Swift-Cut
SMART CUTTING SOLUTIONS

Swifty 1250 (44)

INSTALLATION AND OPERATION MANUAL

VERSION CONTROL

Document Control			
Document Title	Swifty 1250 Installation and Operation Manual		
Version Number	1.1	Author(s)	James Swift
Date Approved	13/05/2019	Document Status	Approved
Effective Date	13/05/2019	Approved by	Alan Swift
Superseded Version	1.0	Date of Next Review	August 2019

Version Control			
Version	Author	Date	Changes
0.1	James Swift	16/01/2019	Initial draft
1.0	James Swift	31/01/2019	First release
1.1	James Swift	13/05/2019	Format and content changes

CONTENTS

SECTION 1

GENERAL INFORMATION

CONTENTS

1   INTRODUCTION

1.   Thank you for purchasing the Swifty 1250 (44). To make sure that the equipment is used to its full potential and in a safe and efficient manner, please make sure that all personnel who interact with the Swifty 1250 (44) have read this document and understand the information provided.

2.   Please pay attention to the safety section (Sub-Section 3) and never operate the machine unless it is safe to do so.

2   BEFORE YOU START

2.1   Safety equipment

1.   Before using the Swifty 1250 (44), the following safety equipment must be available to all personnel who are in the vicinity of the equipment:

1.1   Safety glasses. Appropriate eyewear must be worn when operating any equipment that produces and electric arc. For the specification of eyewear to be worn, refer to the documentation provided with the plasma source.

1.2   Safety shoes. All personnel involved with operation of the Swifty 1250 (44) must wear appropriate safety shoes to prevent foot injury.

1.3   Gloves. Hand protection must be worn by any personnel handling sheet metal.

1.4   Lifting equipment. Where required, appropriate lifting equipment must be available to any personnel who are required to handle heavy items.

2.2   Consumables

1.   Torch consumables must be available of the appropriate type for the material being cut.

2.   For further information, refer to your plasma source manual or consult your local Swift-Cut support contact for advice.

3 SAFETY

3.1 General

1. It is vitally important to be fully conversant with all aspects of the operation of your Swifty 1250 (44) plasma cutting machine before operation.

2. Make sure that you have read this manual fully and understand all aspects of the machine and the various operational functions it will perform.

3. Anyone operating, maintaining or cleaning the machine must have access to and fully understand this operator's manual.

4. Make sure that the cutting cycle of the machine is fully understood before any operation takes place. The cutting cycle must finish before the operator returns to the machine cutting area.

5. In addition to the safety equipment listed in Sub-Section 2.1, it is recommended that suitable overalls are worn to ensure there are no articles of clothing that could be caught or trapped in the machine.

6. There is an emergency stop button on the laptop stand. This is provided to quickly stop the machine in the case of an emergency.

7. Be specifically aware of the dangers of cutting aluminium materials when using a water table. Aluminium deposits in the water from cutting will create hydrogen gas and must be removed to ensure the gas does not build up. In exceptional circumstances, this could cause an explosion. Contact Swift-Cut for more information.

8. All current health and safety regulations and environmental protection rules must be complied with at all times. This includes any water table contents/preservatives/cleaning agents that are to be disposed of.

9. The water table should be cleaned weekly if no inhibitors are used. However, if inhibitors are used please refer to the manufacturer guidelines.

10. It is recommended that a 1500mm (59 inch) exclusion zone be put in place around the machine to prevent un-authorised access while cutting.

11. Where other personnel may become exposed to the arc light (for example in a busy workshop environment), it is also recommended that welding screens be positioned around the machine to prevent any cutting arc rays being omitted from the area.

12. All conduits, air lines and cables should be positioned around the machine (not in the walking area) to avoid trip hazards.

13. When loading heavy sheets of material onto the cutting bed. The material should be placed onto the table and not dropped, to prevent damage.

14. The Swifty 1250 (44) has a maximum table capacity of 250kg (551lbs) for the cutting material.

3.2   Risk areas

1.   Several areas of risk are associated with the Swifty 1250 (44). These are divided into two categories:

1.1   Risk to personal safety. These are identified by the warning triangles described in Sub-Sections 3.2.1 to 3.2.10 and will be accompanied by a description of the nature of the hazard in red text.

1.2   Risk to equipment. These will be identified by the warning triangle described in Sub-Section 3.2.11 and will be accompanied by a description of the nature of the hazard in black text.

3.2.1   Moving assemblies

There are moving assemblies on the machine when it is in operation. These are the X, Y and Z axis. They move rapidly and can trap body parts and clothing, causing injury.

All personnel must maintain a safe distance from the machine while it is in operation. Warning signs highlighting this hazard must be placed around the area where the machine is located.

Components must only be removed when the machine has fully completed its operating cycle and is at rest.

3.2.2   Heavy components

Some of the tasks associated with the installation and operation of the Swifty 1250 (44) require the handling of heavy items. Extreme caution must be exercised when handling heavy components to remove the risk of injury. If required, obtain assistance when handling heavy items.

Heavy items may require lifting equipment. In this instance, the operating instructions for such equipment must be followed.

3.2.3   Safety shoes

Some of the tasks associated with the installation and operation of the Swifty 1250 (44) require the handling of heavy items. All personnel involved with these processes must wear appropriate safety shoes to prevent foot injury.

3.2.4   Eye protection

Plasma cutting creates significant sparks in addition to debris from the cutting process and splashing from the water table. Eye protection that provides protection from these hazards must be worn.

Eye protection must also have side shielding.

Eye wear must also provide full protection from the effects of arc light. Refer to the plasma source documentation for the correct type of eye protection.
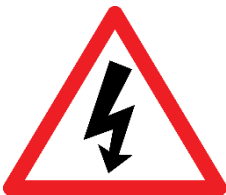
3.2.5 Hot materials

Plasma cutting creates significant heat in the material being worked. Cut components can retain heat after the cutting process has finished.

Always wear suitable gloves when handling cut components and allow the components to cool sufficiently before handling.

3.2.6 Electric shock

Electricity can cause serious injury or death.

The Swifty 1250 (44) contains equipment that operates on, or produces high voltage electricity. Never attempt to carry out any inspection or maintenance whilst the machine is connected to its power supply.

3.2.7 Noise

Loud noise can cause permanent hearing loss. This may be gradual and not immediately obvious.

The Swifty 1250 (44) uses compressed air as part of the cutting process, which produces a significant amount of noise. Appropriate ear protection must be worn by any personnel in the vicinity of the equipment when it is operating.

3.2.8 Fire and explosion

The plasma arc and the sparks produced by the cutting process are sources of ignition. All combustible materials must be stored at a safe distance from the machine.

Cutting aluminium with a water table can result in the formation of Hydrogen gas. Do not cut aluminium unless the gases can be eliminated. Failure to remove trapped gases can cause an explosion.

3.2.9 Automatic operation

Once programmed to cut components, the machine will make several automatic movements without warning.

It is imperative that the person operating the machine is fully conversant with the machine's operating cycle.

All personnel must remain at a safe distance from the machine whilst it is in operation. Failure to do so may result in injury.

Always ensure the machine has finished its cycle before any components are removed.

3.2.10 General warnings

Some hazards may be non-specific where there is a general risk associated with a particular task. In this instance, the exclamation mark symbol is displayed with the associated text.

3.2.11 Equipment damage

Some activities associated with the Swifty 1250 (44) may need to be conducted with care to prevent damage to the machine, or to the surrounding area.

3.2.12 Useful information

Some of the information contained in this manual is not mandatory but is in the form of useful information that will be beneficial to the reader. In this instance, it will in blue text and will be accompanied by a blue information triangle.

![Swift-Cut logo]

4   EQUIPMENT COMPONENTS

4.1   Main Items

Fig 1   Main items

1.   The main items of the Swifty 1250 (44) are as follows (refer to Fig 1):

1.1   Laptop stand (Fig 1 (1)). A stand for the user to place their laptop whilst operating the machine. Suitable for up to 15.6" laptops.

1.1.1   Emergency Stop switch (Fig 1 (2)). The emergency stop button is located on the laptop stand. Operation of the emergency stop will result in the immediate stoppage of the cutting process. The switches must be reset by rotating the red button clockwise, before the equipment can be operated again.

1.1.2   Ethernet connection. Connection to the machine from the laptop is done via ethernet connection which is located on the laptop stand.

1.2   Torch head (Z-Axis) (Fig 1 (3)). Facilitates movement of the torch in the Z-axis. The torch has a "break-away" head which stops and prevents movement in all axes and turns off the signal to the torch when activated.

1.3   Gantry (X-Axis) (Fig 1 (4)). Facilitates the move of the torch head in the X axis (left to right)

1.4   Side rails (Y-Axis) (Fig 1 (5)). Facilitates the move of the gantry and torch head in the Y axis (front to back).

1.5   Soft Sense (Fig 1 (6)). The device used to probe the surface of the material to accurately set the cutting height.

1.6   Water table (Fig 1 (7)). Forms the dispersal media for any waste products of cutting.

1.7   Adjustable feet (Fig 1 (8)). Supporting feet for the table. There are four in total which require levelling during the assembly stage.

1.8   Plasma torch cable support (Fig 1 (9)). Used to suspend the plasma torch cable to prevent it getting trapped or damaged by moving components.

Fig 2 Main items (continued)

1.9   Table connections (Fig 2 (1)). Connections from the control to the Swifty 1250 (44) machine. These are connected during the assembly stage.

1.10   Air connection (Fig 2 (2)). Required for operation of the Soft Sense. See Section 2, Sub-Section 2.9.

1.11   Work lead connection (Fig 2 (3)). Return path for current to the plasma source.

1.12   Power connection (Fig 2 (4)). Mains power connection for the machine. See Section 2, Sub-Section 2.9

4.2   Software

1.   The Swifty 1250 (44) comes included with software packages specifically designed for the machine. These are: SwiftCAM and Swifty-CNC.

2.   Minimum PC Spec

- Windows 10
- CPU: Intel® Core™ i5 or similar
- Hard disk: 5GB free space
- 4 GB RAM
- Video Card with 256 MB RAM memory
- Internet connection for licencing

4.2.1   Computer Aided Design

1.   Computer Aided Design (CAD) software is the type of design application that is used to create the shape for cutting. The shape created will represent the item that is to be cut, rather than the path the torch will take. There are numerous free CAD applications available for creating suitable drawing files. Drawings must be saved as .DXF or .DWG files.

4.2.2   Computer Aided Manufacture

1.   The SwiftCAM application is the Computer Aided Manufacture (CAM) software that is used to convert each drawing into G-Code. G-Code is the machine code that will be used to instruct the torch to follow a logical path when cutting. SwiftCAM will import .DXF/.DWG and some image files. The files imported are then nested so that the material being cut is used in the most efficient manner.

2.   When a nest has been created it is output to a .TAP file format which the Swifty-CNC application can understand and process.

4.2.3   Computer Numerical Control

1.   Swifty-CNC is the Computer Numerical Control (CNC) software that controls the machine's movements and when to turn the torch on or off. The .TAP file, which contains the "cut path" data, is loaded and runs through this application.

5 PHYSICAL DATA

1. Fig 3 and Fig 4 show the physical data of the Swifty 1250 (44).
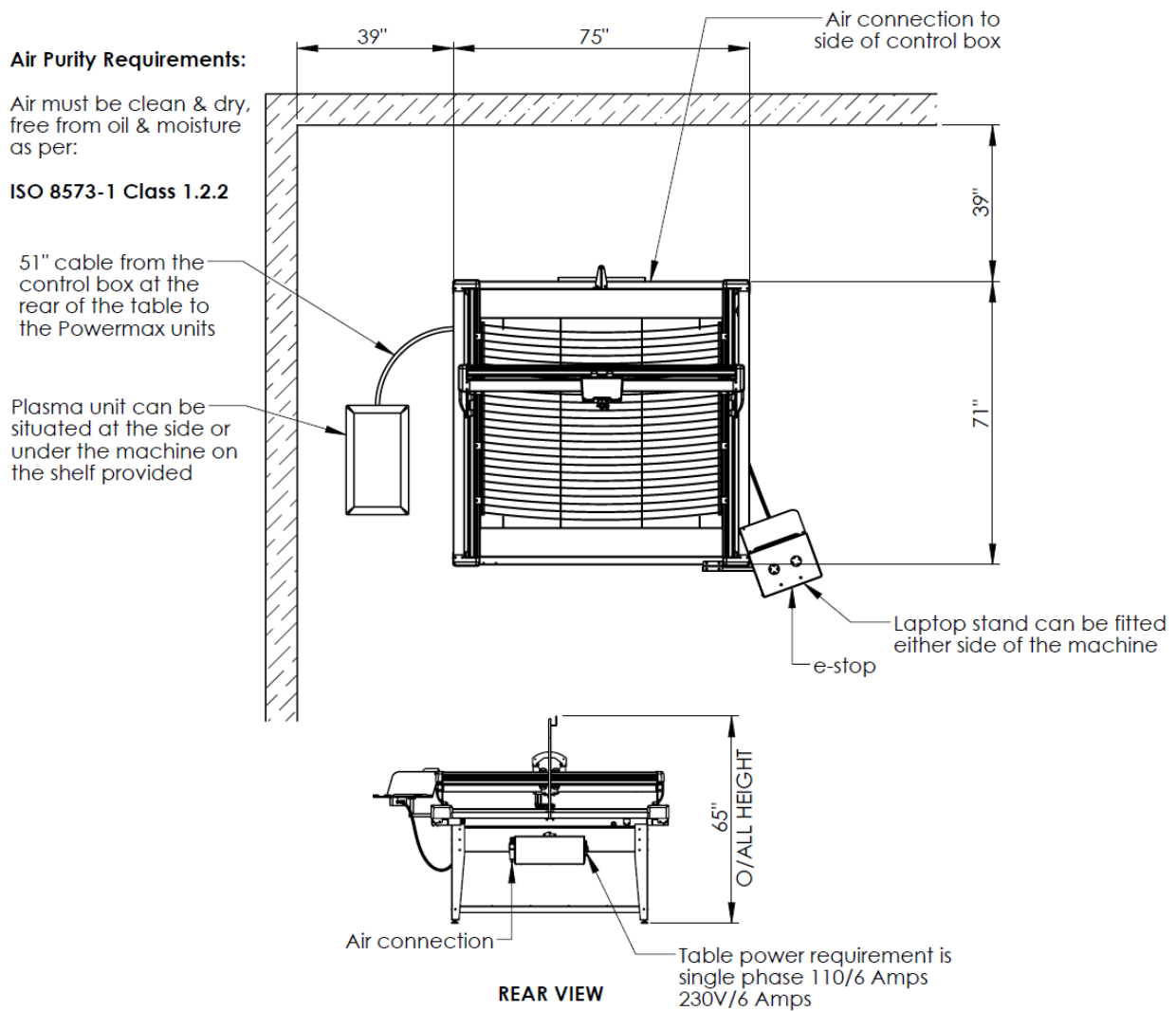
5.1 Metric measurements
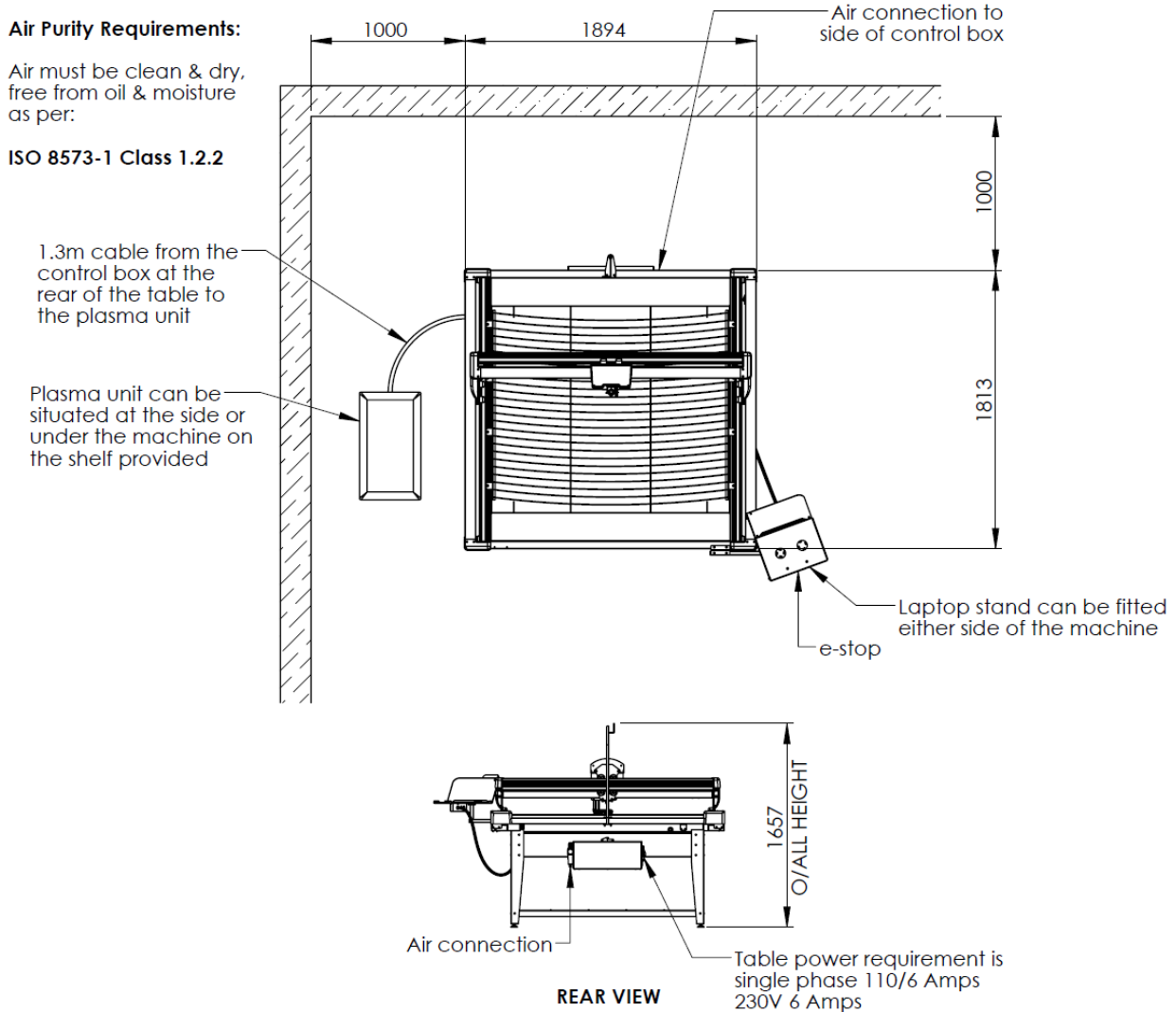
Hypertherm	Input Voltage	MCB Min C Type	KW Output	Recommended gas inlet (Air) Flow Rate / Pressure
Powermax 45XP	230v, 1-PH, 33A	50A	6.5KW	Cutting : 190 L/min @ 6 Bar
	400v, 3-PH, 11A	20A	6.5KW	Cutting : 190 L/min @ 6 Bar
Powermax 65	380/400V, 3-PH, 15A	30A	9KW	Cutting : 190 L/min @ 6 Bar

Fig 3 Metric physical data

![Swift-Cut logo]

5.2   Imperial measurements

Air Purity Requirements:

Air must be clean & dry, free from oil & moisture as per:

ISO 8573-1 Class 1.2.2

51" cable from the control box at the rear of the table to the Powermax units

Plasma unit can be situated at the side or under the machine on the shelf provided

Air connection to side of control box

Laptop stand can be fitted either side of the machine

e-stop

O/ALL HEIGHT

Air connection

Table power requirement is single phase 110/6 Amps 230V/6 Amps

REAR VIEW

Hypertherm	Input Voltage	Recommended gas inlet Flow Rate at 85 psi (5.8 bar)
PMX 45XP	200-240V, 1PH, 39/32A	400 SCFH (100% Duty Cycle)
	480V, 3PH, 9.4A	
PMX 65	200/208/240/480V, 1PH, 52/50/44/22 A	400 SCFH (100% Duty Cycle)
	200/208/240/480/600V, 3PH, 32/31/27/13/13 A	

Fig 4 Imperial physical data

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SECTION 2

ASSEMBLY AND SETUP

CONTENTS

Contents (continued)

1 INSTALLATION REQUIREMENTS

⚠️ **WARNING**
SUITABLE PERSONAL PROTECTIVE EQUIPMENT (PPE) MUST BE WORN BY THE PERSONNEL RESPONSIBLE FOR THE INSTALLATION. AS A MINIMUM, THIS MUST INCLUDE SAFETY SHOES AND EYE PROTECTION.

1.1 Services

1. The Swifty 1250 (44) must have the following services available:

   1.1 A 110/230V, 6A, single phase supply.

   1.2 An electrical supply for the plasma system. This must meet the criteria specified by the plasma system manufacturer (refer to the plasma system documentation).

   1.3 A supply of clean, dry, regulated compressed air. This is critical for the operation of the plasma system. It is particularly important to have a stable pressure and sufficient rate of flow. The system must meet the following criteria:

   > 1.3.1 **Regulated at 7.5 bar (109 psi)** pressure (with a deviation of no more than +/- 0.5 bar (7 psi)). The air system must be capable of a **flow rate of 280 litres per minute (9.9 cubic feet per minute).**

   > 1.3.3 The air supply system must incorporate oil and water traps.

   > 1.3.4 Compliance with ISO 8573-1:2010 Class 1.2.2.

   > 1.3.5 There must be two outlets from the regulated air supply system:

   1.3.5.1 One for the Swifty 1250 (44) (to be connected to the control box at the rear of the table).

   1.3.5.2 One for the plasma source (refer to the plasma system manufacturer for the type of connection required).

⚠️ **CAUTION**
ONLY USE A FILTER/REGULATOR SYSTEM THAT MEETS THE CRITERIA LISTED ABOVE. LOWER QUALITY SYSTEMS MAY NOT MEET THE SPECIFICATIONS AS LISTED AND CONSEQUENTLY REDUCE THE OPERATIONAL LIFE FOR SOME OF THE COMPONENTS. IF IN DOUBT, CONTACT YOUR LOCAL SWIFT-CUT SUPPORT AGENT.

