

# SifWELD®



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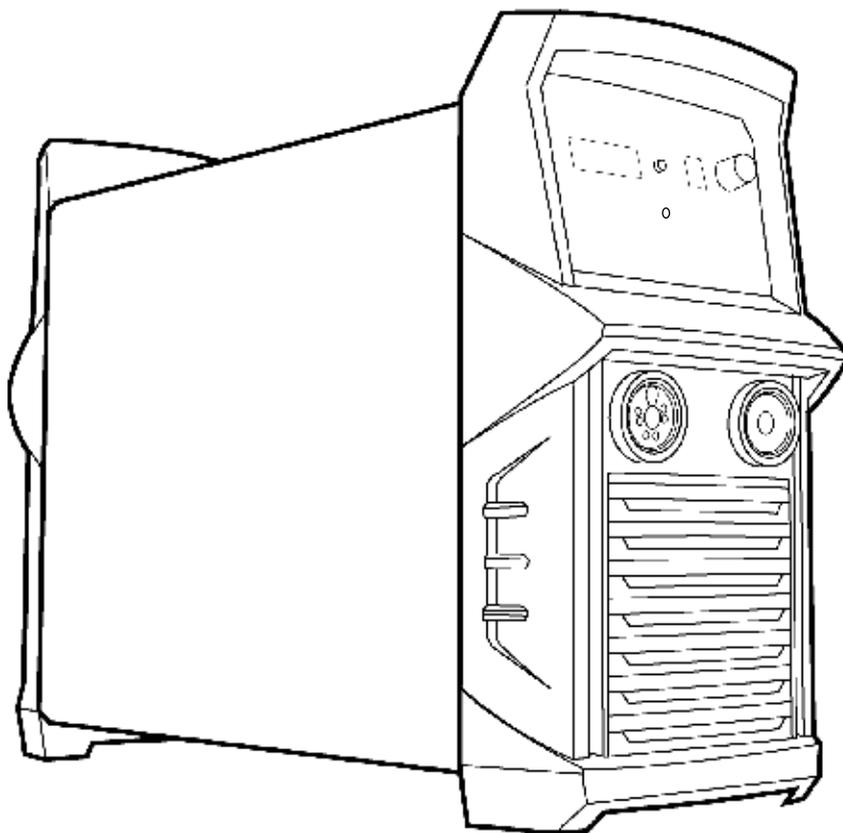
## SifWeld CUT 100

CE  
Approved

PLASMA



## Operation Manual



TSX3P100

## DECLARATION OF CONFORMITY

The Low voltage Directive 2006/95/EC of 12 December 2006, entering into force 16 January 2007  
 The EMC Directive 2004/108/EC, entering into force 20 July 2007  
 The RoSH Directive 2011/65/EC, entering into force 2 January 2013

### Type of Equipment

Welding power source for MIG/MAG, TIG/TAG, MMA welding

### Brand name or trade mark

SifWeld®

### Type designation etc.

CUT 100

### Manufacturer or his authorised representative established within the EEA

#### Name, address, telephone no, fax no

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### The following harmonised standard in force with the EEA has been used in the design:

EN60974-1- Arc welding equipment- Part 1: Welding power sources  
 EN60974-10 Arc welding equipment - Part 10: Electromagnetic Compatibility (EMC) requirements

Additional information: restrictive use, Class A equipment, intended for use in locations other than residential

**By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorised representative established within the EEA, that the equipment in question complies with the safety requirements stated above.**

Place and Date  
 Letchworth, UK  
 01-04-2015

Signature

Keith Mullan

Position  
 Quality Manager  
 Weldability Sif

### WEEE Directive & Product Disposal

**At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.**



## Safety Guidelines

These general safety guides cover both arc welding machines and plasma cutting machines unless otherwise noted. The equipment must only be used for the purpose it was designed for. Using it in any other way could result in damage or injury and in breach of the safety rules. Only suitably trained and competent persons should use the equipment. Operators should respect the safety of other persons.

