLASMA CUTTING

(Please note: This is a generalised safe system of work and it should be adapted to suit your own operations and systems - this is a good starting point for your own risk assessments)

RISKS

There are significant health and safety risks that can arise from plasma cutting processes, the most prominent are detailed below:

- **Intense ultra violet and infrared radiation**
- **Fumes from the cutting process**
- **Heat**
- **Electric shock**
- **Electromagnetic Radiation**
- **Ignition of combustible or explosive material**
- **Unauthorised use**
- **Danger from potentially pressurised pipes, vessels and live cables**

INTENSE ULTRA VIOLET AND INFRA RED RAYS

The operator should always wear suitable eye protection and ensure other observers' eyes are also protected.

Post signs to warn other people of the visual danger from the operation or work in a restricted area.

Heat

Use appropriate gloves, clothing and footwear during all cutting processes.

Always point the torch into a safe area before pulling the trigger. If fitted the pilot arc will start instantaneously and can cause severe burns if contact is made with the user.

Electric Shock

Always turn the machine power off before servicing the cutting torch.

Check the mains plug and cable for damage before the power is turned on. Rectify any defects before using the machine.

Ensure colleagues are aware of how to deal with a person suffering from electric shock.

ELECTROMAGNETIC RADIATION

Any person fitted with a heart pacemaker or other electronic artificial life support system must not be permitted to be closer than 5m of any operational electrical cutting equipment.

Fumes

Only use the equipment in a well-ventilated area and if necessary wear appropriate respiratory equipment.

IGNITION OF COMBUSTIBLE MATERIAL

Combustible materials are not to be used, stored or allowed to accumulate in the welding/cutting area. Sparks and molten metal from the cutting process can travel a significant distance.

UNAUTHORISED USE (IndustriCut 80/100/120 only – optional on other models)

When you leave the machine unattended remove the safety lock key in addition to turning off the machine.

DANGER FROM PIPES, VESSELS AND CABLES

Ensure any pipework to be cut is free from chemical contamination. Some chemical elements could explode or create noxious fumes when heated to plasma cutting temperatures.

Ensure any vessel or cylinder to be cut does not contain any flammable gas, fuel or could be pressurised before cutting.

Avoid working near to cables which may be live.

Keep the machine power cables and torch power connection away from the cutting area.

RISK EVALUATION AND PRECAUTIONS FOR WELDING AND CUTTING OPERATIONS

(Please note: This is a generalised risk evaluation and it should be adapted to suit your own operations and systems – it is a good starting point for constructing your own risk assessment)

The potential risks from welding or cutting operations are identified as follows:

- **Intense ultra violet radiation and Infrared rays**
- **Fumes**
- **Heat**
- **Electric Shock**
- **Electromagnetic radiation / Strong magnetic fields**
- **Ignition of combustible material**
- **Compressed Air**

The following safety precautions have been taken by the Company to overcome or mitigate the risks involved with electrical welding or cutting operations:

INTENSE ULTRA VIOLET RADIATION AND INFRA RED RAYS

To protect from intense visible and ultraviolet light safety glasses or a helmet should be used with an appropriate filter lens to reduce the light intensity and protect the face and eyes from the heat generated in the processes.

FUMES

A method of reducing or eliminating exposure of the user to fumes should be considered, this could be respiratory equipment, plasma cutting in a well ventilated area or controlled extraction.

HEAT

Appropriate clothing and gloves should be worn during all welding and cutting processes.

ELECTRIC SHOCK

An electric shock can be fatal - The power supply to the machine must be switched off before adjustment or servicing is carried out on the torch to prevent accidental contact with the spark or cutting power source – the user should not make contact with the work piece or connected metal whilst cuts are made – insulating gloves should be worn when plasma cutting.

Most welding plant is classified as Class 1 Moveable Equipment and in an industrial environment there is a **legal requirement that user checks** are made each time before the equipment is used.

ELECTROMAGNETIC RADIATION

Regulations state that any person fitted with a heart pacemaker or other life support device will not be permitted to be closer than 2 metres of any operational welding or cutting equipment we recommend at least 5 metres.

A warning sign to this effect should be positioned on all entry doors to the welding/cutting area.

IGNITION OF COMBUSTIBLE MATERIAL

Combustible materials are not to be used, stored or allowed to accumulate in the welding/cutting area.

USE OF COMPRESSED AIR

The unit requires a compressed air supply to operate. All pipe work should be kept in good condition and checked regularly for damage.

Air at high pressure can penetrate the skin if directed onto it at close range -this can cause blood clotting and even death. Even at a low pressure compressed air can be dangerous (even fatal) if it is introduced into any orifices of the body.