⚠️ **INFORMATION**
IF NOT PART OF YOUR ORIGINAL ORDER, A THREE STAGE AIR FILTRATION SYSTEM WHICH MEETS THE CRITERIA LISTED ABOVE CAN BE SUPPLIED BY SWIFT-CUT. PLEASE CONTACT SALES@SWIFT-CUT.CO.UK

2. In addition to the requirements in Sub-Section 1.1, Paragraph 1, the following will be needed:

    2.1   Access to a water supply to fill the water table.

    2.2   Access to suitable drainage or a storage area for the waste water when draining the system.

1.2   Positioning of the table

1. The Swifty 1250 (44) must be installed in the following environment:

    1.1   It must have a level, hard standing floor.

    1.2   There must be an unobstructed area around the Swifty 1250 (44) table when it is installed. Allowance for this must be made when considering the installation environment. Refer to Section 1, Sub-section 5.

2   ASSEMBLY

1. The Swifty 1250 (44) requires minimal assembly. The following will be required during the assembly stage.

    1.1   Table and laptop stand assembly

    1.2   Mounting and connection of the control box.

    1.3   Connection of the plasma source

2. The Swifty 1250 (44) machine is set up in the factory to ensure correct axis alignment and squareness and requires no further setup.

2.1   Tool list

1. The following tools will be required during the assembly process:

    1.1   Allen Keys

               1.1.1   3mm, 4mm, 5mm

    1.2   Spanners/Wrench

               1.2.1   7mm, 8mm, 10mm, 14mm, 19mm

    1.3   Wire cutters

    1.4   Spirit level

    1.5   Tape measure

2.2 Unpacking and checking

1. The Swifty 1250 (44) as delivered will contain the following items:
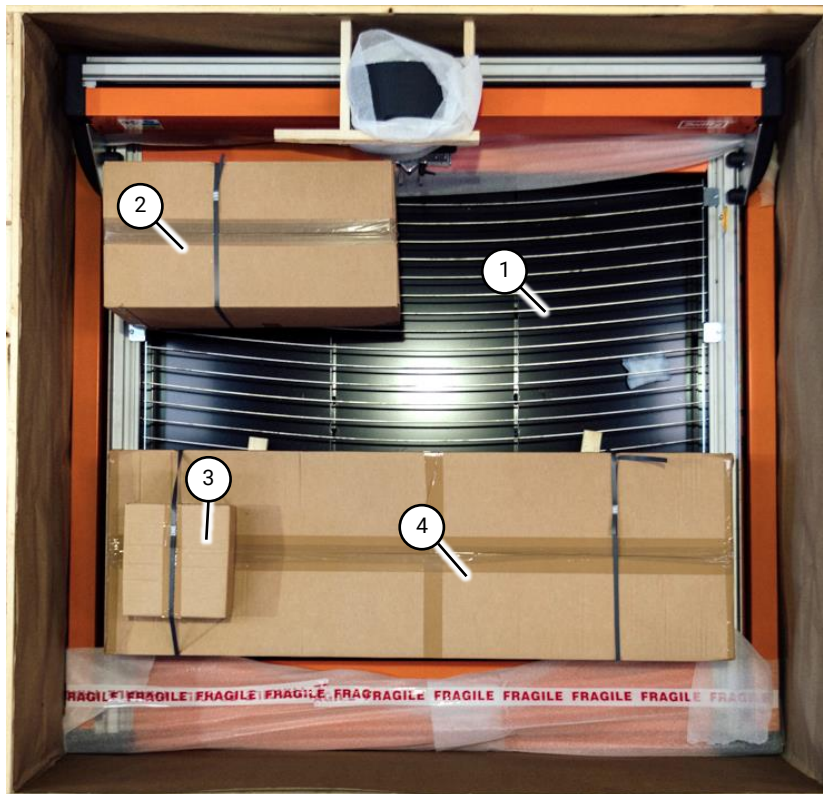
Fig 5 Crate contents

1.1   Swifty 1250 (44) Machine (Fig 5 (1))

1.2   Control Box (Fig 5 (2))

1.3   Accessories (Fig 5 (3))

1. Cable support Hook
2. Fixings kit
3. USB flash drive containing:
   a. SwiftCAM and Swifty-CNC software installers
   b. Manuals
   c. SwiftCAM and Swifty-CNC licence information
   d. Remote support application
4. Safety gloves and glasses
5. Torch Anti-Glare kit
6. IEC power cable (USA, EUROPEAN, UK)
7. 4 Adjustable feet

1.4   Stand Box (Fig 5 (4))

1. Laptop stand kit (Page 28)
2. Machine stand kit (Page 22)
3. Cable cover bracket
4. Cable support post

2.3 Stand Assembly

1. Fig 6 on page 22 shows the stand components and assembly for the stand.

2. It is recommended to not fully tighten the fixings until all components are together.

3. Before final tightening, ensure the table is square by measuring diagonally corner to corner.

ITEM NO.	PART No.	DRAWING No.	ISSUE No.	DESCRIPTION	QTY.
1	339155	PDD 8439	1	M10 FOOT	4
2	339135	PDD 8730	3	LEG ASSEMBLY	4
3	339145	PDD 8729	3	STAND TOP BRACE SIDE	2
4	339180	PDD 9177	1	STAND TOP BRACE BACK	2
5	339160	PDD 8725	2	FOAM STRIP	4
6	339165	PDD 8727	2	STAND LOWER BRACE LONG	2
7	339140	PDD 8736	1	STAND LOWER BRACE	2
8	339170	PDD 8732	2	STAND BRACE	2
9	339175	PDD 8733	2	STAND SHELF	1
10	-	-	-	M6 X 20 SKT BUTTON	50
11	-	-	-	M10 WASHER LOCK	4
12	-	-	-	M10 PLAIN NUT	4
13	-	-	-	M6 FLAT WASHER	50
14	-	-	-	M6 NYLOC	50

NOTES:
STAND SHOULD BE ASSEMBLED ON A FLAT, LEVEL SURFACE.
STAND SHOULD BE ASSEMBLED ON A FLAT, LEVEL SURFACE.
LEAVE ALL FIXINGS LOOSE, TIGHTEN & CHECK AT THE FINAL STAGE.

FRONT VIEW

139   434
768

TOP VIEW

1563
INSIDE

1355
INSIDE

SIDE VIEW

TYPICAL FIXING

TYPICAL INTERNAL VIEW
FOOT ASSEMBLY

FRONT & REAR PANELS
=1559mm

FRONT & REAR BRACES
=1537mm

SIDE PANELS
=1349mm

SIDE BRACES
=1327mm

Fig 6 Table stand components and assembly

2.3.1 Levelling the stand

1. Once the stand is assembled and the fixings have been fully tightened, position it in its final location. Use the adjustable feet on each leg to level the stand once in position.

2.3.2 Fitting the control box

1. Attach the control box to the rear of the stand in the three locations shown (Fig 7 (1), (2) & Fig 8 (1)).

1.1 It is advisable to first attach the box with the central mount and then secure the fixings either side.
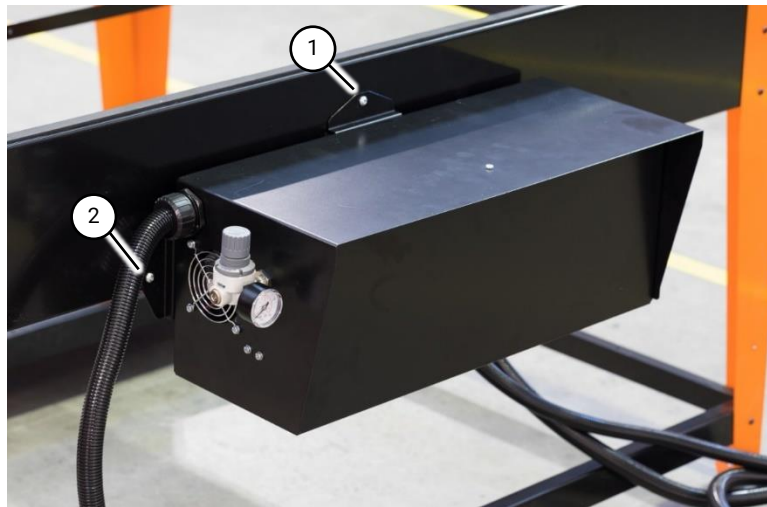
Fig 7 Control box mounting locations

Fig 8 Control box mounting locations (continued)

2.3.3 Securing the loom

1.   Once the control box is mounted, run the emergency stop/control loom to either the front left or front right corner of the table depending on which side you wish to mount the laptop stand and secure using cable ties supplied (Fig 9 (1), (2) & (3))

    1.1   The emergency stop box attached to the loom will be secured later.
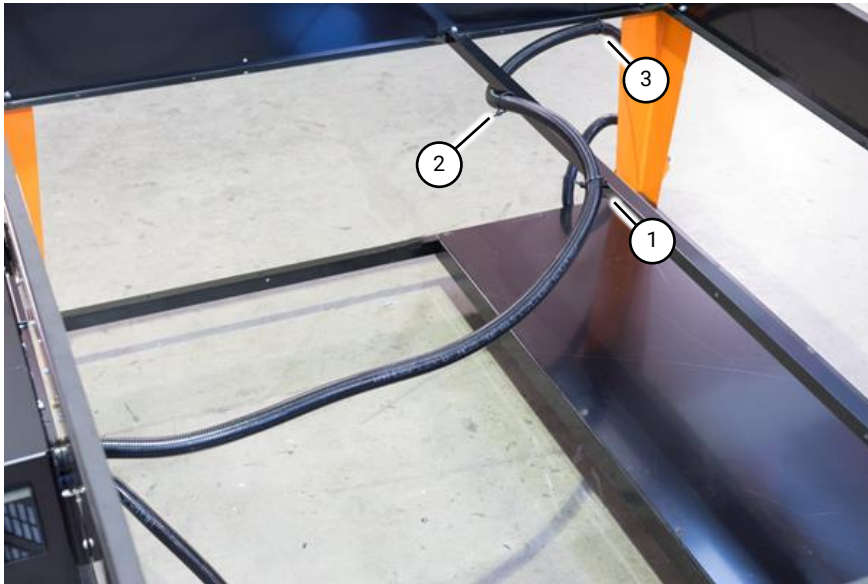
Fig 9 Securing the loom

2.4   Lifting the Swifty1250

⚠️ **WARNING**
ONLY USE LIFTING EQUIPMENT THAT IS CAPABLE OF SUPPORTING THE WEIGHT OF THE SWIFTY 1250 (44). APPROXIMATE DRY WEIGHT IS 300KG (660LBS).

⚠️ **WARNING**
DO NOT LIFT THE MACHINE WHEN THERE IS WATER IN THE WATER TRAY.

⚠️ **WARNING**
FOLLOW THE LIFTING EQUIPMENT MANUFACTURERS GUIDELINES FOR CORRECT LIFTING PROCEDURE.

⚠️ **WARNING**
DO NOT LIFT THE MACHINE BY THE GANTRY AS IT WILL CAUSE SIGNIFICANT DAMAGE.

1.   To lift the Swifty 1250 (44) from the crate use the yellow lifting eyes found in each corner of the machine. Before lifting, check that the lifting eyes have not come lose during shipping.

Fig 10 Lifting using the lifting eyes

2.   When lifting, ensure the machine is level as it is lifted out of the crate.

Fig 11 Lifting with the machine level

3. Place the machine onto the stand and remove the yellow lifting eyes.
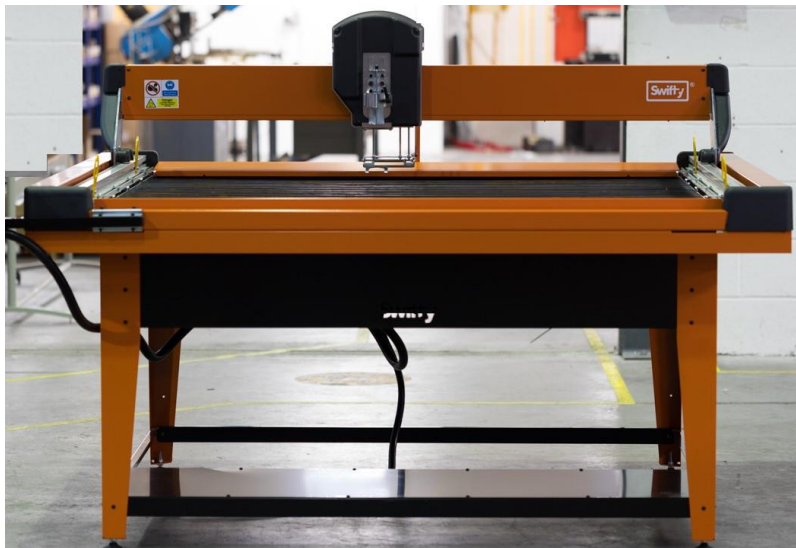
Fig 12 Swifty 1250 (44) machine placed onto the stand

2.5   **Fitting the Laptop Stand**

1.   The laptop stand can be fitted to the Swifty 1250 (44) on either the left- or right-hand side to suit the location of the machine and the user's needs.

2.   Fig 15 on page 28 shows the assembly of the laptop stand for the left-hand side.

3.   After the laptop stand is fitted to the machine, attach the emergency stop box to the underside. Ensure the ethernet cable is routed through the cut-out to prevent it being trapped (Fig 13 (1)).
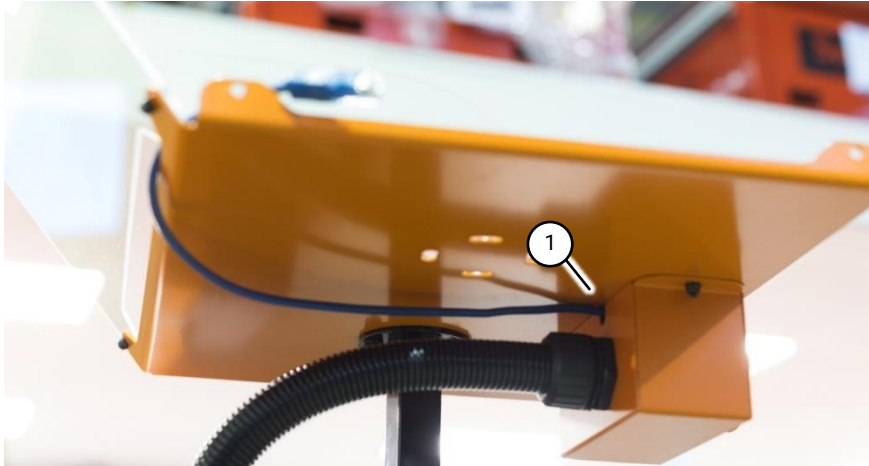
Fig 13 Laptop stand understand

Fig 14 Completed laptop stand

![Swift-Cut logo]

ITEM NO.	PART No.	DRAWING No.	ISSUE No.	DESCRIPTION	QTY.
1	339680	PDD 9135	2	ASSEMBLY WELDED POST	1
2	339625	PDD 9133	2	LAPTOP STAND MOUNT BRACKET	2
3	339630	PDD 9137	2	LAPTOP STAND	1
4	339635	PDD 9138	3	E STOP BOX	1
5	339640	PDD 9139	2	STAND FOAM	1
6	339655	PDD 9142	1	ANTI SPLASH GUARD BRACKET	1
7	339650	PDD 9141	2	LAPTOP STAND ANTI SPLASH BACK	1
8	339645	PDD 9140	2	LAPTOP STAND ANTI SPLASH SIDE	1
9	-	-	-	TUBE PLUG FOR 25 X 25 TUBE	2
10	-	-	-	E STOP ASSEMBLED	1
11	-	-	-	M6 X 16 LONG SKT BUTTON	4
12	-	-	-	M6 X 40 LONG SKT BUTTON	2
13	-	-	-	M6 X 65 LONG SKT BUTTON	2
14	-	-	-	M6 NYLOC NUT	8
15	-	-	-	M4 X 10 SKT BUTTON	8
16	-	-	-	M4 NYLOC	8
17	-	-	-	E STOP LED	1
18	-	-	-	M6 FLAT WASHER	12
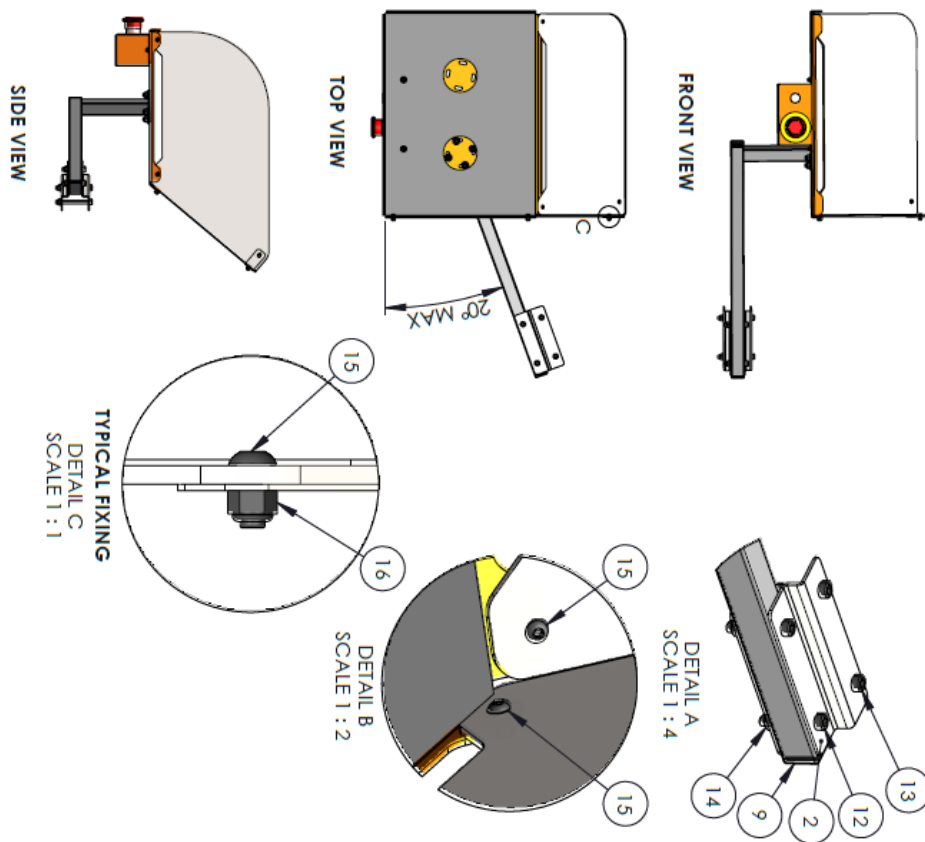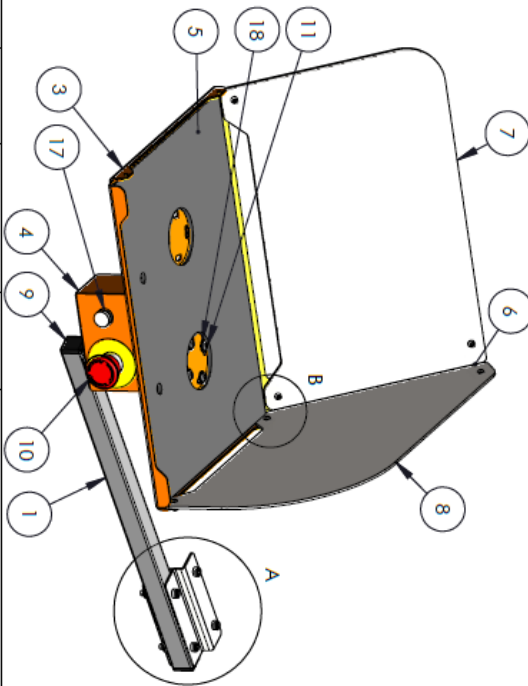
Fig 15 Laptop stand components and assembly

2.6   **Connecting the Control Box**

1.   At the back of the machine connections from the control box must be connected to the underside of the machine.

1.1   Connect the earth wire to the brass stud (Fig 16 (1)).
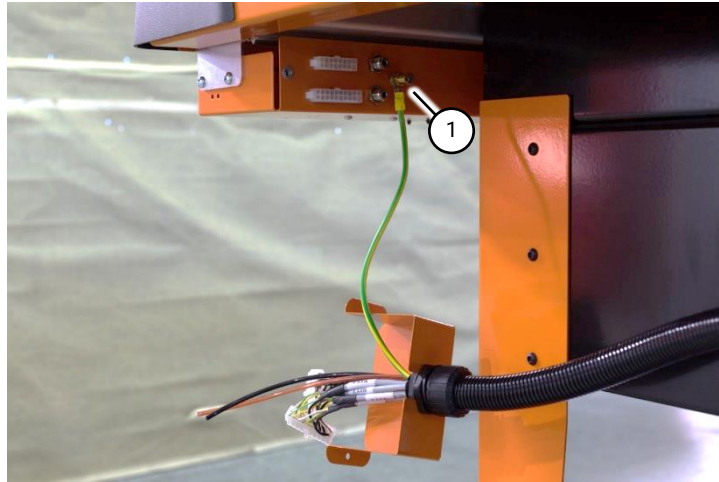
Fig 16 Earth connection

1.2   Connect the red air pipe to the top fitting (Fig 17 (1)) and the black air pipe to the bottom fitting (Fig 17 (2)).
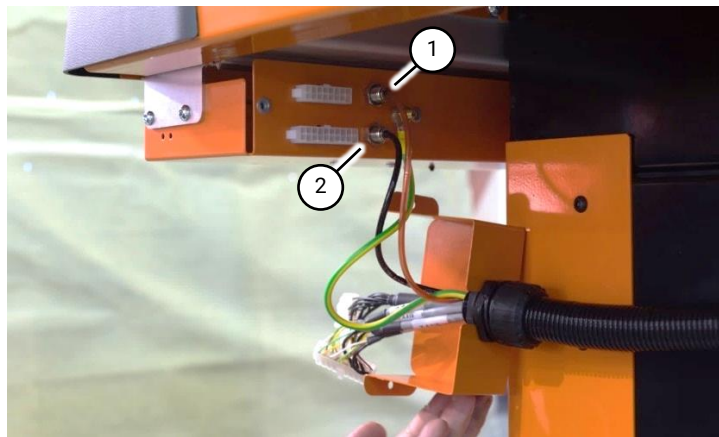
Fig 17 Air pipe connections