### Prevention against electric shock

The equipment should be installed by a qualified person and in accordance with current standards in operation. It is the user's responsibility to ensure that the equipment is connected to a suitable power supply. Consult with your utility supplier if required. If earth grounding of the work piece is required, ground it directly with a separate cable. Do not use the equipment with the covers removed. Do not touch live electrical parts or parts which are electrically charged. Turn off all equipment when not in use. Cables (both primary supply and welding) should be regularly checked for damage and overheating. Do not use worn, damaged, under sized or poorly jointed cables. Ensure that you wear the correct protective clothing, gloves, head and eye protection. Insulate yourself from work and ground using dry insulating mats or covers big enough to prevent any physical contact with the work ground. Never touch the electrode if you are in contact with the work ground, or another electrode from a different machine.

Do not wrap cables over your body. Ensure that you take additional safety precautions when you are welding in electrically hazardous conditions such as damp environments, wearing wet clothing, and metal structures. Try to avoid welding in cramped or restricted positions. Ensure that the equipment is well maintained. Repair or replace damaged or defective parts immediately. Carry out any regular maintenance in accordance with the manufacturer's instructions.

### Safety against fumes and welding gases

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

### Prevention against burns and radiation

Arc rays from the welding process produce intense, visible and invisible (ultraviolet and infrared) rays that can burn eyes and skin. Wear an approved welding helmet fitted with a proper shade of filter lens to protect your face and eyes when welding or watching. Wear approved safety glasses with side shields under your helmet. Never use broken or faulty welding helmets. Always ensure there are adequate protective screens or barriers to protect others from flash, glare and sparks from the welding area. Ensure that there are adequate warnings that welding or cutting is taking place.

Wear suitable protective flame resistant clothing. The sparks and spatter from welding, hot work pieces, and hot equipment can cause fires and burns. Welding on closed containers, such as tanks, drums, or pipes, can cause them to explode. Accidental contact of electrode to metal objects can cause arcs, explosion, overheating, or fire. Check and be sure the area is safe and clear of inflammable material before carrying out any welding.

**Protection against noise**

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

**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 controls only by qualified personnel, after first disconnecting the power supply cable. Replace the coverings and protections and close all doors when the intervention is finished, and before starting the equipment. Take care to avoid getting fingers trapped when loading and feeding wire during set up and operation. When feeding wire be careful to avoid pointing it at other people or toward your body. Always ensure machine covers and protective devices are in operation.

**Precautions against fire and explosion**

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

**Risks due to magnetic fields**

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

**RF Declaration**

Equipment that complies with directive 2004/108/EC concerning electromagnetic compatibility (EMC) and the technical requirements of EN60974-10 is designed for use in industrial buildings and not those for domestic use where electricity is provided via the low voltage public distribution system. Difficulties may arise in assuring class A electromagnetic compatibility for systems installed in domestic locations due to conducted and radiated emissions. In the case of electromagnetic problems, it is the responsibility of the user to resolve the situation. It may be necessary to shield the equipment and fit suitable filters on the mains supply.

**LF Declaration**

Consult the data plate on the equipment for the power supply requirements. Due to the elevated absorbency of the primary current from the power supply network, high power systems affect the quality of power provided by the network. Consequently, connection restrictions or maximum impedance requirements permitted by the network at the public network connection point must be applied to these systems. In this case the installer or the user is responsible for ensuring the equipment can be connected, consulting the electricity provider if necessary.

**Materials and their disposal**

The equipment is manufactured with materials, which do not contain any toxic or poisonous materials dangerous to the operator. When the equipment is scrapped, it should be dismantled separating components according to the type of materials. Do not dispose of the equipment with normal waste. The European Directive 2002/96/EC on Waste Electrical and Electronic Equipment states the electrical equipment that has reached its end of life must be collected separately and returned to an environmentally compatible recycling facility.

**Handling of compressed gas cylinders and regulators**

All cylinders and pressure regulators used in welding operations should be handled with care. Never allow the electrode, electrode holder or any other electrically "hot" parts to touch a cylinder. Keep your head and face away from the cylinder valve outlet when opening the cylinder valve. Always secure the cylinder safely. Never deface or alter any cylinder.