1.3   Connect the smaller connector to the top connection (Fig 18 (1)) and larger connector to the bottom connection (Fig 18 (1)).
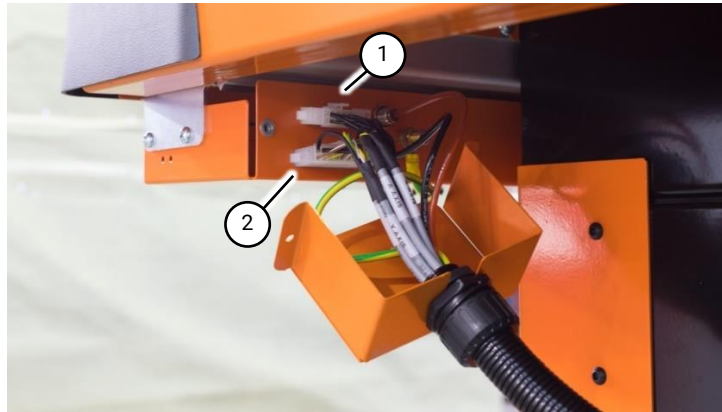
Fig 18 Motor and sensor connections

2.   Secure the wire cover with the screws provided in the fixings kit (Fig 19 (1) & (2)).
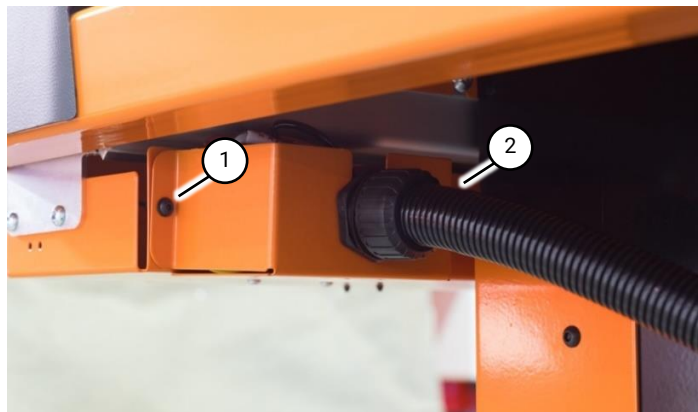
Fig 19 Securing the wire cover

![Swift-Cut logo]

2.7 **Mounting the cable post**

1.   At the back of the table fit the cable post and secure using the screws provided in the fixings kit (Fig 20 (1) & (2)).
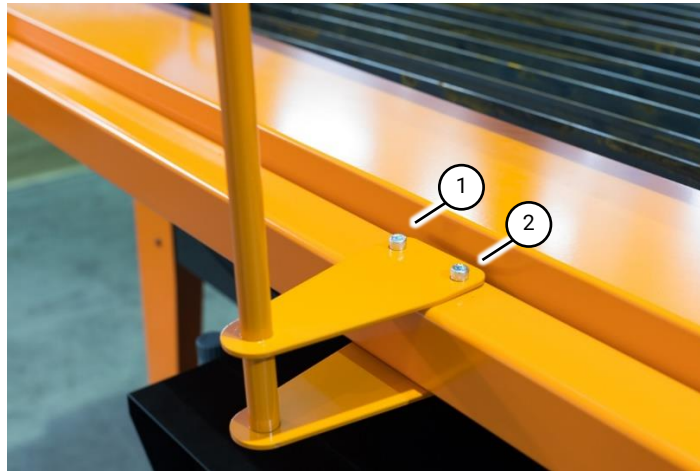
Fig 20 Cable support post

2.   Insert the torch lead hook into the top of the cable post (Fig 21 (1)).
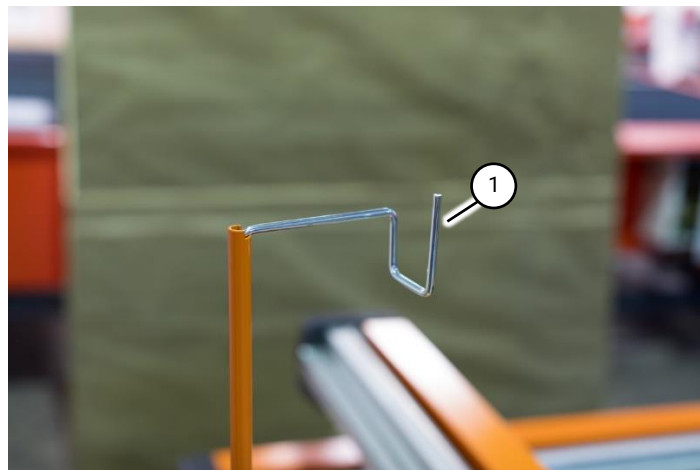
Fig 21 Torch lead hook

2.8 **Filling the water tray**

⚠️ **CAUTION**
DO NOT FILL THE WATER TRAY BEYOND THE TOP OF THE SLATS.

1. Before filling the water tray, make sure that the drain plug at the rear of the table is closed (Fig 22 (1)).
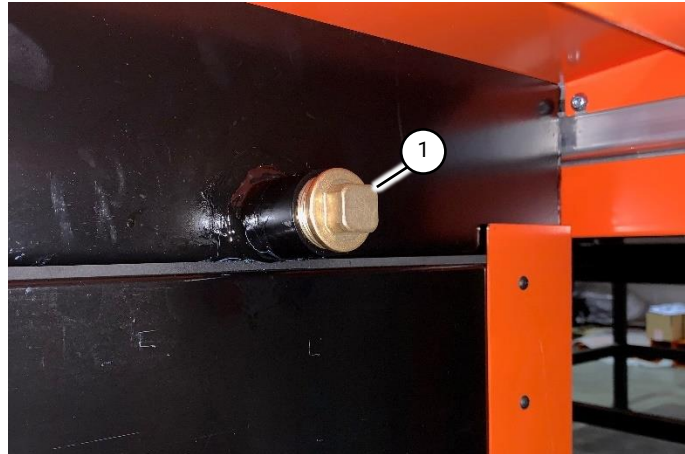
Fig 22 Water tray drain plug

2. Fill the water tray to 10mm (3/8 in) below the top of the support slats (Fig 23 (1)).
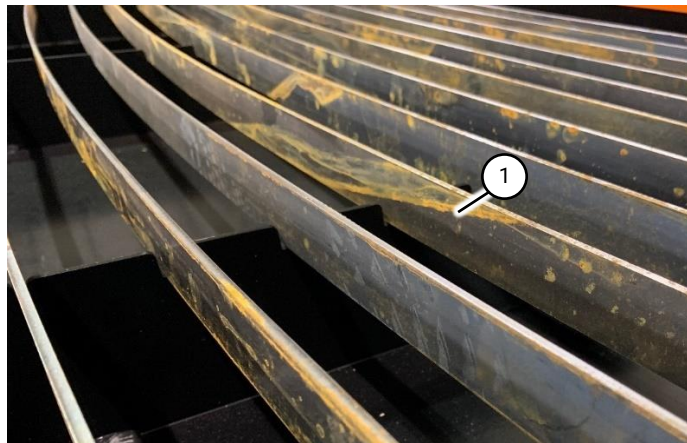
Fig 23 Water tray fill level

2.8.1 **Water treatment**

1. The Swifty 1250 (44) requires the water to be changed every 7 days or to be chemically treated. This will help to prevent the growth of bacteria which can be a potential hazard to health.

2. A rust inhibitor should be added to the water to prevent rusting of the support slats, and offcuts in the water tray.

3. For the prevention of fungal growth and rust, consult local environmental regulations for the correct inhibitors to be used. Always check the compatibility of any chemicals that are added to the water.

2.9   **Anti-Glare screen**

1.   The components and assembly for the anti-glare screen can be found in Fig 24 on page 34.

2.   After the torch has been fitted, the assembly is clamped to the body of the torch. The bottom of the guard should be just above the bottom of the torch to allow clearance to the material being cut.

ITEM NO.	PART No.	DRAWING No.	ISSUE No.	DESCRIPTION	QTY.
1	550010	PDD 8768	1	ANTI GLARE SCREEN BRACKET	1
2	502485	PDD 8281	3	ANTI GLARE SCREEN CLAMP	1
3	-	-	-	M4 NYLOC	6
4	-	-	-	m4 X 12 SKT BUTTON	6
5	502490	PDD 8236	3	ANTI GLARE SCREEN HOOK	2
6	339600	PDD 8770	1	ANTI GLARE SCREEN	1
7	030060	PDD 8525	8	M4 PENNY WASHER	4

SIDE VIEW

FRONT VIEW

TOP VIEW
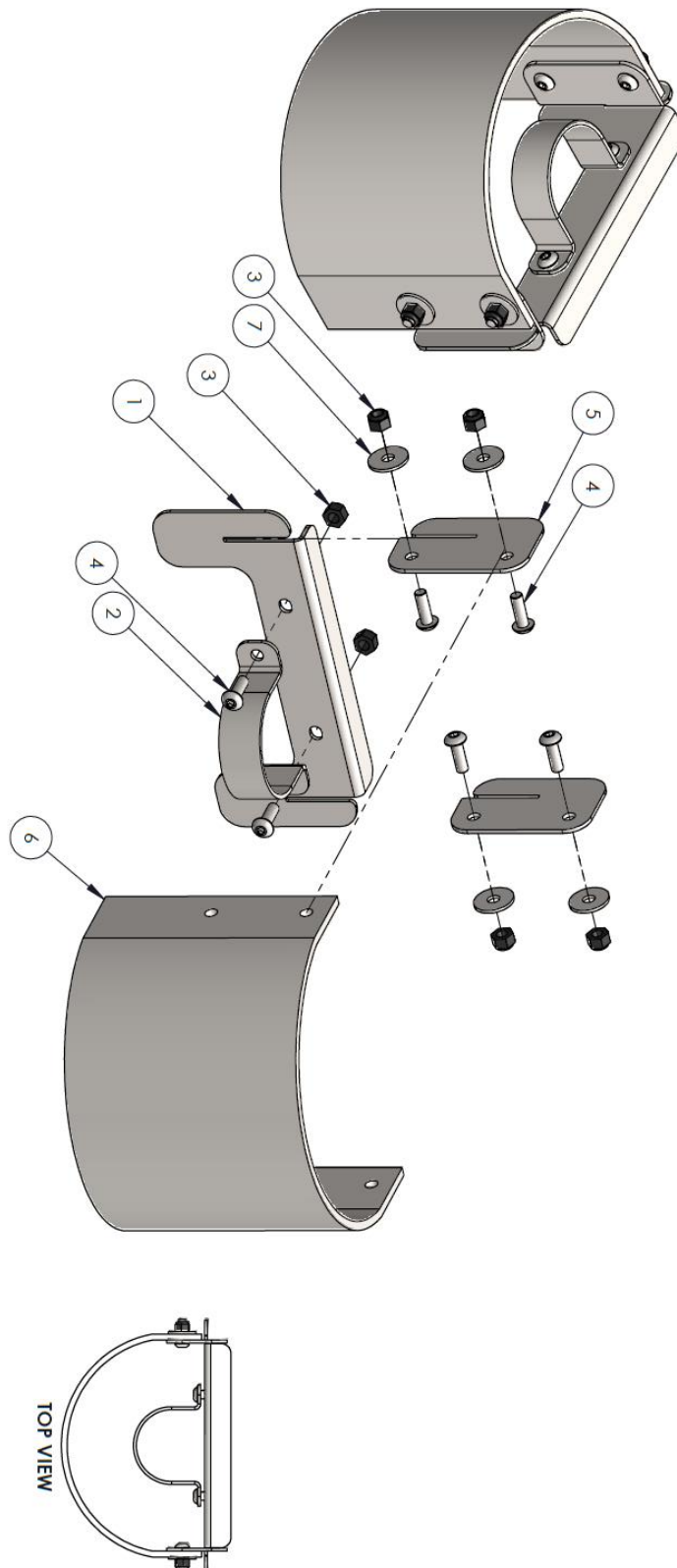
Fig 24 Anti-glare screen components and assembly

![Swift-Cut logo]

2.10 Air and Power connections

2.10.1 Air connection and regulator setup

1. Remove the dust cap (Fig 25 (1)) from the pressure regulator on the control box.
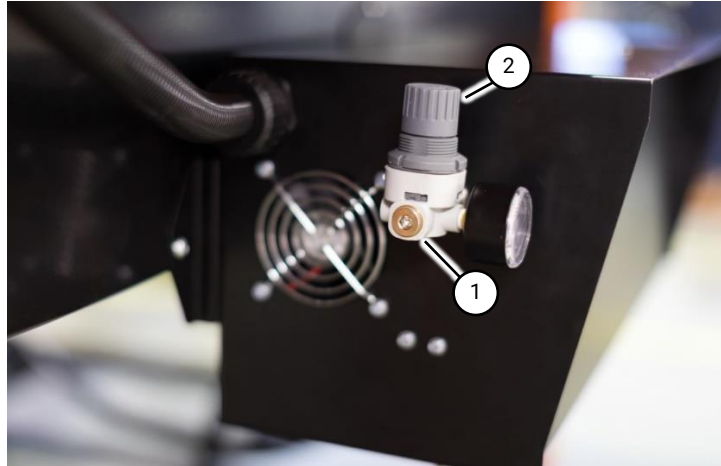
Fig 25 Soft Sense pressure regulator

    1.1   Fit an appropriate fitting to allow connection to a compressed air supply. The thread is female 1/4BSP.

2. The regulator for the Soft Sense must be set to 4bar (60 psi). The pressure can be viewed on the pressure gauge. To set the regulator proceed as follows:

    2.1   Pull up on the adjustable knob (Fig 25 (2)).

    2.2   Rotate the knob clockwise to increase the pressure, or anti-clockwise to decrease the pressure.

    2.3   Push the knob downwards to lock it into position.

2.10.2 Power connection

1. Connect the supplied IEC cable to the socket (Fig 26 (1)) on the side of the control box.

Fig 26 Control box power connection

2. Plug the IEC cable into the mains supply. The supply should be 110/230V 1ph 6A.

2.11   Connecting the plasma source

2.11.1 CNC connection

1. The plasma lead from the control box has two connectors for connecting to the plasma power sources. These are:

> 1.1   Serial connection for Hypertherm Powermax plasma sources only (Fig 27 (1)).

> 1.2   14 pin CPC connector which suits most mechanised plasma systems (Fig 27 (2)). For further information contact Swift-Cut Automation.
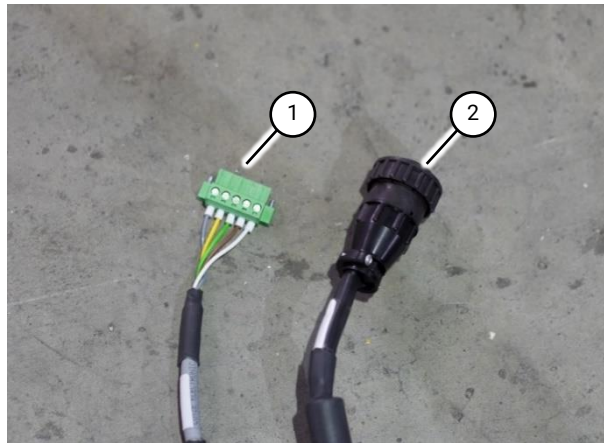
Fig 27 Plasma source connections

2. If using a Hypertherm Powermax fitted with a serial port, connect the serial connector into the serial port on the back of the plasma source.

3. Connect the 14 pin CPC connector into the back of the plasma source by first locating the alignment points, and then screwing the outside ring onto the port.

2.11.2 Air and Power

1. Please refer to the plasma source documentation for air and power connections.

> **INFORMATION**
> **THE QUALITY OF AIR HAS A SIGNIFICANT IMPACT ON CUT QUALITY AND CONSUMABLE LIFE. ENSURE THE AIR SUPPLY TO THE PLASMA MEETS THE REQUIREMENTS OF THE PLASMA SOURCE (SEE SECTION 1.1 SERVICES FOR MORE INFORMATION)**

2.11.3 Work lead

1.   Secure the plasma work lead to the brass bracket at the rear of the table. It can be either bolted or clamped using the work lead clamp typically supplied with the plasma source.

2.   Connect the other end to the plasma source. Refer to the plasma source documentation for correct connection procedure.

⚠ **INFORMATION**
AVOID COILING THE WORK LEAD AS THIS CAN AFFECT TORCH HEIGHT CONTROL PERFORMANCE.

Fig 28 Plasma work lead secured to table

2.11.4 Fitting the torch

1.   Pass the torch lead over the cable hook on top of the cable post.

Fig 29 Torch lead on hook

2. Loosen the clamp on the torch holder (Fig 30 (1)) and insert the torch into the bracket.

Fig 30 Plasma torch fitted to the head

3. Tighten the torch clamp. The cutting height will be setup later.

4. Ensure there is enough slack in the torch lead to allow the head to move freely to all corners of the cutting bed.

    4.1 The torch lead can be secured with a cable tie to the cable hook to prevent it moving.

3 SOFTWARE INSTALLATION

INFORMATION
AN INTERNET CONNECTION IS REQUIRED FOR LICENCING AND ACTIVATION OF THE SOFTWARE.

1. The software installation files and licence information documents can be found on the USB flash drive included with the Swifty 1250 (44).

2. Insert the USB flash drive into the PC that the software is to be installed on, and open the folder.

3.1 SwiftCAM

3.1.1 Installation

INFORMATION
PLEASE HAVE THE SWIFTCAM LICENCE INFORMATION DOCUMENT FOUND ON THE USB FLASH DRIVE PROVIDED WITH THE SWIFTY 1250 (44) TO HAND.

1. Double click the SwiftCAM installation file (Fig 31), the installation files will begin to extract.

Fig 31 SwiftCAM installation file icon.

2. Proceed through the installation of Libellula.WIZARD until it has completed. Click 'Finish'.

3. Installation of Libellula.LM will then automatically start. Proceed through the installation until it has completed. Click 'Finish'.
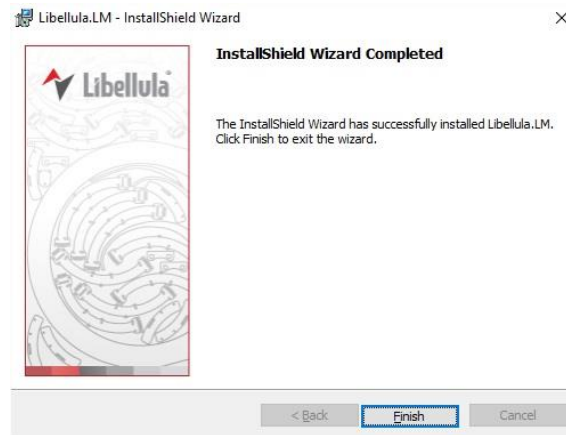
3.1.2   Licencing

1.   Open the SwiftCAM software by double left clicking the icon on the desktop.

Fig 32 SwiftCAM desktop icon

2.   The following message will appear indicating the software is not licenced. Click Ok to open the licence manager.

3.   Proceeed through the first two pages of the licence manager and select 'SW License Activation' and click Next.
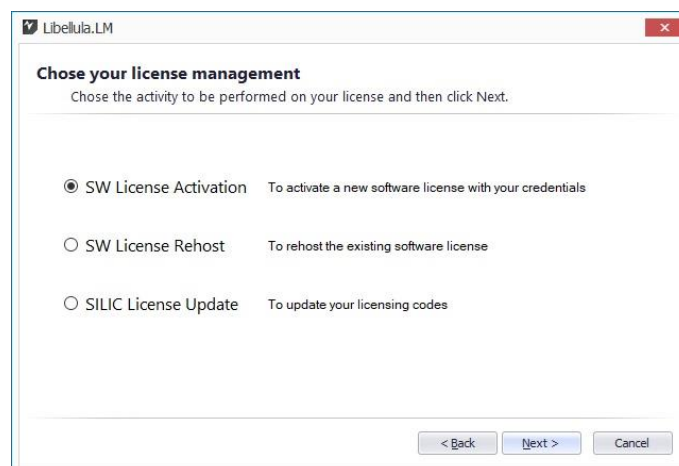
4.	Enter the Licence number (XXXXX) and Activation code (XXXX-XXXX-XXXX-XXXX) from the SwiftCAM licence document on the USB flash drive supplied with the Swifty 1250 (44) and select 'Next'. A confirmation will be shown, please check the information entered is correct and select 'Ok' to continue.

5.	After activation of the licence, select 'Next'. The software licence will start downloading. After it has completed select 'Next' and then 'Finish'.

### 3.1.3	Configuration

1.	Double left click the SwiftCAM icon on the desktop again, the following message will be shown indicating that no plasma source has been selected. Press 'Ok' to open the Configurator.

2.	On the Machine Selection page select the plasma source to be used and then select 'Next'.

3.	The software will configure itself for the chosen plasma source. Select 'Finish' once complete.

4. Open the SwiftCAM software once again using the desktop icon. The activation screen is displayed.

5. Select 'Get Activation Code' (Fig 33 (1)).
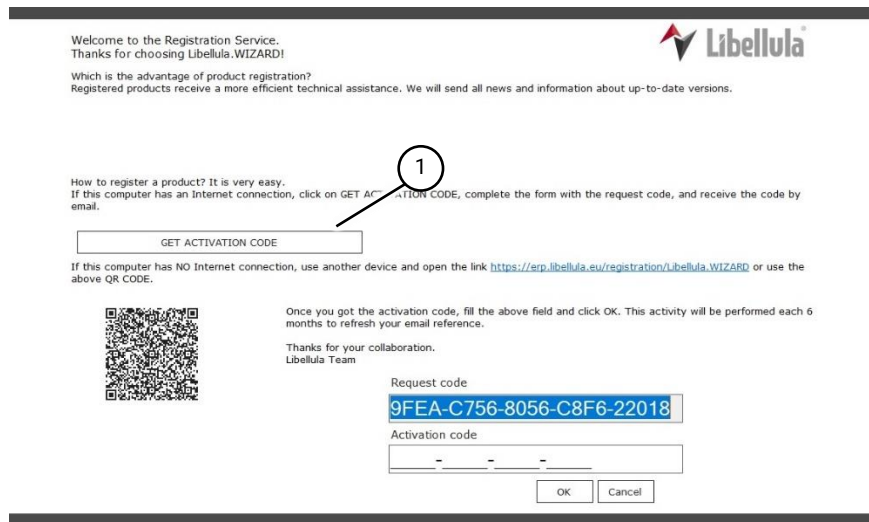
Fig 33 SwiftCAM activation screen

6. A registration website will be presented. Please fill in the required information ensuring the email address is correct. Click 'Send the Activation Code request'.

7. An email will be sent to the email address provided with the Activation Code. This can take several minutes to arrive. Once received, copy and paste the activation code into the Activation Code field in the SwiftCAM software and click 'Ok'.

8. If 'Cancel' is selected on the Activation screen, the software can be used for 15 days without requiring activation.

3.2   **Swifty-CNC**

⚠ **INFORMATION**
PLEASE HAVE THE SWIFTY-CNC LICENCE INFORMATION DOCUMENT FOUND ON THE USB FLASH DRIVE PROVIDED WITH THE SWIFTY 1250 (44) TO HAND.

3.2.1   Installation

1.   On the USB flash drive provided double click the Swifty-CNC install file (Fig 34). Click 'Yes' to any User Account Control dialogs.

Fig 34 Swifty-CNC installation file icon

2.   Proceed through the first page of the installer.

3.   Select the units of measurement to be used and then select 'Next'.
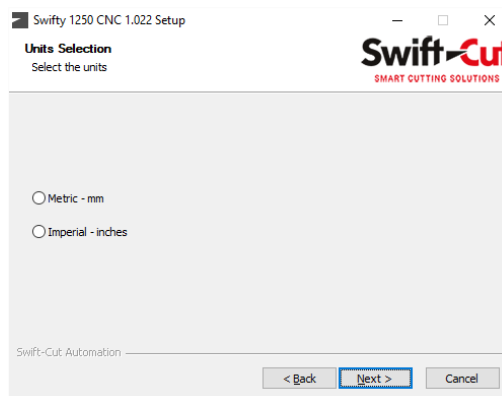
4.   Select 'Install'. The software will begin to install. Once the installation is complete select 'Finish'
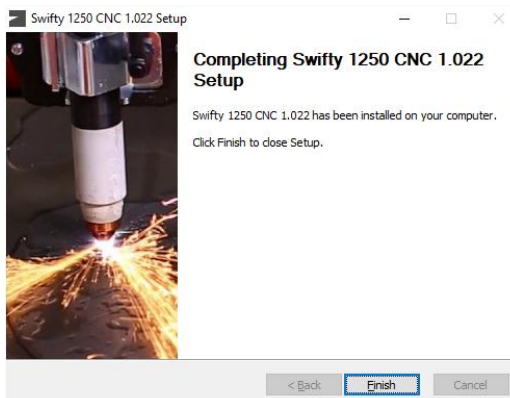
3.2.2 Licencing

1.   Open Swifty CNC

2.   Navigate to the Program Run Advanced page (Fig 35 (1)). Select 'Diagnostics' (Fig 35 (2)) and then select 'Licencing' (Fig 35 (3)).
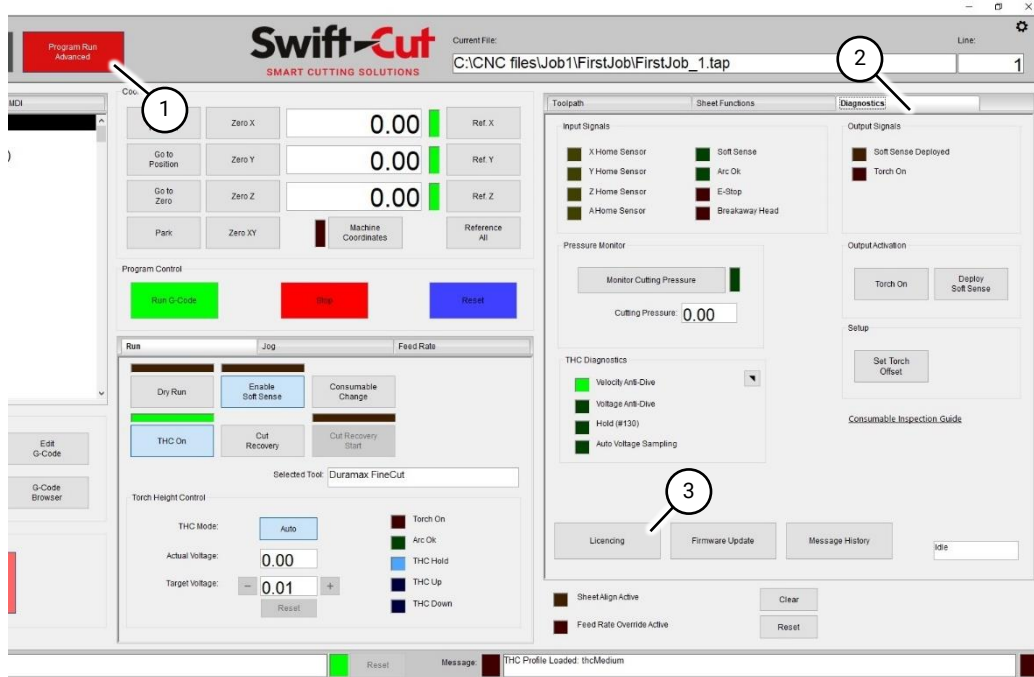
Fig 35 Licencing button

3.   Select 'Copy ID to Clipboard' (Fig 36 (1)) and then navigate to the www.machsupport.com website (Fig 36 (2)).
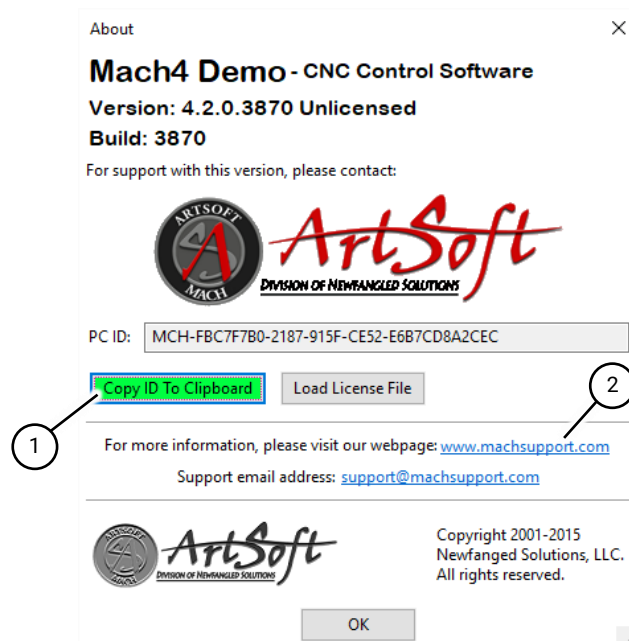
Fig 36 Licence information dialog

4.   Open the shopping cart from the top right-hand corner.
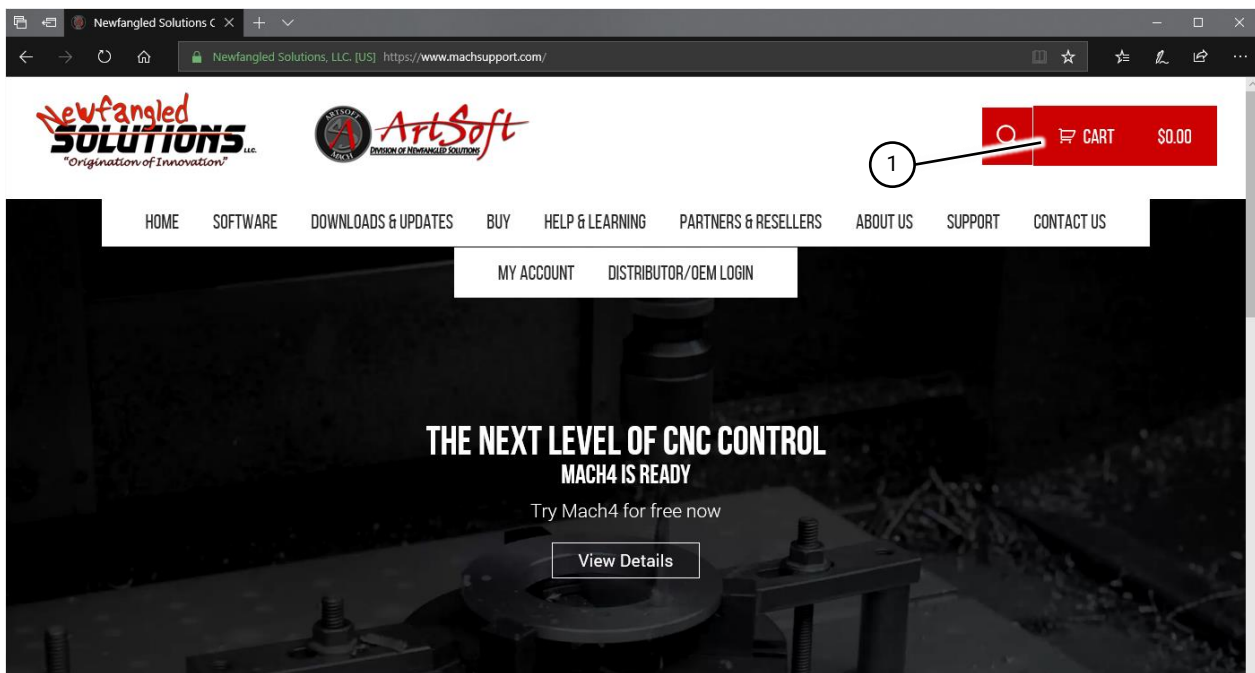
5.   Enter the coupon code (XXXXXXXX) from the Swifty-CNC licence document, found on the USB flash drive, into the box and select 'APPLY CODE'. The software will be added to the cart at 0 cost. Select 'PROCEED TO CHECKOUT'.
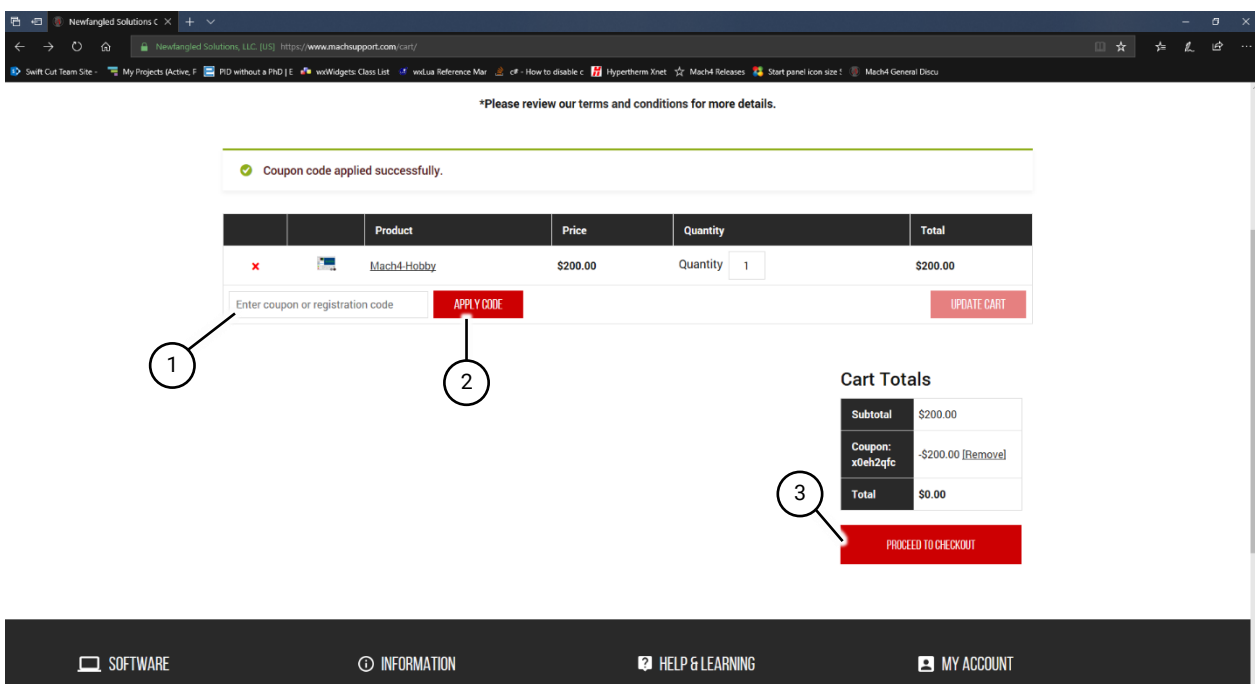
6.   In the PCID information box (Fig 37 (1)), right click and select 'Paste'. This will enter the PCID code copied in step 3. Fill in the rest of the billing details required. **Please note:** You will not be charged for any software. Ensure the email address entered is correct and you have access to the email inbox as this is where the licence file will get sent.

Fig 37 Details and PCID

7.   After filling out all required details, and checking the terms and conditions agreement, select the 'PLACE ORDER' button (Fig 38 (1)). An email containing a download link for the licence file will be sent to the email address provided.

Fig 38 Place order

8.   In the email, click on the download link to download the licence file. After the download is complete, navigate to the downloaded file and copy and paste it into C:\SwiftyCNC\Licences.

![Swift-Cut logo]

9.   Open Swifty-CNC and navigate to the licensing page (Sub-Section 3.2.2 Paragraph 2). Select 'Load Licence file'.
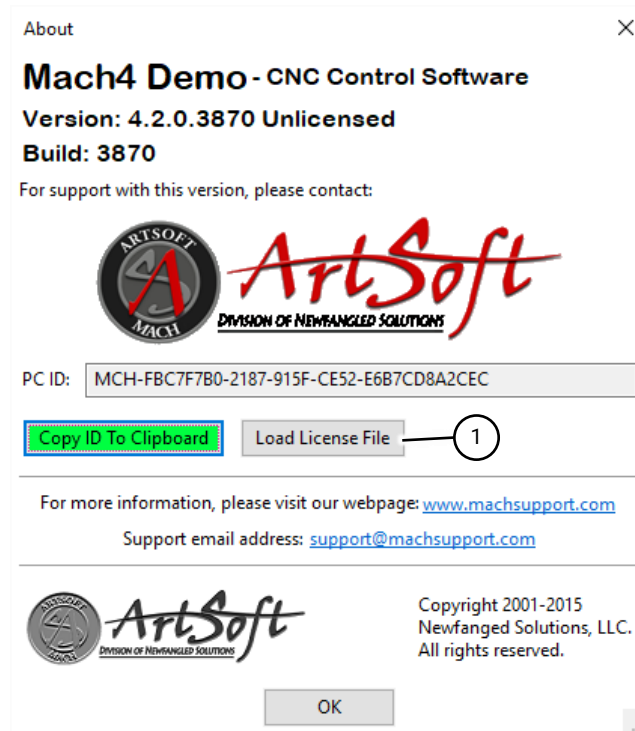
10. In the dialog window navigate to the location in which the licence file was just saved to (C:\SwiftyCNC\Licences). Select the licence file and select 'Open'.

11. A dialog will show requesting to restart the software. Upon restarting, the software will be licenced.

3.2.3   Network setup

1.   In order to connect to the Swifty 1250 (44) the IP settings for the ethernet port must be configured.

> ⚠ **INFORMATION**
> **AFTER THE IP ADDRESS HAS BEEN CONFIGURED FOR THE SWIFTY 1250 (44), THE ETHERNET PORT WILL NO LONGER WORK FOR CONNECTION TO THE INTERNET.**

3.2.3.1   Windows 10 IP configuration

1.   Right click the start menu icon and selection 'Network Connections' (Fig 39 (1))
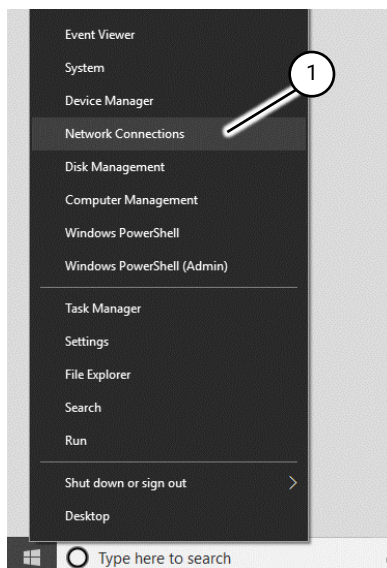
Fig 39 Network connections

2.   Select 'Change Adapter Options'
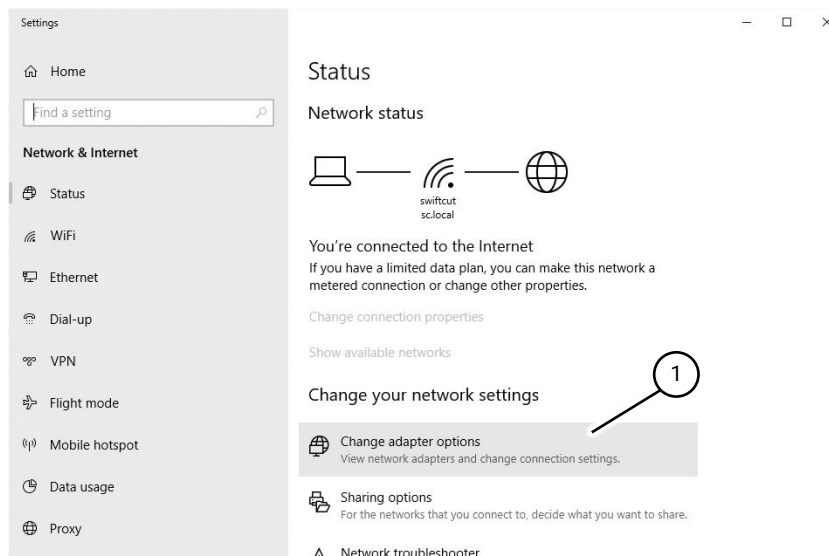
Fig 40 Change adapter options

3.   In the Network Connections window, right click on the 'Ethernet' network adapter and select 'Properties'.
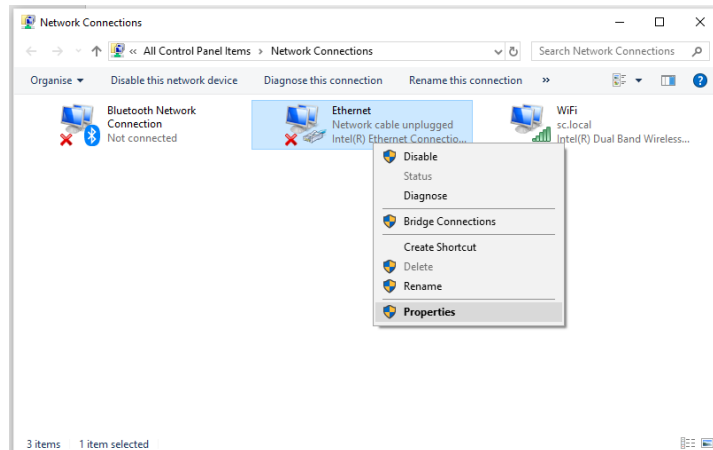
Fig 41 Network connections

4.   Select 'Internet Protocol Version 4 (TCP/IPv4)' (Fig 42 (1)) and then select 'Properties' (Fig 42 (2)).
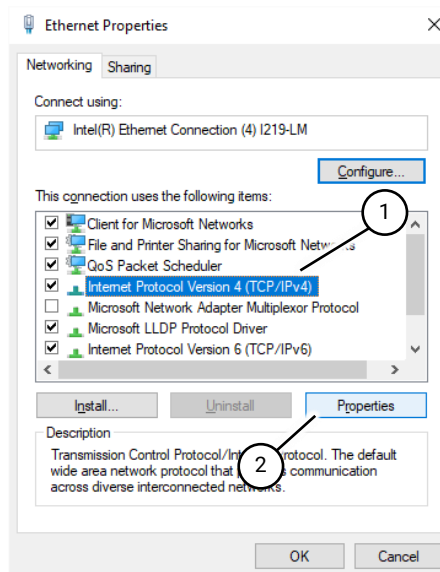
Fig 42 Network adapter properties

5. Select 'Use the following IP address' (Fig 43 (1)). Enter the following:

    5.1   IP address: 192.168.0.10
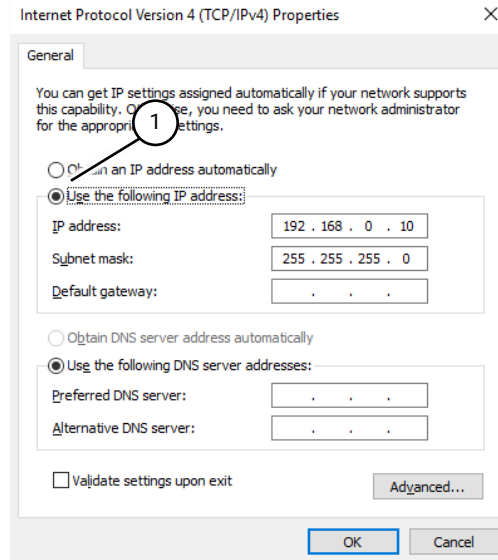
    5.2   Subnet mask: 255.255.255.0

Fig 43 IP settings

6. Press 'Ok' and close all open dialogs.

3.2.4 Plasma Source Selection

7. If using a plasma source other than a Hypertherm Powermax, the plasma type must be changed within SwiftyCNC.

8. Navigate to the settings menu by selecting the Settings icon ⚙ in the top right hand corner.

9. From the Settings window select the correct plasma source (Fig 44 (1)). SwiftyCNC will need to be restarted.
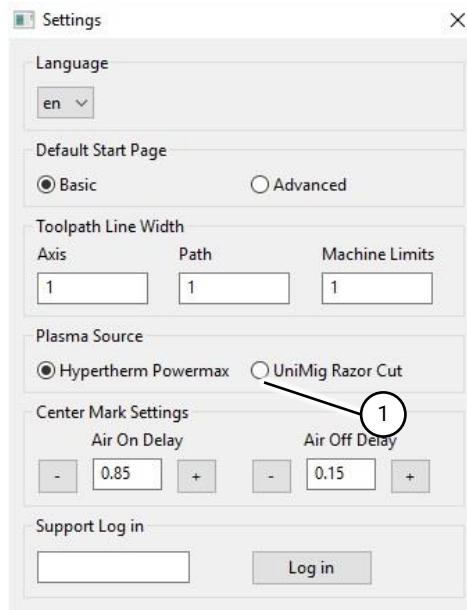

Fig 44 Settings window

10. The software installation and setup is now complete.

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SECTION 3

OPERATION

CONTENTS

(continued)

Contents (continued)

1 GETTING STARTED

1. Before operating the Swifty 1250 (44), please make sure that the following hazard information is read and understood by all personnel who are involved with its operation.

WARNING
MOVING PARTS. THERE ARE MOVING PARTS ON THE SWIFTY 1250 (44) WHEN THE EQUIPMENT IS IN OPERATION. THESE INCLUDE THE X, Y AND Z AXIS. THESE ITEMS MAY MOVE QUICKLY AND COULD TRAP BODY PARTS OR CLOTHING AND CAUSE INJURY.