**The following signs and explanations are to remind the user of the potential risks involved and the dangers of misuse or mistreatment of the welding machine.**



**RUNNING PARTS MAY BE DANGEROUS!**  
Keep away from running components, including the fan.



**ELECTRIC SHOCKS CAN KILL!**  
Never touch electrical parts. Keep the equipment in good condition, replace damaged parts, undertake regular maintenance according to the instructions.



**BE AWARE OF SPARKS AND SPATTER**  
Wear protective clothing, such as leather gloves, Flame retardant overalls, boots and eyewear.



**DO NOT TOUCH THERMAL COMPONENTS!**  
Thermal components may cause severe burns when in contact with unprotected skin.

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## 1. Preface

### 1.1 General

#### **Congratulations on choosing your SifWeld plasma cutting machine.**

Used correctly, our products can significantly increase the productivity of your welding, and provide years of economical service. This operating manual contains important information on the use, maintenance and safety of your SifWeld product. Please read the manual carefully before using the equipment for the first time. For your own safety and that of your working environment, pay particular attention to the safety instructions in the manual.

For more information on SifWeld products, contact an authorised SifWeld dealer, or visit the SifWeld website at [www.sifweld.com](http://www.sifweld.com) The specifications presented in this manual are subject to change without prior notice.

#### **Important notes**

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

#### **Disclaimer**

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. We reserve the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission.

## 1.2 Introduction

The SifWeld Cut100 is a professional 100Amp 3ph plasma cutting system designed for hand-held efficient cutting in the heavy fabrication, manufacturing, demolition and general maintenance industries.

Featuring IGBT inverter technology, the SifWeld Cut100 plasma cutter is engineered to consistently deliver heavy-duty cutting performance. This is ideal to cut up to 30mm thick steel. The 6m high-frequency cutting torch ensures exceptionally smooth, clean cuts, and comes with a quick-connect central adapter to ensure effortless connection and cost effective replacement of the torch.

The SifWeld Cut100 can be used to efficiently cut mild and low-alloy steels, stainless, aluminium, copper, titanium and nickel alloys.

### Features

- 100amp cutting power
- High 60% Duty cycle
- 30mm clean cut on steel
- 35mm severance cut on steel
- Industrial quality metal chassis
- High power efficiency
- Low energy consumption
- Clear, vibrant LED display
- High portability
- Optional Trolley

## 1.3 Technical Specifications

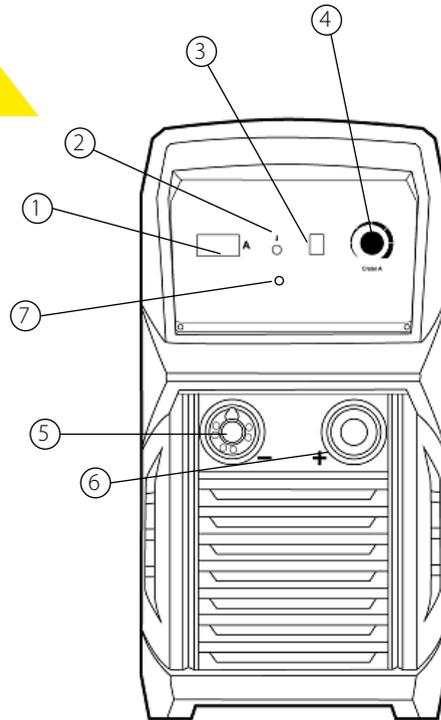
<b>SifWeld CUT 100</b>	
Power supply (V)	400V ±15%
Frequency (Hz)	50/60
Input power supply	3ph
Rated input (KVA)	14.1
Open circuit voltage	280
Amperage range (A)	30-100
Rated Duty cycle (%)	60
Rated working voltage (V)	92-120
Power factor	0.93
Efficiency	0.85
Max cutting thickness (mm)	35
Compressed air pressure required	5.0 bar (72 PSI)
Compressed air flow required	140 - 170 lpm (5 - 6 CFH)
Post flow time(S)	4
Dimensions (LxWxH)(mm)	685 x 295 x 560

## 1.4 Overview of Machine

### Front View

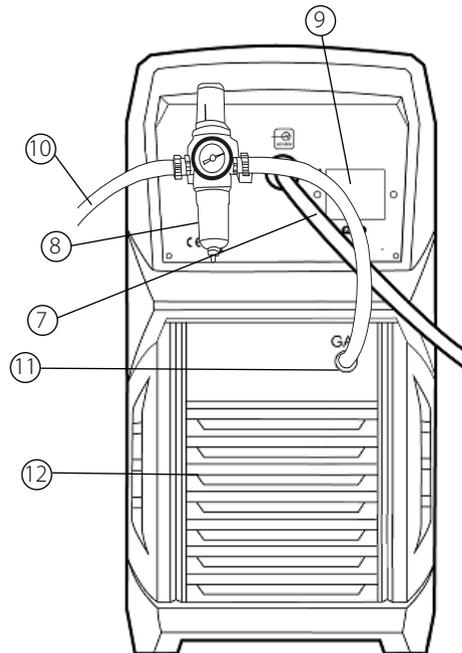
Power Source Front Panel Layout

1. Current Meter
2. Thermal Overload LED
3. 2T - 4T Trigger Switch
4. Current Control
5. Plasma Torch Central Socket
6. Lead Socket Earth
7. Under pressure warning LED



### Rear View

7. Primary Input Cable
8. Gas Flow Regulator
9. Primary Power Switch
10. Air/gas input
11. Regulated air/gas input
12. Cooling fan



## 2. Installation

### Unpacking

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

### Positioning of the machine

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

Notes for positioning the machine

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

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

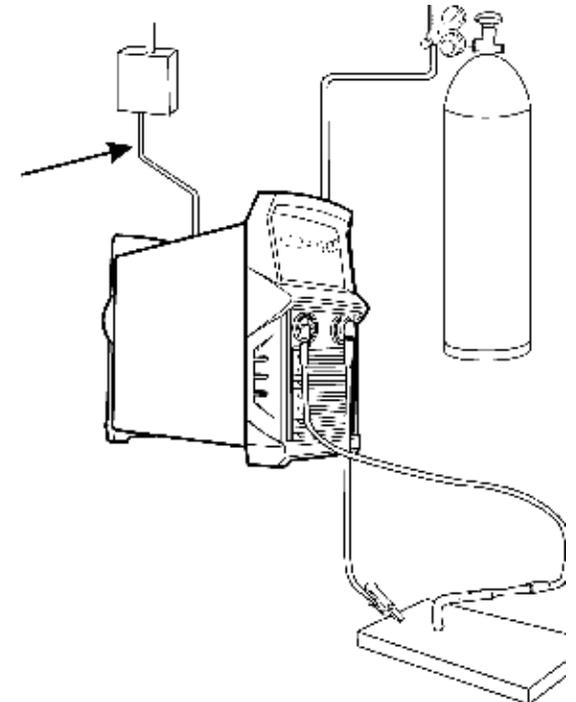
**NOTE!** Never aim metallic grinding spray/sparks towards the equipment.

### Input connection

Before connecting the machine you should ensure that the correct supply is available. Details of the machine requirements can be found on the data plate of the machine or in the technical parameters shown in the manual. The equipment should be connected by a suitably qualified competent person. Always ensure the equipment has a proper grounding. Never connect the machine to the mains supply with the panels removed.

### Working connections

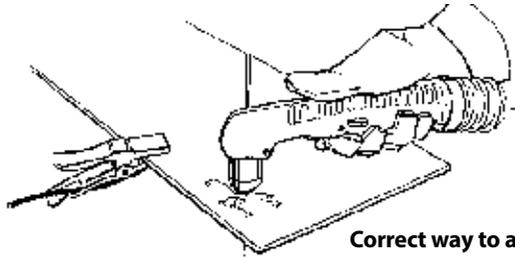
Connect the cutting torch, earth cable and regulator, according to the connection diagram. The gas supply can be either air or nitrogen. A high pressure regulator must be used on either type of gas and must be capable of delivering 155 l/min at a pressure of 72 psi ( 5.0 bar) to the filter. Compressed air supplied by a compressor should be dry and oil free.