MAKE SURE THAT NO PERSONNEL ARE IN THE IMMEDIATE VICINITY OF THE EQUIPMENT WHEN IT IS OPERATING.

ONLY WHEN THE MACHINE HAS FULLY COMPLETED THE OPERATING CYCLE CAN THE SAFE REMOVAL OF COMPONENTS BE CARRIED OUT.

WARNING
SAFETY SHOES. ALL PERSONNEL INVOLVED WITH THE INSTALLATION AND OPERATION OF THE SWIFTY 1250 (44) MUST WEAR APPROPRIATE SAFETY SHOES TO PREVENT FOOT INJURY.

WARNING
ARC FLASH. THE SWIFTY 1250 (44) PRODUCES AN ELECTRIC ARC WHEN OPERATING. THIS WILL PERMANENTLY DAMAGE THE EYES IF VIEWED WITHOUT PROTECTION. ALWAYS WEAR THE CORRECT PERSONAL PROTECTIVE EQUIPMENT (PPE) AS RECOMMENDED IN THE PLASMA SOURCE DOCUMENTATION, BEFORE STARTING THE PROCESS.

WARNING
EAR PROTECTION. THE SWIFTY 1250 (44) USES COMPRESSED AIR AS PART OF THE CUTTING PROCESS, WHICH PRODUCES A SIGNIFICANT AMOUNT OF NOISE. APPROPRIATE EAR PROTECTION MUST BE WORN BY ANY PERSONNEL IN THE VICINITY OF THE EQUIPMENT WHILST IT IS IN OPERATION.

WARNING
MOVING PARTS. DURING OPERATION, THE MACHINE WILL MAKE AUTOMATIC MOVEMENTS WITHOUT WARNING. ALL PERSONNEL MUST REMAIN AT A SAFE DISTANCE FROM THE MACHINE WHILST IT IS IN OPERATION. FAILURE TO DO SO MAY RESULT IN INJURY.

WARNING
RISK OF FIRE. THE PLASMA ARC AND THE SPARKS PRODUCED BY THE CUTTING PROCESS ARE SOURCES OF IGNITION. ALL COMBUSTIBLE MATERIALS MUST BE STORED AT A SAFE DISTANCE FROM THE MACHINE.

WARNING
HOT SURFACES. PLASMA CUTTING CREATES SIGNIFICANT HEAT IN THE MATERIAL BEING WORKED. CUT COMPONENTS CAN RETAIN HEAT AFTER THE CUTTING PROCESS HAS FINISHED.

ALWAYS WEAR SUITABLE GLOVES WHEN HANDLING CUT COMPONENTS AND ALLOW THE COMPONENTS TO COOL SUFFICIENTLY BEFORE HANDLING.

WARNING
HEAVY ITEMS. EXTREME CAUTION MUST BE EXERCISED WHEN HANDLING HEAVY COMPONENTS TO REMOVE THE RISK OF INJURY. IF REQUIRED, OBTAIN ASSISTANCE WHEN HANDLING HEAVY ITEMS.

HEAVY ITEMS MAY REQUIRE LIFTING EQUIPMENT. IN THIS INSTANCE, THE OPERATING INSTRUCTIONS FOR SUCH EQUIPMENT MUST BE FOLLOWED.

2. Switch on the external power supply to the Swifty 1250 (44).

3. Switch the Swifty 1250 (44) power on at the control box using the On/Off switch (Fig 45 (1)).

   3.1   The LED on the control box (Fig 45 (2)) and on the laptop stand will light up indicating the machine is powered on.

Fig 45 Control Box

4. Switch on the air compressor.

5. Switch the plasma source on:

   5.1   Check for any error codes or warning indicators on the plasma source control panel (refer to the plasma source documentation.

   5.2   If any codes or indicators are present, refer to the appropriate troubleshooting documentation for the plasma source.

2 SWIFTCAM

1. To use the SwiftCAM application proceed as follows:

2.1 Creating a New Job

1. From the desktop start the SwiftCAM application (double-click the SwiftCAM icon). Once the application has loaded, it will display the Job Library page (Fig 46).
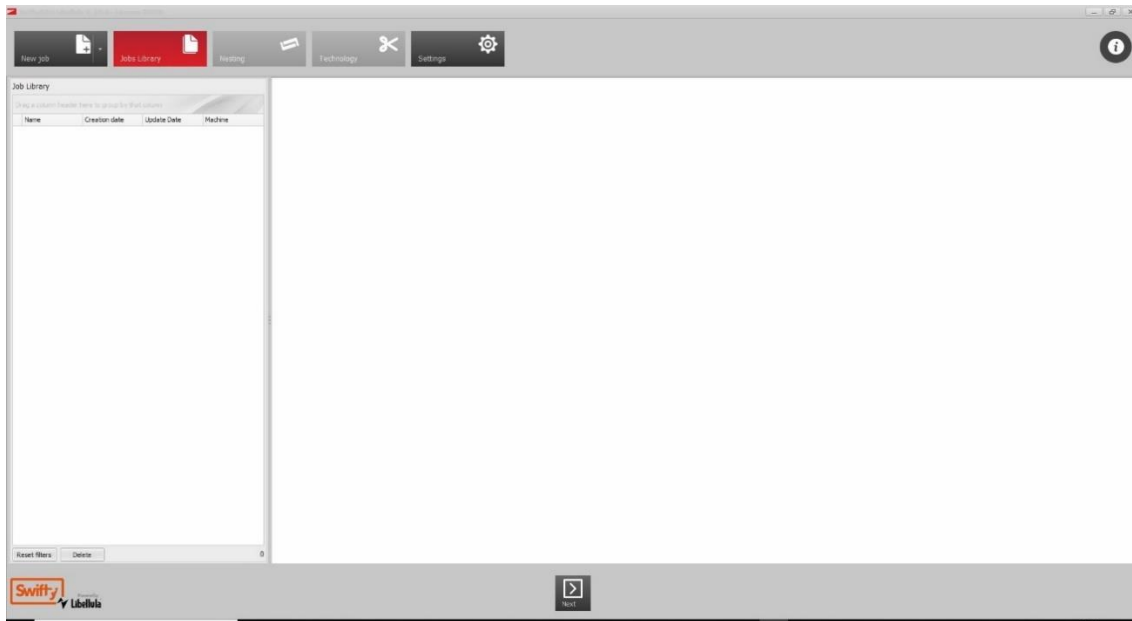

Fig 46 SwiftCAM application (Job Library)

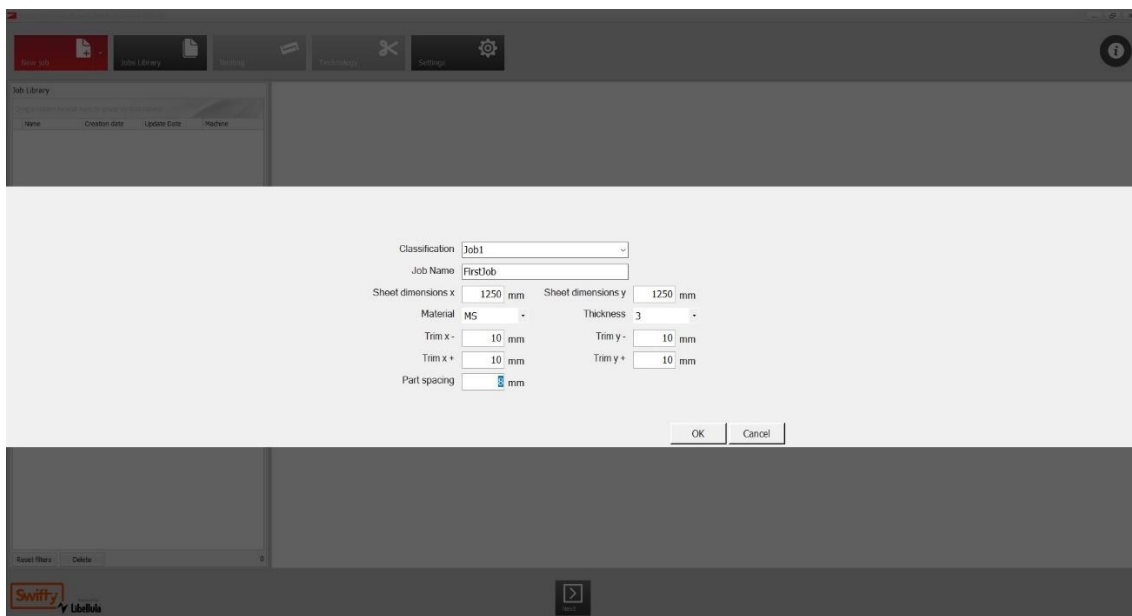2. Select the 'New job' tab. This opens the new job setup screen (Fig 47).

Fig 47 New job setup

3. Add the following criteria:

    3.1   Add classification: creates a folder for the job.

    3.2   Job name: choose a name that will identify the job.

    3.3   Sheet dimensions: the specific dimensions (length (x) and width (y)) of the sheet of metal that is to be worked.

    3.4   Type of material: Aluminium, mild steel or stainless steel.

    3.5   Thickness: The thickness of the sheet of metal that is to be cut.

    3.6   Trim values: A border around the edge of the sheet that will not be used.

    3.7   Part spacing: Distance between parts when nested.

4. Press the 'OK' button.

2.2 Importing a Drawing

1.   On the File tab of the New Job screen, navigate to the location of the dxf/dwg file that is to be used for the task (Fig 48 shows an example).
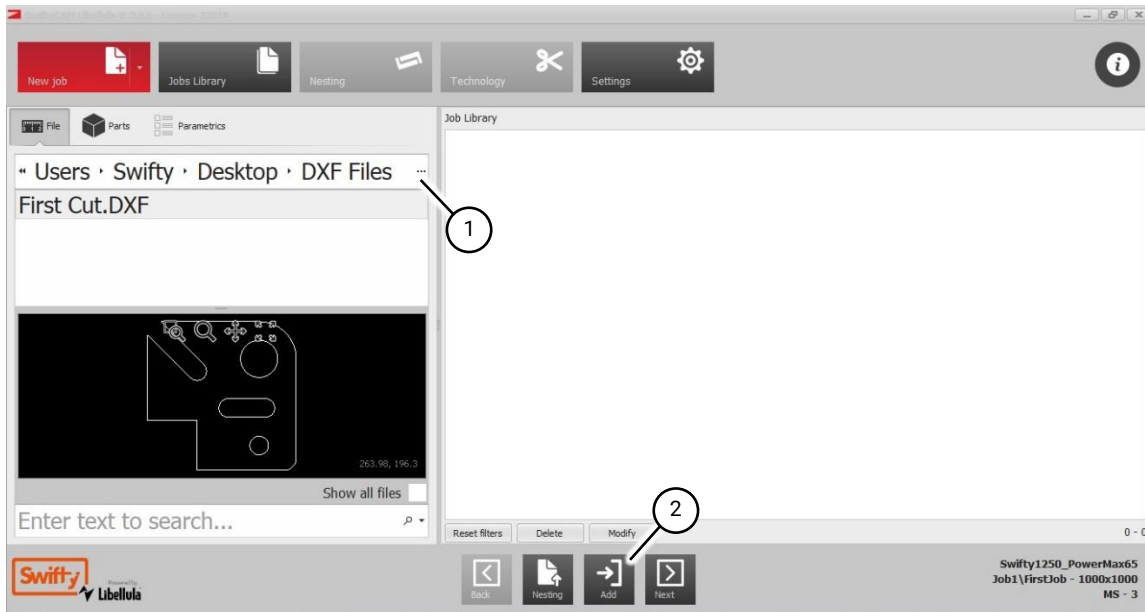

Fig 48 Selecting the file to import

1.   If using a USB flash drive to load drawings, select the three dots at the end of the file path to reveal files on the USB flash drive (Fig 48 (1)).

2.   Select the file to import and press the 'Add' button (Fig 48 (2)).

3.   If the drawing file contains multiple layers, they can be selected or deselected for import (Fig 49).
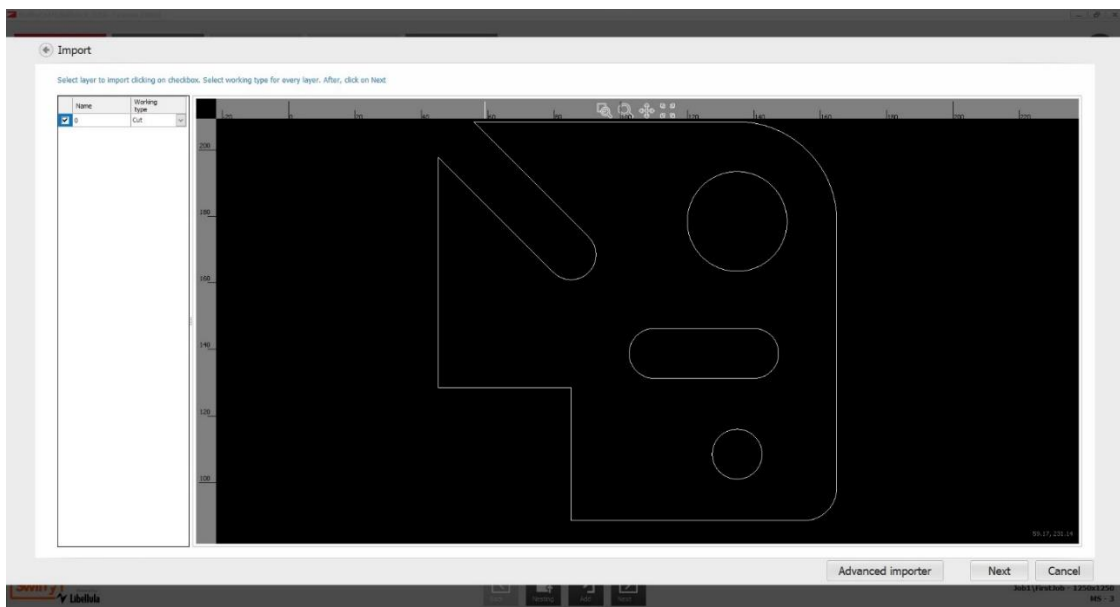

Fig 49 Working type menu

4. After the required layers have been selected press the Next button (lower right-hand side)

5. Working types can now be applied to individual profiles contain within the drawing.

6. The working types are as follows (refer to Fig 50):

   6.1 Cut (Blue): Cuts out the marked areas. (default)

   6.2 Centre piercing (Red): Makes a small mark for drilling position.

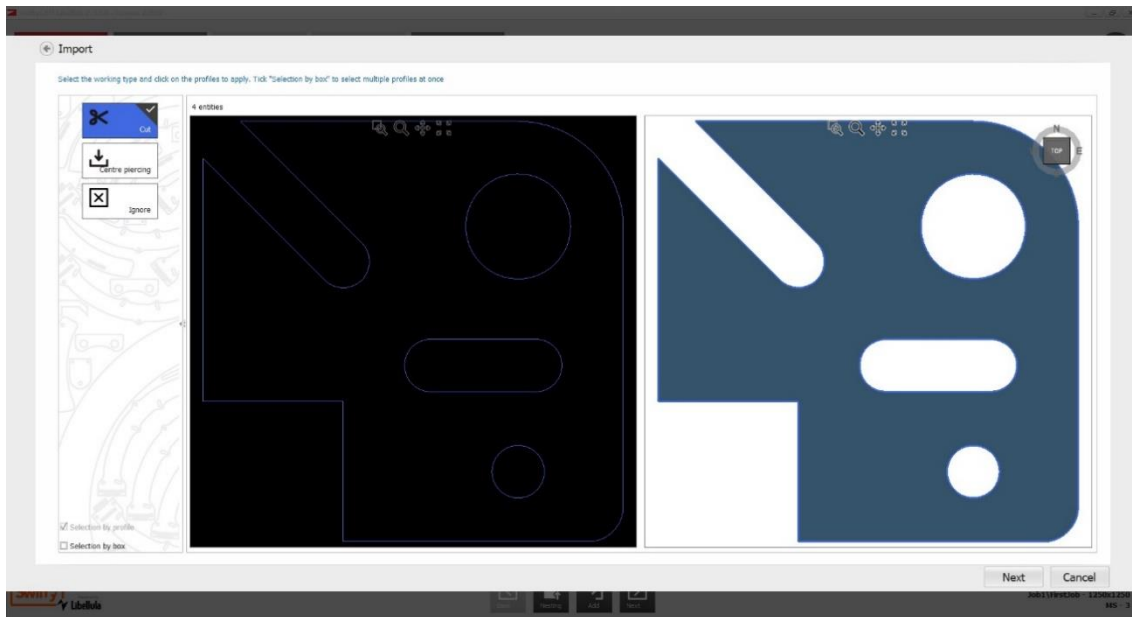   6.3 Ignore (Grey): Ignores sections of the drawing data.

Fig 50 Selecting working type

7.   To change the working type select the working type on the left hand side and then select the profile. The profile line colour will change to match that of the working type. A 3D preview of the part is shown on the right-hand side to show what the part will look like based on the selected working types.

8.   In the subsequent screen, fill in all of the fields (Fig 51). Some fields will be automatically populated. This is the information that the part will get saved in the parts library.
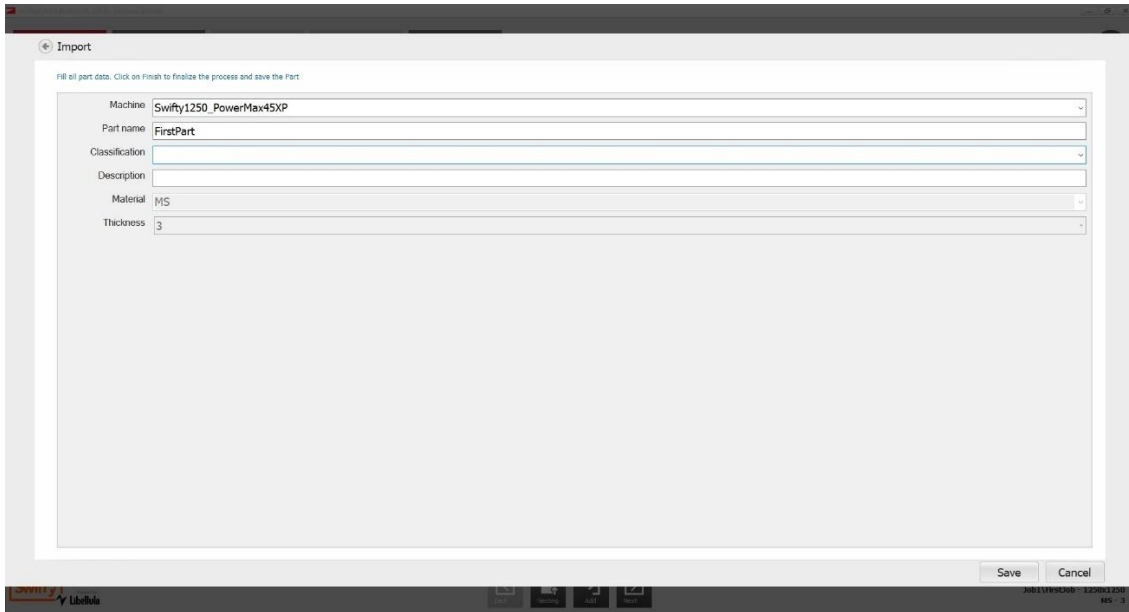
Fig 51 Part data screen

9.   Press the Save button.

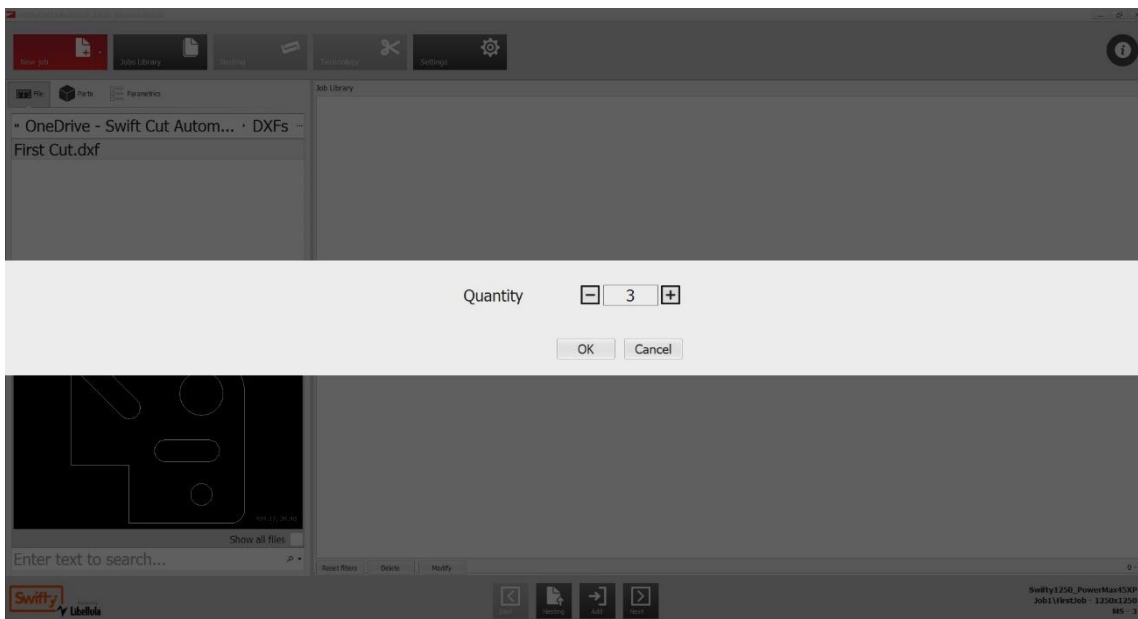10.   Add the quantity using the +/- buttons (Fig 52), then press the OK button.