# 3. Operation

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

1. Check the connection of the work piece, earth cable, cutting torch, gas cylinder, regulator and hose. Make sure they are firm and reliable. Do not attach earth cable to the portion that will fall away.



Correct way to attach earth clamp

2. Verify that the input gas supply pressure is set to 72psi (5.0 bar).
3. Pull the regulator cap out gradually, and turn the regulator cap to adjust gas pressure to 5.0 bar and push the regulator cap back in.
4. Switch on the power source. Adjust the cutting current knob to desired setting.
5. Place the tip of the torch at the edge of the work-piece and make sure the tip is vertical to the work piece. When piercing, the tip should be at an angle away from the body. After the arc starts, slowly rotate the torch to the upright position. This is to blow the melted metal away and is particularly important when cutting thicker material. Make sure that the torch is pointed away from you and the people near you to avoid any danger from sparks and hot metal. **Push the safety trigger at the side of the torch first, then press the switch to start cutting.**

**CAUTION** Always hold the hand torch away from your body as a precaution against accidental torch firing. Be aware of this hazard. Failure to do so can result in serious bodily injury.

6. Evenly move the torch in the desired direction, at a speed which will ensure good cut quality. When using shielded consumables, drag the torch tip directly on the work piece.
7. Hold the torch lightly on the metal or just above the metal. Holding the torch firmly to the work-piece can cause the shield to stick and makes smooth cutting difficult. Pulling the torch through the cut is easier than pushing it.
8. When the cut is finished, release the torch switch to extinguish the arc.
9. After completing an operation, turn off the gas valve, push torch switch to clear the residual gas in the regulator. Finally, to shut down, turn off the power source and the wall switch.

## Cutting data

Mild steel	Thickness (mm)	Current (A)
<b>Cutting tip SWPD101-11</b>		
	2	30
	4	30
	6	35
	8	40
	10	45
	12	50
<b>Cutting tip SWPD101-14</b>		
	14	50
	16	55
	18	60
	20	60
	25	65
<b>Cutting tip SWPD101-17</b>		
	30	75
	35	85
	40	90
	45	100

## 4. Troubleshooting

If you are unable to address any problems with your plasma cutting machine by following this basic troubleshooting guide or if you need further assistance, contact an authorised SifWeld service centre.

Sympton	Cause	Solution
The penetration of the workpiece and/or cutting quality is poor.	<ul style="list-style-type: none"> <li>• The material thickness is too much.</li> <li>• The cutting speed is too high.</li> <li>• The torch incline angle is too big.</li> <li>• The air compressor pressure is out of the optimum range.</li> </ul>	Cut material within the machine's thickness range. Slow down the cutting speed. Adjust the angle of the torch. Adjust the air pressure via the regulator at the rear of the machine.
The arc extinguishes suddenly during cutting.	<ul style="list-style-type: none"> <li>• The cutting speed is too slow.</li> <li>• The distance from nozzle to work piece is too near/far.</li> <li>• The cutting tip or electrode are worn.</li> </ul>	Increase your cutting speed. Adjust the distance between the torch and the workpiece. Replace the cutting tip or electrode.
Failure of arc to ignite with high frequency.  Input power supply insufficient or lacking a phase.	<ul style="list-style-type: none"> <li>• The torch cable is an open-circuit.</li> <li>• The spark distance from the nozzle to workpiece is too small.</li> <li>• The earth lead has a poor contact to workpiece.</li> <li>• There is water in the air compressed air supply.</li> </ul>	Clear torch connections. Adjust to 2mm. Check earth clamp and plug connections. Check input power supply. Drain water. Provide vapour-free air supply.
The cutter is non-responsive after pushing the torch switch.	<ul style="list-style-type: none"> <li>• The switch or control cable is broken.</li> <li>• The control transformer is broken.</li> </ul>	Connect or replace the torch switch. The transformer will need to be checked and / or replaced.
The working indicator light is permanently illuminated.	<ul style="list-style-type: none"> <li>• The switch or switch terminal is short-circuiting.</li> </ul>	Replace or connect the switch terminal insulated and check insulation.
The machine casing is live.  <b>Note!</b> Switch off machine input power immediately.	<ul style="list-style-type: none"> <li>• An internal lead, cable or live part may be in contact with the casing.</li> <li>• The machine may not be earthing properly.</li> </ul>	Check that all leads and live parts are insulated. Replace insulation if necessary. The casing should be earthed reliably.

## 5. Maintenance

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

### 5.1 Cables

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

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

### 5.2 Power source

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

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

1. Clean the interior of the machine and the fan grills net of any dust and grime stains – for example, with a soft brush and vacuum cleaner.
    - Do not use pressurised air. The contaminant may become compressed into the grooves of the coolers.
    - Do not use a pressure-washing device.
  2. Check the electrical connections of the machine. Clean any oxidised connections, and tighten the loosened ones.
    - Check for the right tension before you start repairing the connections.
- NOTE! Remember that the machine may be repaired only by an electrical contractor or installer trained and authorised to perform such operations.**

### 5.3 Regular maintenance

Authorised SifWeld service centres can perform regular preventative maintenance by agreement. Tasks included in regular maintenance:

- Cleaning of equipment.
- Inspection and maintenance of the cutting torch.
- Checking of connectors, switches, and control knobs.
- Checking of electrical connections.
- Checking of the mains cable and plug.
- Replacement of damaged or worn parts.
- Testing and adjustment of the functions and operational values of the machine, if necessary.
- Check the function of all switches.
- Check that the cooling fan is operating and air is being vented from rear panel.
- Check for abnormal vibration, noise or smell during operation.

# 6. Warranty

Weldability Sif warrants its customers that all new SifWeld manual welding and cutting equipment purchased shall be free of failure from defective materials or production for a period of 2 Years from the date of purchase.

This warranty period can be extended to 5 Years from the date of purchase (including the standard warranty period) for customers in the United Kingdom and Republic Of Ireland; or to 3 Years from date of purchase for customers in all other countries, subject to registration of the product at [www.sifweld.com](http://www.sifweld.com) within the first year of purchase, and undergoing annual preventative maintenance servicing with effect from the second year of ownership.

All warranty periods start from the date of purchase from Weldability Sif or an approved SifWeld distributor to the original end user. The date on the sales invoice is considered the date of purchase for the purpose of the warranty period, or the date of manufacture is used if proof of purchase is not available. Equipment is warranted to the original owner/user customer, and is not transferable.

Subject to the underlying purchase contract, or, failing such, the Weldability Sif general terms and conditions of sale, both the cost of replacement parts and Weldability Sif's labour expense in correcting defects covered by the warranty, will be assumed by Weldability Sif during the warranty period. Weldability Sif shall in no event be responsible for any direct or indirect damages, third party expenses, as well as any loss of income/revenue, all of which are specifically excluded under this warranty.

The warranty does not cover : Any defects resulting from normal wear and tear; Improper use; Failure to observe the operating and maintenance instructions; Connection to an incorrect or faulty mains supply; Overloading during use; Any transport or storage damage; External damage such as fire, impact or damage due to natural causes, e.g flooding; Use of unapproved spare or wear parts or replacement parts not supplied by or approved by Weldability Sif; Any modification or alteration of the equipment; or any other circumstances beyond the control of Weldability Sif. The warranty period is based on a single 8-hour 5-day shift pattern and the extended warranty is not applicable to units that are purchased for rental or hire. Weldability Sif will submit an invoice for any repair work performed outside the scope of the warranty.

Any warranty repair must be performed by Weldability Sif or an Authorised SifWeld Service Centre. The customer is responsible for all shipping costs and risk associated with items that are returned covered under warranty. Weldability Sif may opt to refund the purchase price (less any costs and depreciation due to use and wear). Faults/defects found under warranty should be reported to the Weldability Sif Technical team for review. A warranty claim reference number will be issued and details of the most appropriate Authorised SifWeld Service Centre will be advised, if appropriate. The customer has no claim to any loan or replacement products whilst repairs are being performed or replacements are being provided.