Fig 52 Adding quantity

![Swift-Cut logo]

11. The drawing will now be added to the Job Library (current job) and the Part Library (which can be recalled later). Fig 53 shows the Parts tab of the New Job screen showing the Part Library and the Job Library panes.
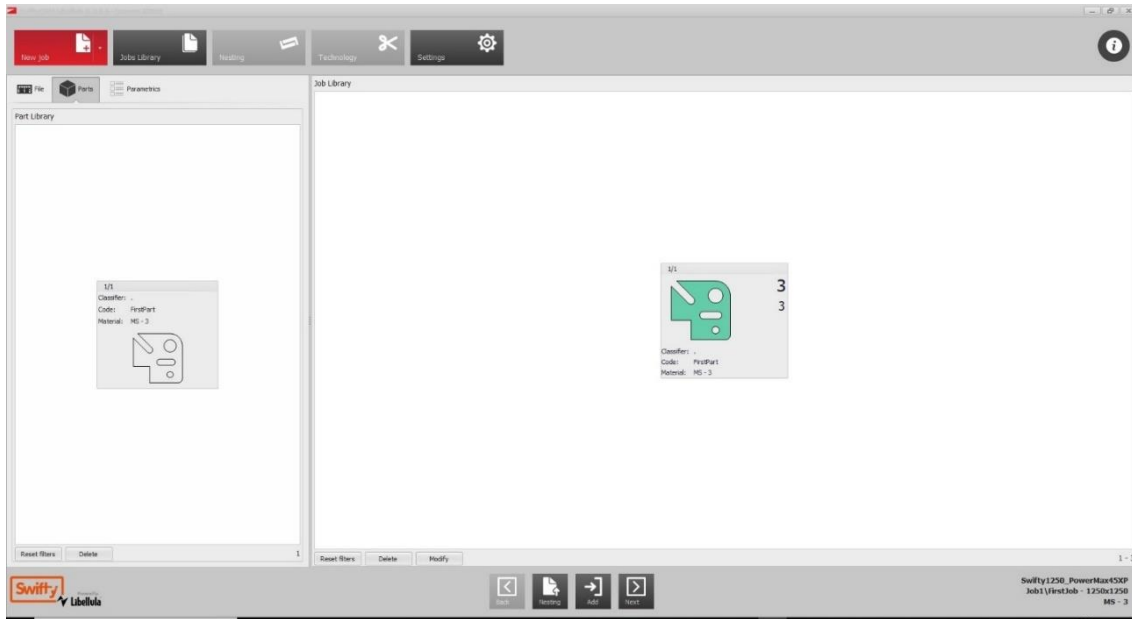

Fig 53 Job Library and Part Library

2.3 Parametric Shape Library

1. To configure and add a shape from the parametric shapre library please proceed as follows.

2. On the Parametrics tab of the New Job screen, select the required shape and press the Add button.

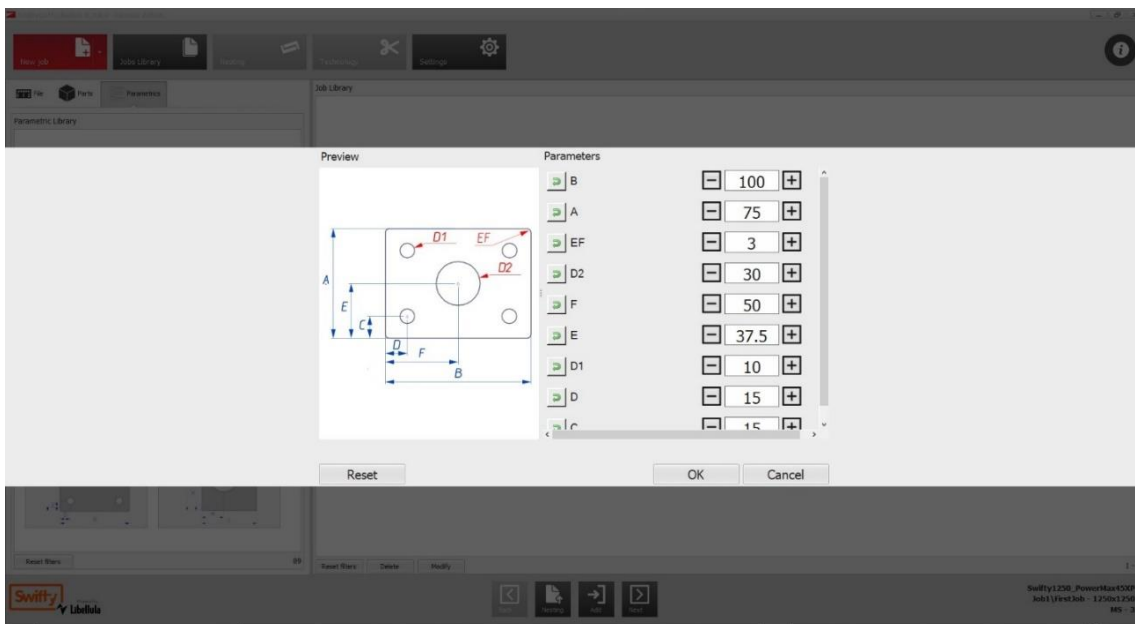3. The parameters screen will be displayed (Fig 54).

Fig 54 Parametric screen

4. To adjust the parameters (if required), use the -/+ buttons to change values. This will adjust the shape.

    4.1   Press the 'OK' button.

5. The Working Type screen will open, where any adjustments can be made (refer to Paragraphs 5 to 10 of this sub-section).

6. When all of the required parts are in the job library, press the 'Next' button to proceed onto the Nesting screen.

2.4   **Nesting Screen**

1. The Nesting screen (Fig 55) displays the cutting table outline (yellow), the size of the material set in the Job settings (green), and the trim value (purple).

2. The part thumbnail (in the 'Job Library' column) contains two numbers:

    2.1   The quantity to be cut (in Fig 55 this is shown as 3).

    2.2   The quantity currently nested (in Fig 55 this is shown as 0).
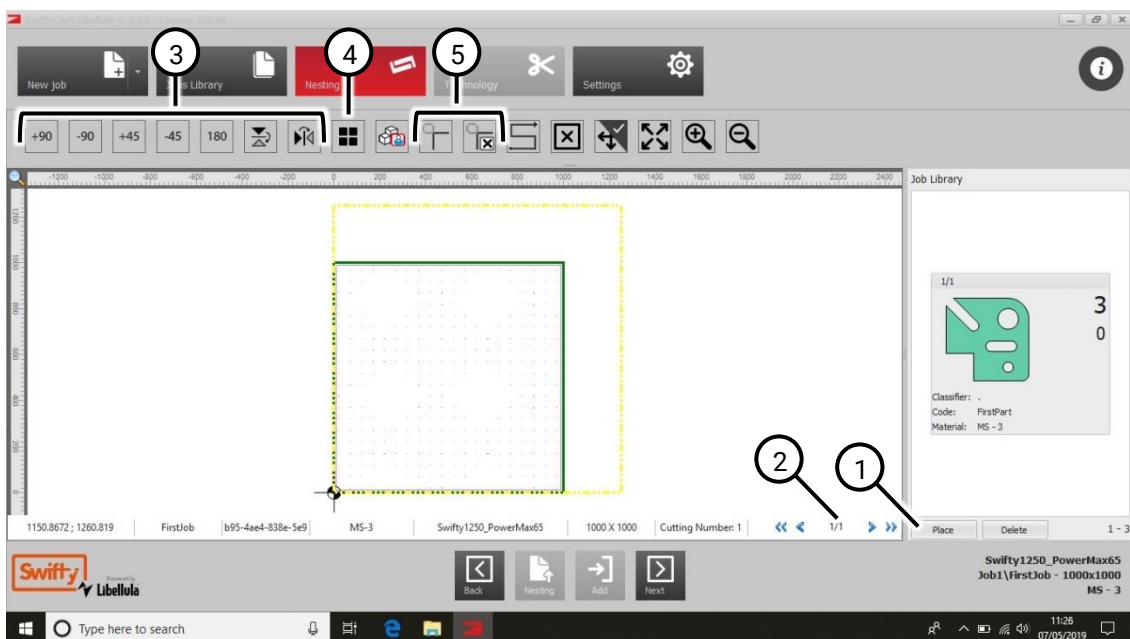

Fig 55 Nesting screen (Standard version)

3. The Advanced version of SwiftCAM will automatically nest parts from the Job Library onto the sheet. If the parts do not fit on one sheet, a second sheet will automatically be created. The numbers in the bottom right hand corner shows sheet information (Fig 55 (2)). The arrows can be used to switch between sheets if multiple sheets have been created.

4. For the Standard version of the software, to add the part to the nest preview proceed as follows:

    4.1   Select the part in the Job Library column.

4.2   Press the Place button (Fig 55 (1)). The shape will be added to the bottom left of the nest preview.

4.3   Repeat Paragraphs 4.1 and 4.2 of this sub-section, until all parts have been added to the preview.

5.   The layout of the parts can be further modified using the buttons in the top menu.

5.1   Controls to rotate components and mirror in the vertical and horizontal direction (Fig 55 (3))

5.2   Array components (Fig 55 (4))

5.3   Add loops to corners of components to improve corner definition (Fig 55 (5)).

6.   Press the 'Next' button to proceed onto the Technology screen.

2.5   Technology Screen

1.   The Technology screen shows the torch start position as a datum symbol in the bottom left hand corner. It also shows the torch path, lead-ins and lead-outs which are automatically generated.

1.1   Lead-in is the path the torch follows at the start of a cut.

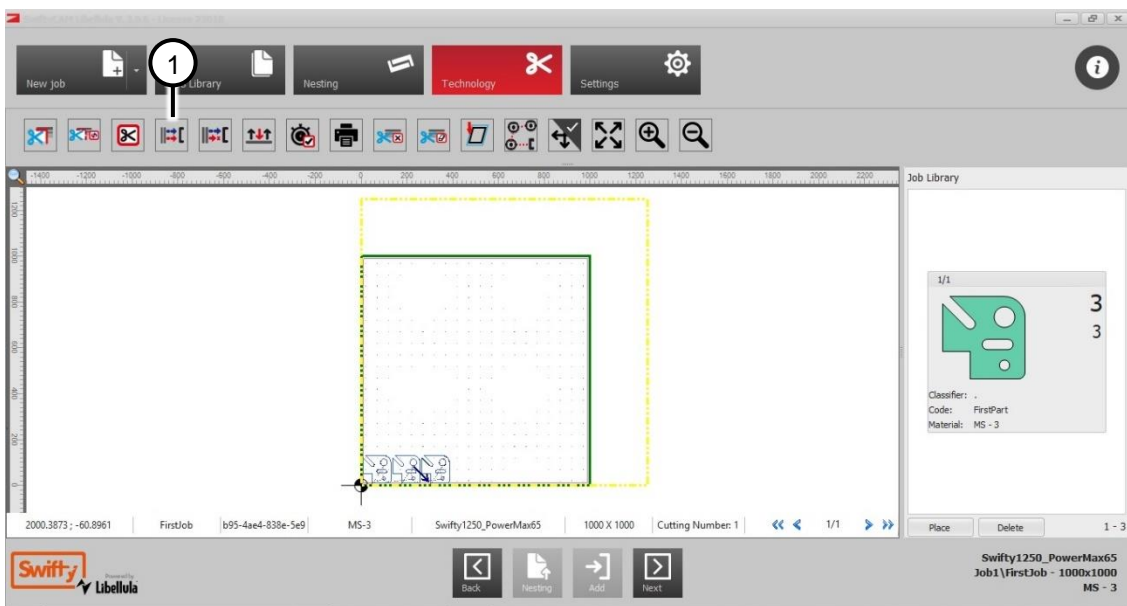1.2   Lead-out is the path the torch follows at the end of a cut.

Fig 56 Technology screen

2.   Lead-ins can be modified using the 'Lead-in modify button (Fig 56 (1)). The position, type and size can be customised.

3.   Press the 'Next' button to create the G-Code file.

2.6   G-Code File Preview

1. At this stage the g-code file to run the machine has been created and saved in the default location 'C:\CNC FILES' within a folder structure referring to the Job name specified earlier. The G-Code screen (Fig 57) shows a preview of the g-code file.

2. The plasma torch consumables required to cut the job is also displayed. These should be fitted to the plasma torch before cutting the job.
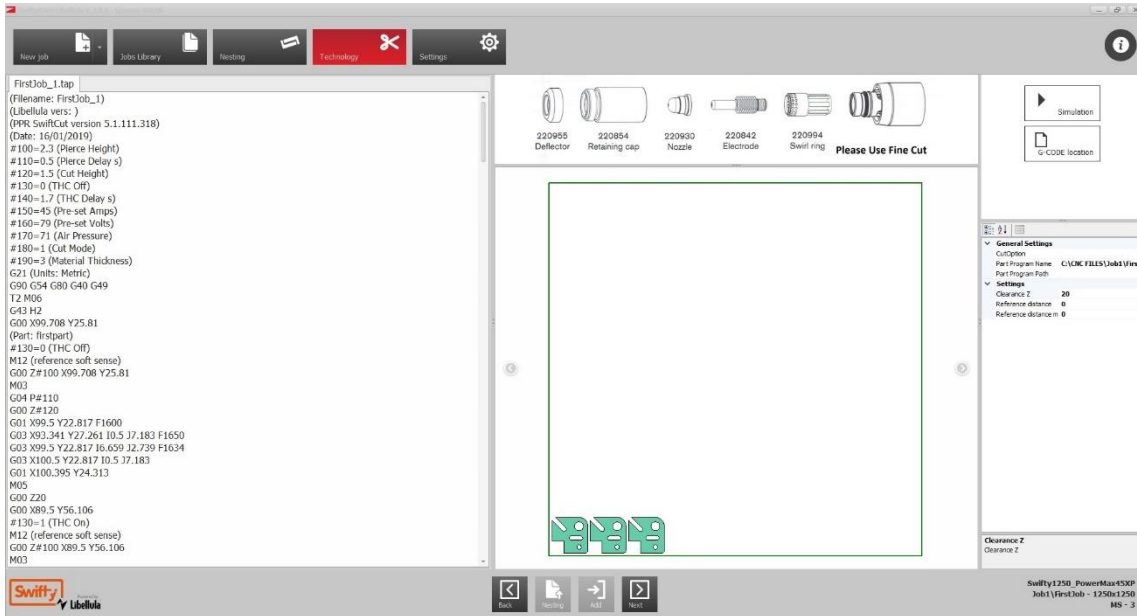

Fig 57 G-Code preview screen

3. The job report (Fig 58) will automatically be displayed for printing, if required.

Fig 58 Job report

2.7 **Cut Simulation**

3.1 A simulation of the cut can be previewed by clicking the 'Next' button on the G-code Preview screen (Fig 59). Use the controls in the bottom right hand corner to simulate the cut.
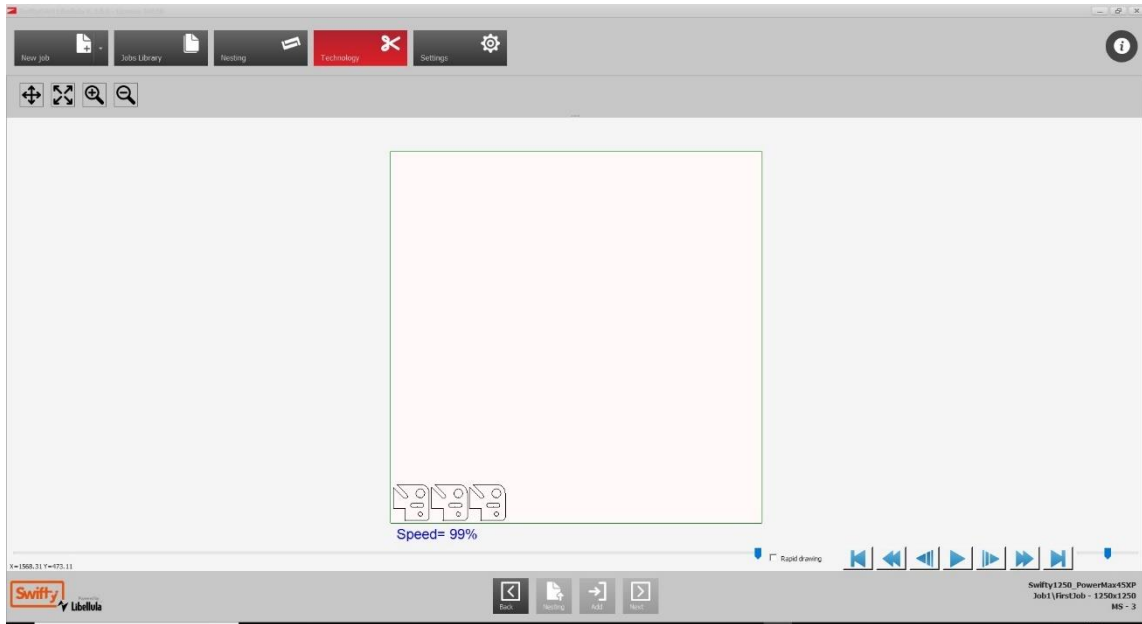
Fig 59 Cutting simulation screen

3 SWIFTY-CNC

3.1 Program Run Basic - Layout Information

1. Open the Swifty-CNC application (double-click the Swifty-CNC desktop icon). The application opens with the Program Run Basic.

2. The following section explains some of the key layout information.

3.1.1 Information fields

1. System information is displayed in various information fields on the screen (Fig 60). The information provided consists of the following:

    1.1   Cycle time (Fig 60 (1)) - Shows the current elapsed cutting time.

    1.2   Current file (Fig 60 (2)) - Shows the current tap file.

    1.3   Line (Fig 60 (3)) - Shows which line of G-Code is currently being executed.

    1.4   Powermax error (Fig 60 (4)) - Displays any error codes from the plasma source. (Hypertherm plasma sources only)

    1.5   Message (Fig 60 (5)) - General information messages.
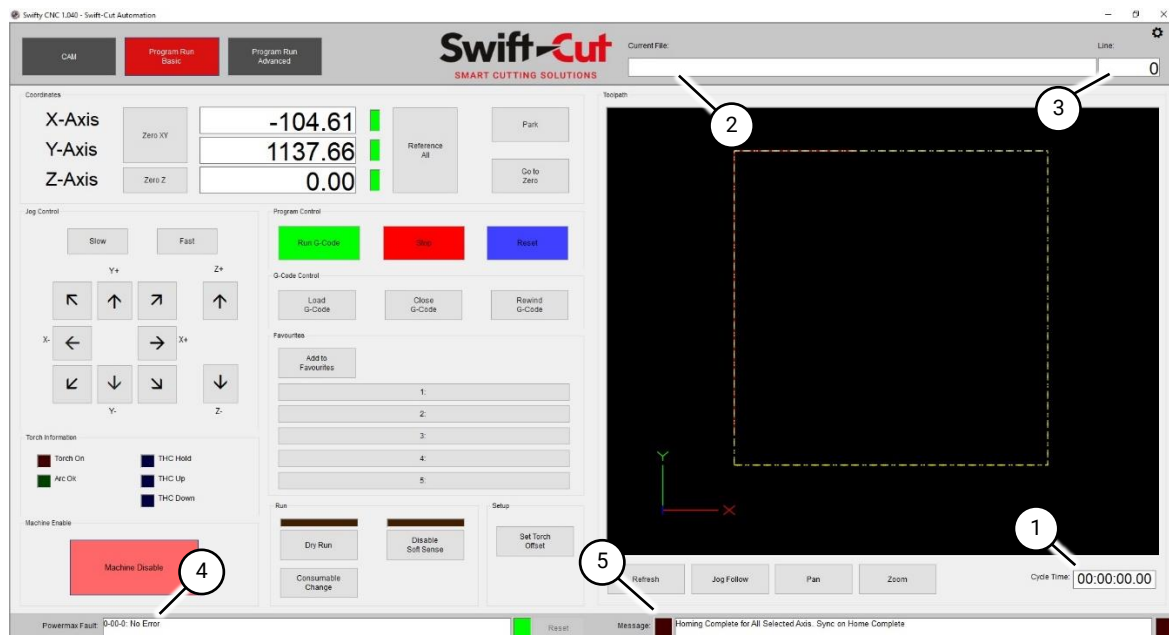
Fig 60 System information

3.1.2   Torch Information pane

1.   The Torch Information pane (Fig 61) displays the following:

   1.1   Torch On - Torch is running.

   1.2   Arc Ok - Arc has been established between the torch and workpiece.

   1.3   THC Hold – Indicates the THC corrections are paused. For more information when this is active, see the Diagnostics tab on the Advanced screen.

   1.4   THC Up - Shows when the Z-axis is correcting upwards.

   1.5   THC Down - Shows when the Z-axis is correcting downwards.

Fig 61 Torch Information

3.1.3   Tool path tab

1.   The tool path tab (Fig 62 (1)) allows the operator to view the tool path and associated controls.

Fig 62 Tool path screen

2.   The tool path tab shows the following lines, with corresponding functions:

   2.1   Yellow line: Machine table limits.

2.2   Green lines and arcs: Tool path.

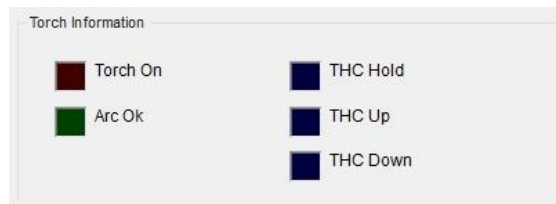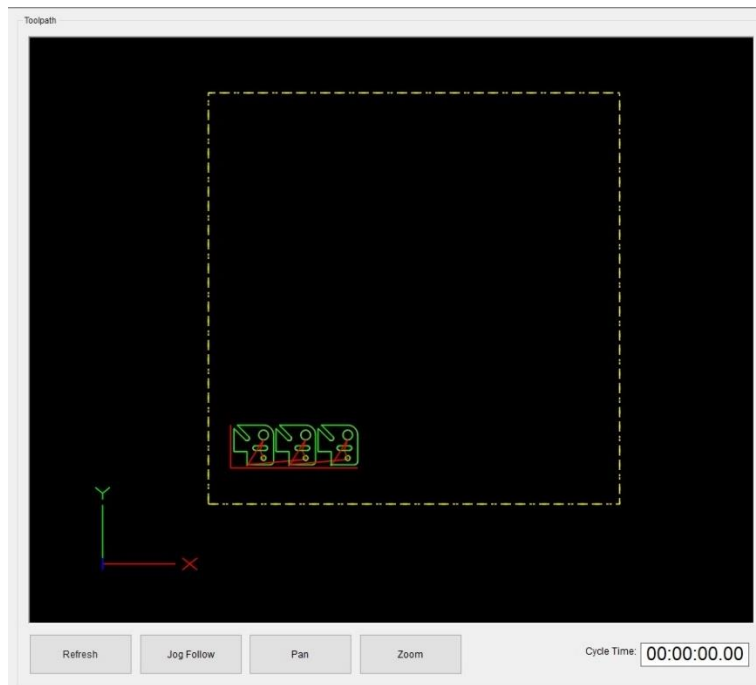2.3   Red: Torch rapid movements.

2.4   Red axis lines: Axis position (lines meet at the torch position).

2.5   White line: Past movement of torch.

3.   If the toolpath is faint on the display refer to sub-section 3.12 paragraph 1.4 on page 91 to increase the line width.

4.   To reset tool path view, double-click the left mouse button.

5.   The 'Refresh' button reloads the tool path display

6.   The 'Jog Follow' button aligns the torch position and movements with the centre of the tool path.

7.   Select the 'Pan' button and then left click and drag on the toolpath to move the toolpath around the window.

8.   Select the 'Zoom' button and then left click and drag on the toolpath to zoom in and out of the toolpath.

3.1.4   Program Control pane

1.   The Program Control pane has three coloured buttons with the following functions:

1.1   The green Run G-Code button is used to start the selected process (cutting or dry run).

1.2   The blue Reset button can be used to reset active processes such as Cut Recovery.

1.3   The red Stop button will stop any active process in a controlled manner.

⚠ **WARNING**
THE STOP BUTTON ON THE PROGRAM CONTROL PANE IS NOT AN EMERGENCY STOP BUTTON. IN THE EVENT OF A SITUATION REQUIRING AN EMERGENCY STOP, USE THE EMERGENCY STOP BUTTONS ON THE LAPTOP STAND.

Fig 63 Program Control pane

![Swift-Cut logo]

3.2 Referencing the Axes

2.   Press the 'Machine Enable' button (Fig 64 (1)). If the machine does not enable check the following:

   2.1   Machine is powered on.

   2.2   Ethernet cable is connected to the PC.

   2.3   Emergency stop button is not active.

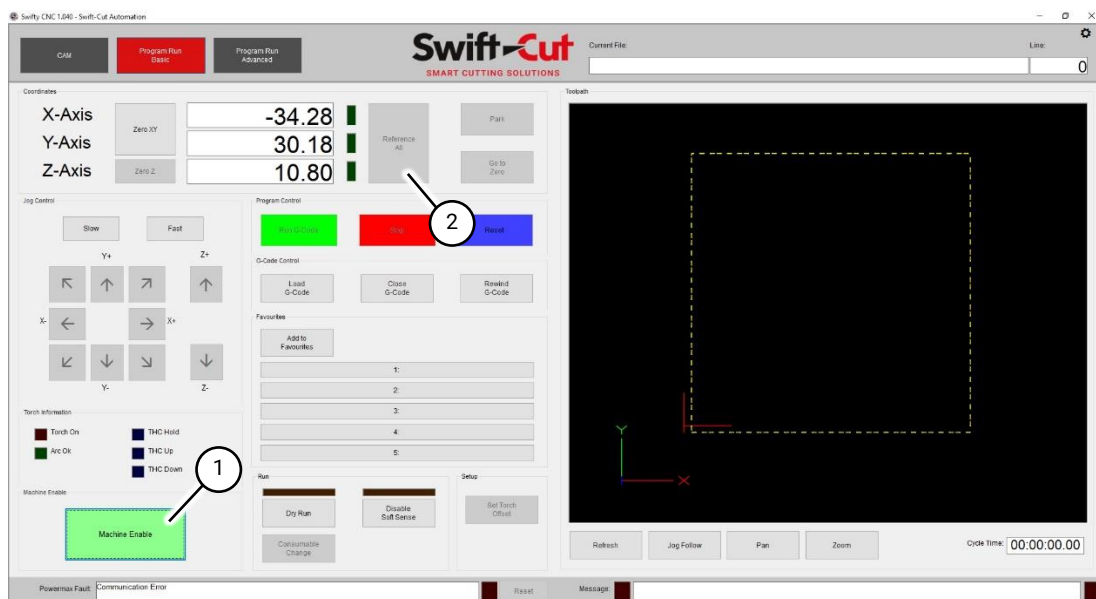   2.4   PC network settings are correct (Refer to section 0, page 48)

Fig 64 Swifty-CNC Program Run Basic screen

3.   Press the 'Reference All' button (Fig 64 (3)). This homes the machine to the rear left corner. This must be done prior to completing any other operation every time the Swifty-CNC software is opened or the machine is restarted.

4.   The torch will move to the home position.

![Swift-Cut logo]

5. The X, Y and Z axis reference indicators (Fig 65 (1), (2) and (3)) will illuminate green once the reference operation is completed.
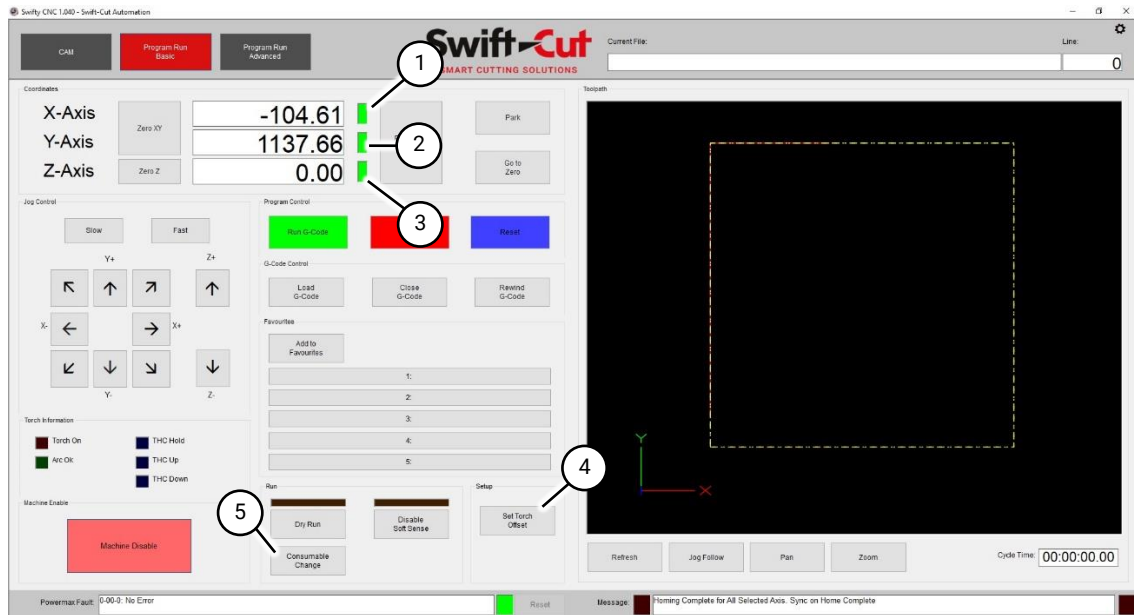

Fig 65 X, Y and Z axis illuminated

6. While the axes are at the back of the table place the material to be cut onto the cutting table.

3.3 Setting the Torch Offset

1. For first time use, the torch offset must be set. If after setting the offset, the torch moves within its holder, the 'set torch offset' process must be repeated. To set the torch offset proceed as follows:

1.1 Using the onscreen jog controls or keyboard directional arrows jog the torch over the material and select the 'Set Torch Offset' button (Fig 65 (4)). This sets the offset between the soft sense and the end of the torch.

1.2 When the Set Torch Offset button is selected, the torch raises to its reference position.

1.3 Follow the onscreen instructions to raise the torch in its holder and install the required shield.

1.4 Press the 'OK' button on the dialogue screen. The machine will now move to a pre-set location and perform a height sense. A pop-up will then appear on the screen requesting to lower the torch within its holder onto the material.

1.5 Loosen the torch clamp and lower the torch onto the metal sheet. Tighten the clamp.

1.6 Press the 'OK' button on the dialogue screen. The setup of the torch offset is complete.

2. If required, change the torch consumable according to SwiftCAM job report (Fig 58) as follows.

> 2.1 Press the Consumables Change button (Fig 65 (5)).

> 2.2 The torch head will move to the front of the machine.

> 2.3 Isolate the plasma source power supply (refer to the plasma source documentation).

> 2.4 Change the consumables according to the plasma source documentation.

> 2.5 Power up the plasma source.

> 2.6 If a 0-11 fault occurs on Hypertherm Powermax plasma source, press the 'Reset' button next to the Powermax fault indicator.

3.4   Zero the X and Y Axis

1. Using the on-screen jog control, move the torch to the bottom left hand corner of the material.

2. When in position, press the Zero XY button (Fig 66 (1)). This sets the X and Y position readouts to 0. The g-code file will start cutting from this position.

Fig 66 Zero XY button
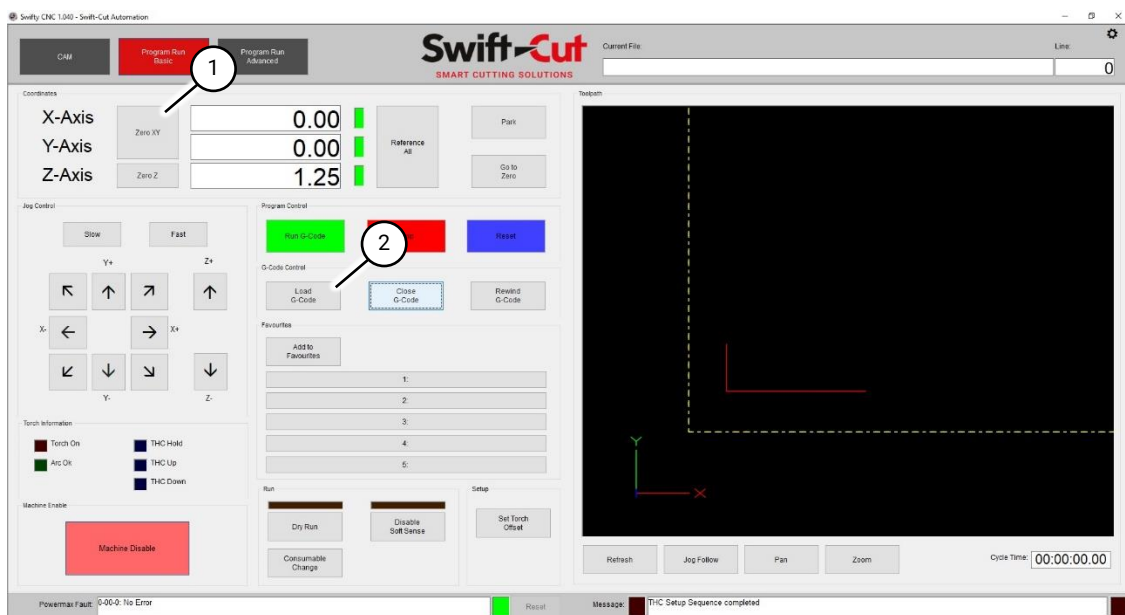
3. Press the Load G-Code button (Fig 66 (2)).

4. Navigate to the location of the job .tap file and open the file. The default location for .tap files created by SwiftCAM is: C:\CNC files

5. The file loads and is displayed in the tool path display (Fig 67 (1)).

> 5.1 If the toolpath is faint on the display refer to sub-section 3.12 paragraph 1.4 on page 91 to increase the line width.
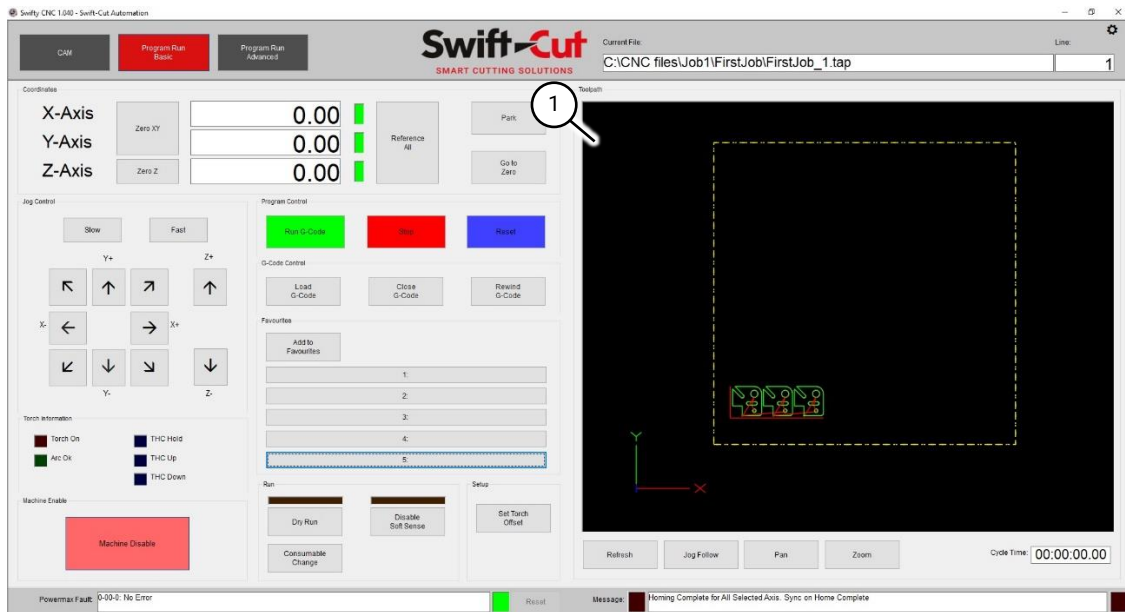
Fig 67 Tool path display

3.5   **Dry Run**

1.   Pressing the Dry Run button (Fig 68 (1)) allows the job to be previewed without cutting taking place.

Fig 68 Dry run

2.   Press the Run G-Code button (Fig 68 (2)) to execute a dry run.

3.   The dry run can be stopped anytime by pressing the Stop button (Fig 68 (3)).

4.   De-select the Dry Run button (Fig 68 (1)) to switch off the dry run.

5.   Press the Go to Zero button (Fig 68 (4)) to return to the start position selected earlier.

3.6 Starting the Cut

1. Press Rewind G-Code button (Fig 68 (6)) to ensure the g-code is starting from the beginning.

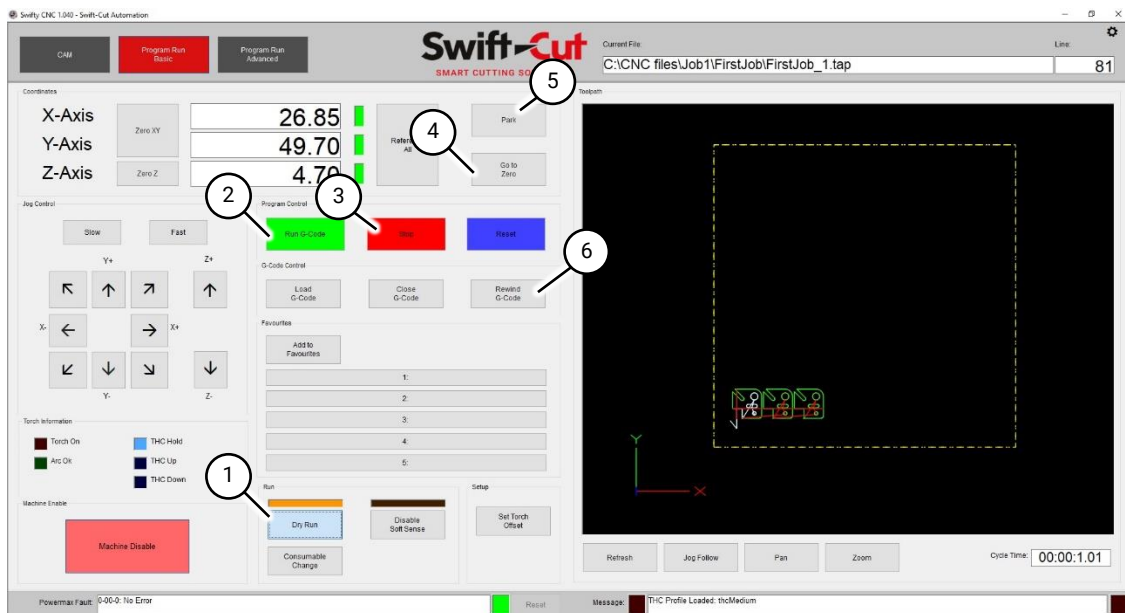2. Press the Run G-Code button (Fig 68 (2)) to activate the cutting process. The process can be halted at any time by pressing the Stop button (Fig 68 (3)).

WARNING
THE STOP BUTTON ON THE SWIFTY-CNC SCREEN IS NOT AN EMERGENCY STOP BUTTON. ITS USAGE WILL BRING THE MACHINE PROCESS TO A CONTROLLED STOP. IN THE EVENT OF AN EMERGENCY, PRESS THE EMERGENCY STOP BUTTON LOCATED ON THE LAPTOP STAND.

3. After cutting is finished, jog the torch away from the material, or press the Park button (Fig 68 (5)).

4. This is the end of the cutting process.

3.7 Emergency Stop Reset

1. To reset an emergency stop condition, proceed as follows:

    1.1   Twist the emergency stop button clockwise, this will release the button and clear the emergency stop condition in the software.

    1.2   Press the Machine Enable button (Fig 69 (1)) on either the Program Run Basic or Program Run Advanced screens. Fig 69 shows the Program Run Basic screen with an "E-Stop condition!" message in the Message field at the bottom of the screen (Fig 69 (2)).
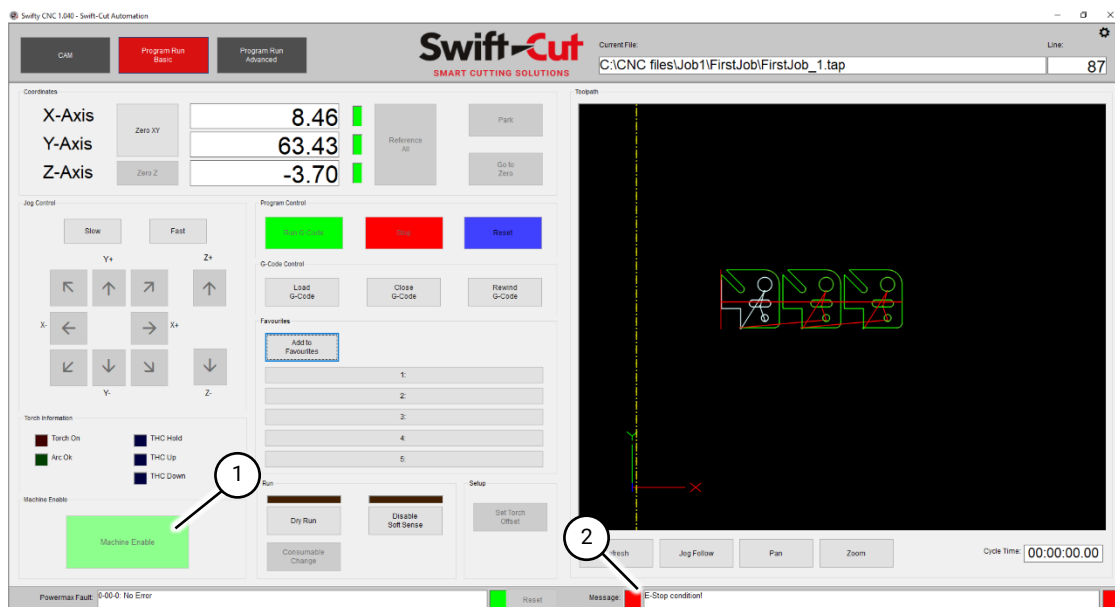

Fig 69 Emergency stop condition

INFORMATION
THE MACHINE CANNOT BE ENABLED UNTIL THE EMERGENCY STOP BUTTON IS RESET.

3.8   Breakaway Head Reset

1.   If the torch has contacted the work piece and activated the breakaway head, the message "Breakaway Head Condition!" will be shown in the Message field at the bottom of the screen (Fig 70 (2)). To clear the breakaway head condition, proceed as follows:

1.1   Press the Machine Enable button (Fig 70 (1)).

1.2   Jog the torch away from the work piece.

1.3   If head does not reset when jogged, manually check alignment of the breakaway head.

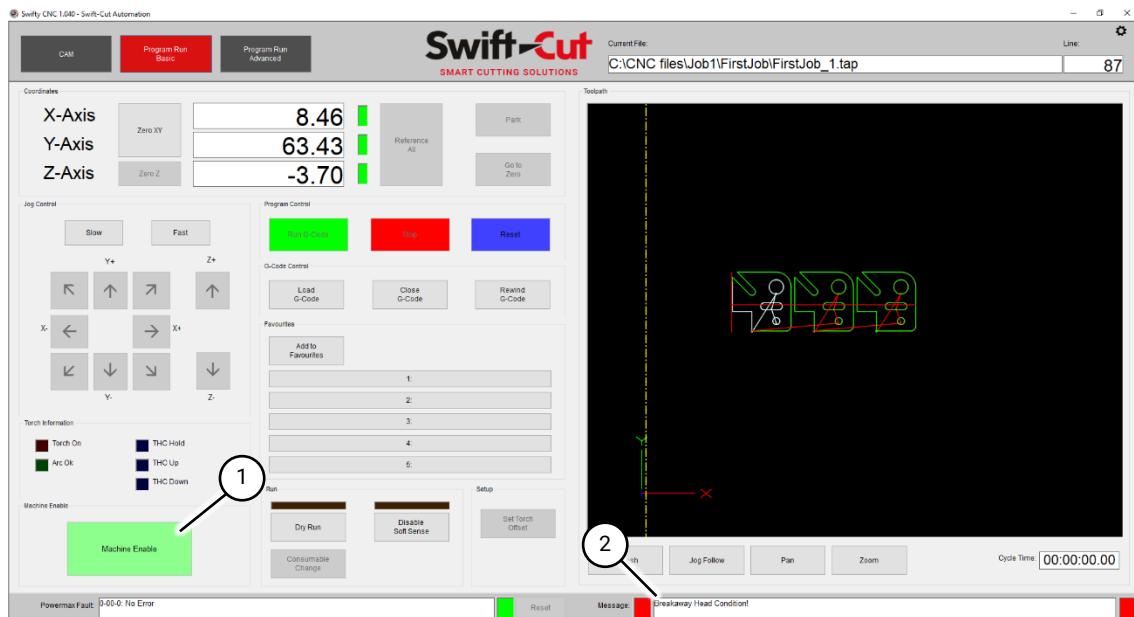1.4   When the head is reset, the message 'Breakaway Head Condition cleared' will be shown in the message field.