The decision about repair or replacement of any defective part(s) is made by Weldability Sif. The replaced part(s) remain(s) property of Weldability Sif. The warranty extends only to the machine power-source, wire-feed unit and parts contained inside. No other warranty is expressed or implied, including with regard to the fitness of the equipment for any particular application.

Under the terms of the warranty, welding torches, their consumable parts, wire-feed 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 not covered.

The extended warranty is only valid where products have been used strictly in accordance with the operating instructions, all installation guidelines have been implemented, all legal requirements have been observed, regular preventative maintenance has been undertaken and a continuous history of annual servicing has been completed and recorded. Failure to register the equipment online within 1 year of purchase, or to complete the required annual servicing cycle from year 2, will invalidate the extended warranty period.

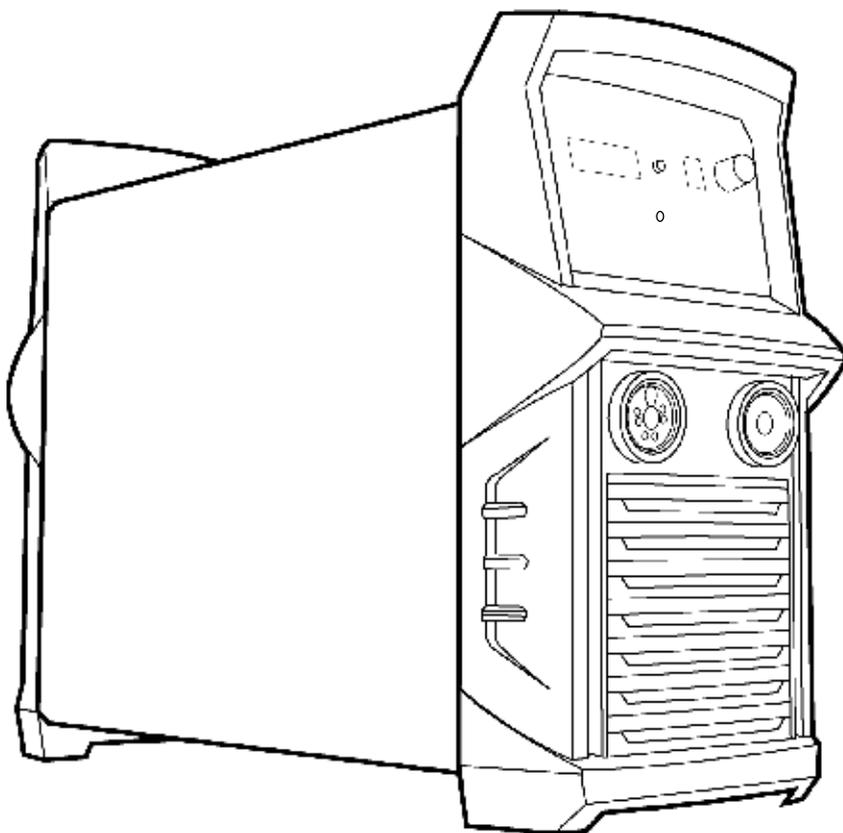
Annual preventative maintenance servicing must be arranged and paid-for by the equipment owner/user and carried out by Weldability Sif or an Authorised SifWeld Service Centre, in order to maintain validity of the extended warranty. Service visits can be booked online at [www.sifweld.com](http://www.sifweld.com) or by calling 0870 330 7757 and will be charged at an average of £65 net per hour of travel/ servicing time. Please allow an average of 2 hours servicing per machine and one hour each way of travel.

Warranty support is facilitated by our network of Authorised SifWeld Service Centres that provide highly experienced capability and carry-out the professional repair, service and calibration of SifWeld equipment.

# Notes

Series of horizontal lines for taking notes.





**Weldability** **sif**

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