Fig 70 Breakaway head condition

![Swift-Cut logo]

3.9   Basic Screen - Additional Functions

3.9.1   Favourites

1.   The Favourites pane is used to save commonly accessed .tap files for recall later. To add a file to favourites, proceed as follows:

    1.1   Load G-Code file and then press Add to favourites button (Fig 71 (1)).

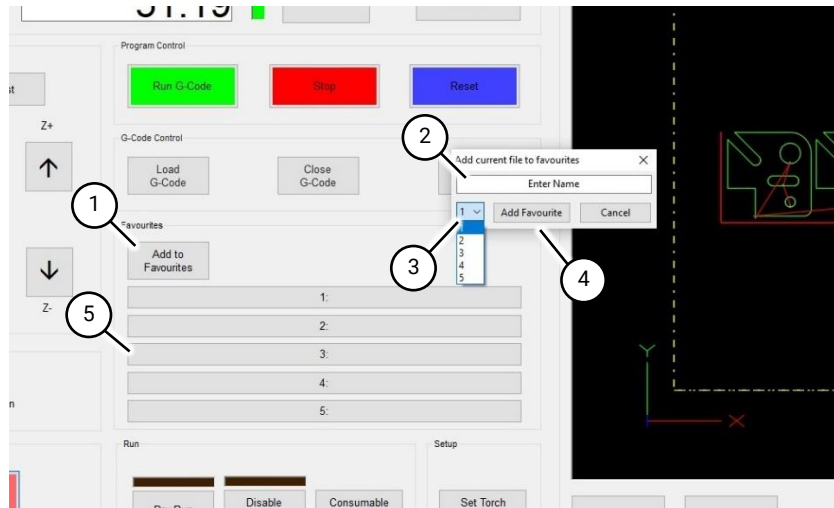<p align="center">Fig 71 Adding files to favourites</p>

    1.2   Rename the file as required (Fig 71 (2)).

    1.3   Select the order in which the file will appear in the list of favourites (Fig 71 (3)).

    1.4   Press the Add Favourite button (Fig 71 (4)).

    1.5   To recall a favourite, press the appropriate number in the favourites list (Fig 71 (5)).

3.9.2   Cutting box section

1.   Maximum box section that can be cut is 70mm (2.75 inch).

2.   When positioning the box section on the cutting bed, jogging the torch alongside the side of the material can help to get it aligned with the axes.

3.   To cut box section, proceed as follows:

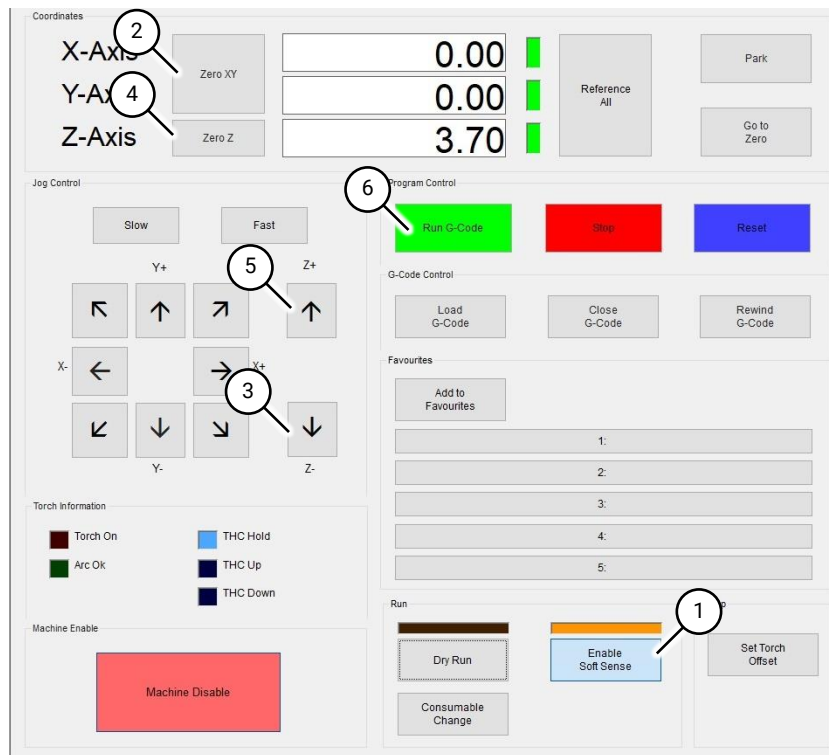   3.1   Press the 'Disable Soft Sense' button (Fig 72 (1)).

![Swift-Cut]

Fig 72 Cutting box section

3.2   Jog the torch to the start position and press the Zero XY button (Fig 72 (2)).

3.3   Jog the Z axis downwards on the surface of the box section using the Z- button (Fig 72 (3)) until the tip of the torch is touching the box section.

3.4   Press the Zero Z button (Fig 72 (4)). Select the consumable that fitted to the torch and then select 'Ok'. The Z Axis DRO will change to 0.00.

Fig 73 Zero Z consumable selection

3.5   Jog the Z axis up slightly using the Z+ button (Fig 72 (5)) to give clearance for initial movements.

3.6   Press the Run G-Code button (Fig 72 (6)).

3.10 **Program Run Advanced**

1.   The Program Run Advanced screen (Fig 74 (1)) offers additional functionality over the Program Run Basic screen.
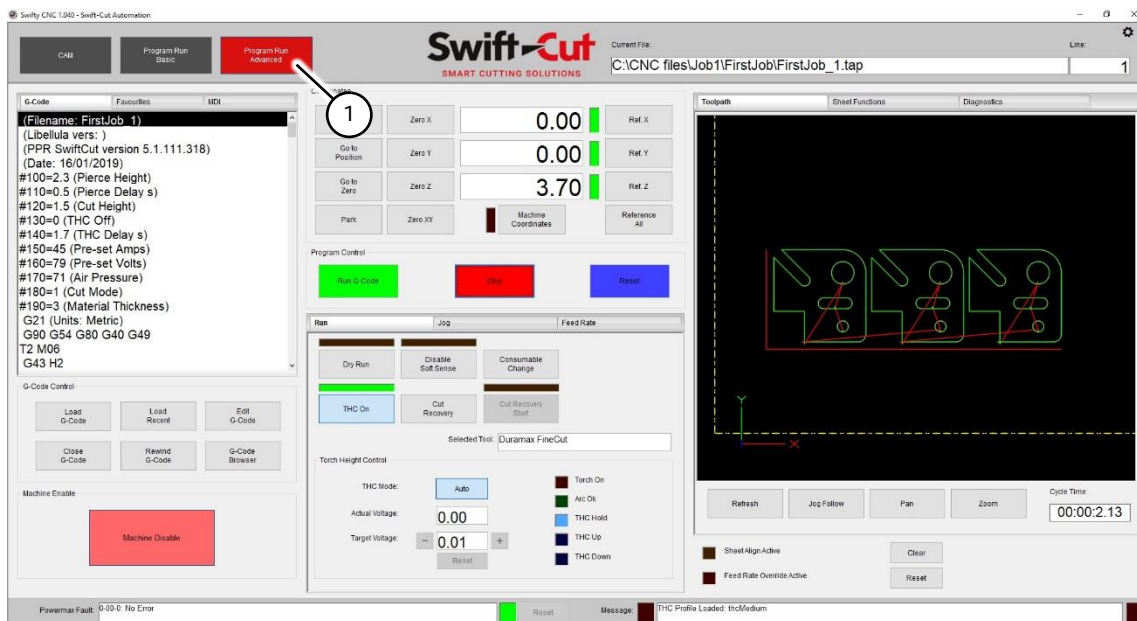

Fig 74 Advanced screen

3.10.1 G-Code, Favourites, MDI Tabs

1.   The pane on the left hand side (Fig 75) displays three different tabs as follows:

Fig 75 G-Code pane tabs
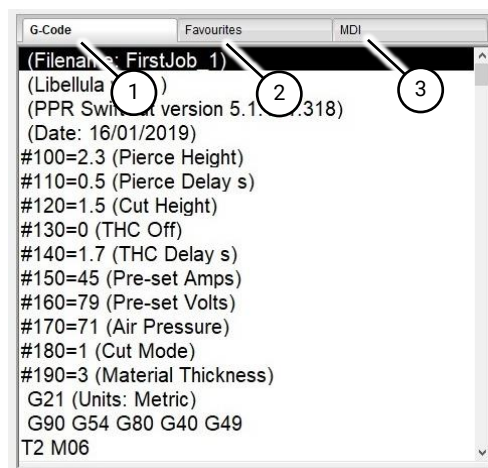
2.   The G-Code tab (Fig 75 (1)) shows the lines of G-Code that form the actions that will be undertaken during the cutting process. Each line is highlighted when it is being executed.

2.1   Double-clicking a line will display the line number.

3.   The Favourites tab has the same functionality as the Program Run Basic screen but in a different layout (refer to Sub-Section 3.9.1).

4. The MDI (Manual Data Input) tab is used for the input of G-Code commands from keyboard (Fig 76 (1)). If the MDI tab is active on the upper left-hand pane the green Run button will be showing as Run MDI.
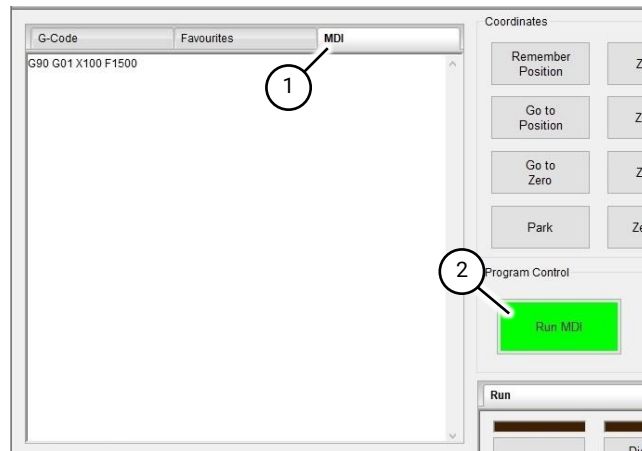
Fig 76 MDI tab

CAUTION
MANUAL DATA INPUT (MDI) MUST ONLY BE USED BY PERSONNEL WITH AN UNDERSTANDING OF G-CODE. INPUTTING INCORRECT CODE MAY RESULT IN EQUIPMENT DAMAGE OR DAMAGE TO THE MATERIAL BEING WORKED.

4.1 To execute entered code, press the Run MDI button (Fig 76 (2)) on the program control pane.

3.10.2 G-Code Control pane

1. The G-Code Control pane (Fig 77) has six buttons:

Fig 77 G-Code Control pane

1.1 The Load G-Code button is used to load the required .tap file(s). Press the Load G-Code button, then navigate to the location of the .tap file(s).

1.2 The Load from Queue button allows the loading of G-Code files from the Queue tab.

1.3   The Edit G-Code button provides the facility to edit the currently loaded G-Code in an editor. When the G-Code has been edited, close the editor to automatically reload the file.
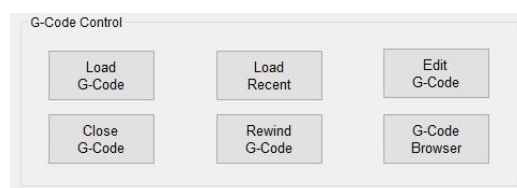
⚠️ **CAUTION**
THE EDITING OF G-CODE MUST ONLY BE CONDUCTED BY PERSONNEL WITH AN UNDERSTANDING OF G-CODE. INPUTTING INCORRECT CODE MAY RESULT IN EQUIPMENT DAMAGE OR DAMAGE TO THE MATERIAL BEING WORKED.

1.4   The Close G-Code button closes the current G-Code.

1.5   The Rewind G-Code button sets the G-Code to its start point.

3.10.2.1   G-Code Browser

1.   The G-Code browser button opens the G-Code browser dialogue. This shows the parts in the G-Code file. Selecting each part will show the working type for each profile within the part. This can be used for starting the cutting operation from a part or from a profile within a part.
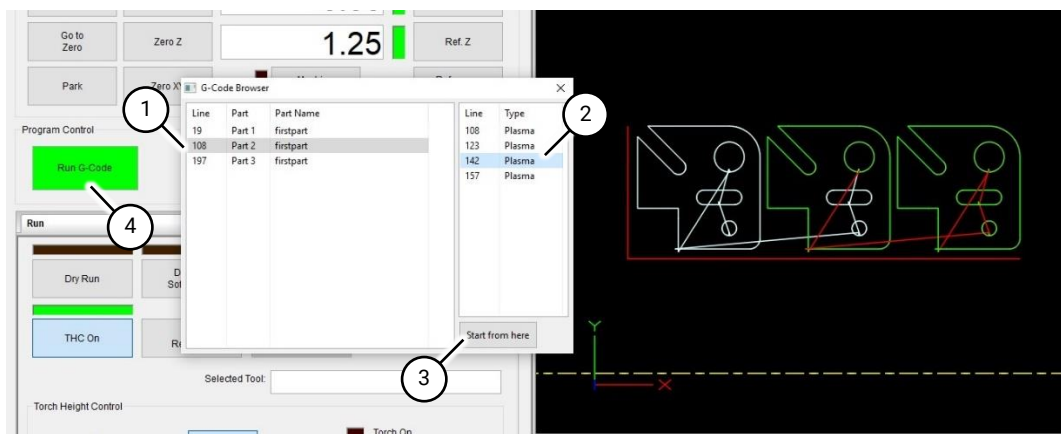
Fig 78 G-Code Browser

2.   To use the G-Code browser, proceed as follows:

2.1   Select a part (Fig 78 (1)). If this is not the first part in sequence, all previous parts will be coloured white on tool path screen.

2.2   Select a position to start from within the part (Fig 78 (2)). If the first position is selected, the complete part will be cut.

2.3   Press the 'Start from Here' button (Fig 78 (3)).

2.4   Press the 'Run G-Code' button (Fig 78 (4)).

2.5   The operation will start at the selected point and continue to the end of the g-code file.

3.10.3 Remember and Go to Position

1.   The 'Remember Position' button on the Coordinates pane (Fig 79 (1)), saves the current torch position. To recall the position, press the 'Go to Position' button (Fig 79 (2)). The torch will move to the remembered position. This is useful for remembering datum positions for repetitive work.
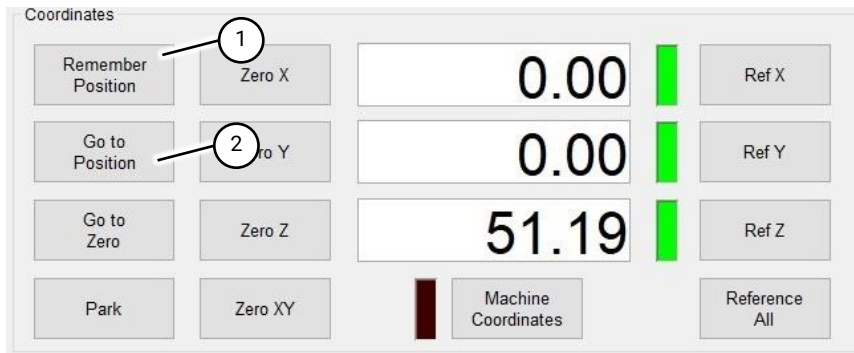
Fig 79   Coordinates pane

3.10.4 Run tab

3.10.4.1   Torch Height Control pane

1.   The THC Mode button switches between auto voltage and preset voltage:

1.1   Auto (Fig 80): The torch voltage is measured and set as the target voltage automatically.

Fig 80   Torch Height Control pane - THC Mode - Auto

1.2   Preset (Fig 81): The target voltage is set using the value in the G-Code file. The Target voltage can be adjusted using +/- and reset keys, to adjust the cut height whilst cutting.

Fig 81   Torch Height Control pane - THC Mode - Preset

3.10.4.2 Cut Recovery

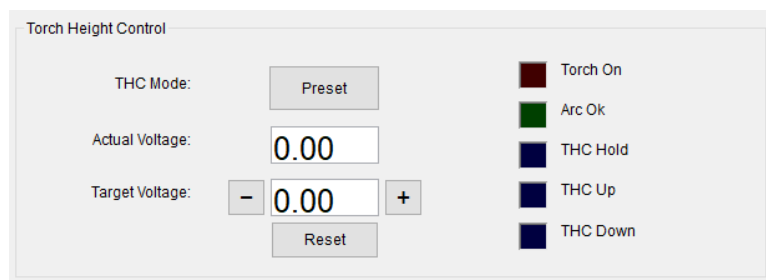1. The Cut Recovery button (Fig 82 (1)) is used for restarting from a specific point. To use the Cut Recovery button, proceed as follows:
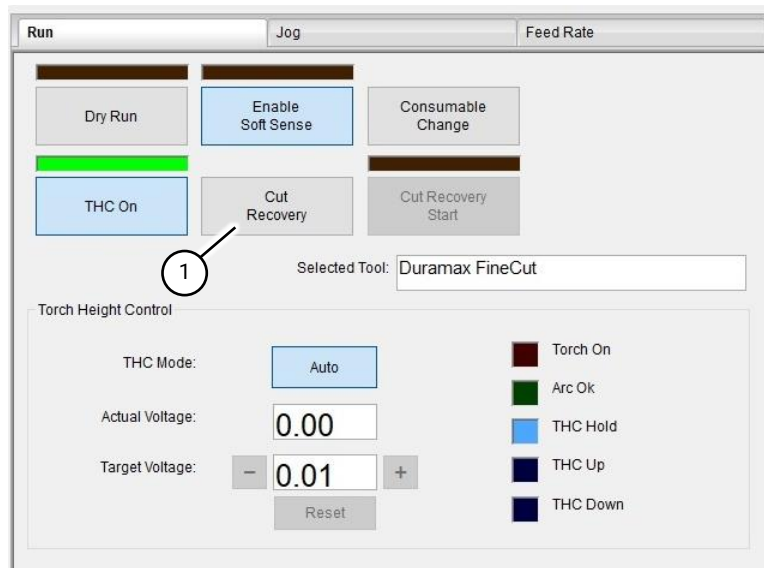

Fig 82 Cut Recovery button

1.1 Jog to the required start point using the crosshairs as an aid. This must be a position up to a maximum of 5mm behind the previous cut and up to a maximum of 5mm either side. If there are multiple toolpath lines close together, the cross hair will need to be closer to the toolpath line to which to continue from.

1.2 Press 'Zero Z' to sense the height of the sheet at the start position.

1.3 Jog the Z axis to the correct cut height for the current job. This can be found at the top of the G-Code file e.g. #120=1.5 (Cut Height).

1.4 Press the Cut Recovery button (Fig 82 (1)). The torch will automatically position itself on the nearest point on the toolpath.

INFORMATION
IF THE CUT RECOVERY HAS BEEN ACTIVATED ON A RAPID LINE, THE PROCESS WILL AUTOMATICALLY CANCEL AND A WARNING WILL BE DISPLAYED. JOG THE TORCH CLOSER TO THE CORRECT LINE AND RETRY CUT RECOVERY.

1.1   The 'Cut Recovery Start' button will become enabled (indicator will flash amber) (Fig 83 (1)).

Fig 83 Cut Recovery activated
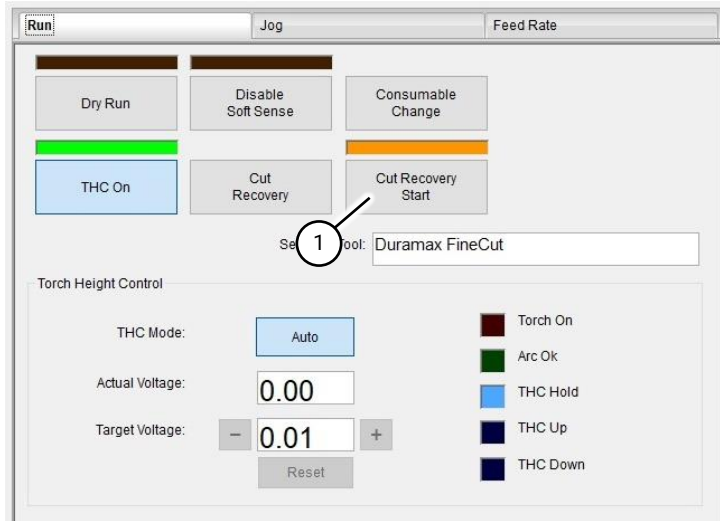
1.2   Press the 'Cut Recovery Start' button to restart the cut. The post gas air flow from the plasma torch should be stopped before starting.

1.3   To cancel the cut recovery process, press the blue 'Reset' button on the Program Control pane.

3.10.4.3   Tool Information pane

1.   The Run tab shows the tool selected (Fig 84 (1)) by the G-Code file.
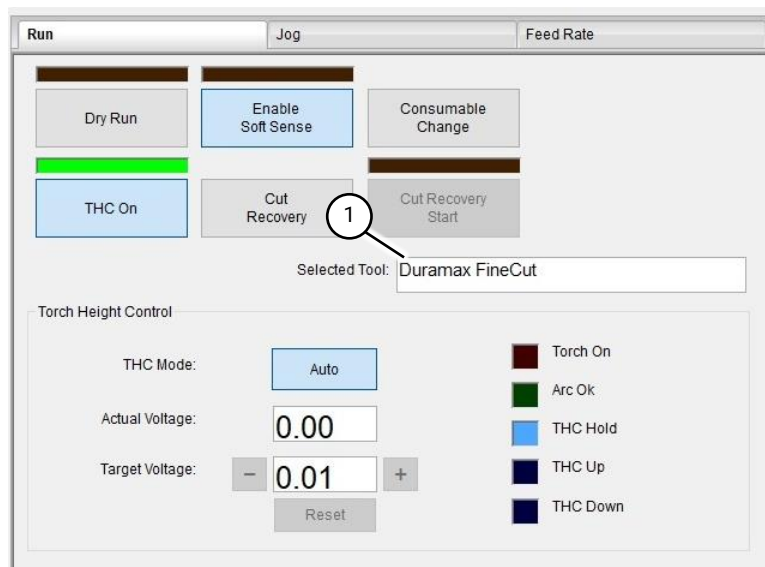
Fig 84 Tool Information pane

3.10.5 Jog tab

1. The Jog tab (Fig 85) can be used to set the jog rate as a percentage of the maximum speed.

2. The 'Jog Mode' button toggles between Continuous and Incremental.

    2.1   Continuous – the axis will move continuously until the jogging button is released

    2.2   Incremental – the axis will jog for the set distance and then stop.

3. In incremental mode, the incremental +/- keys become active and can provide adjustment of the increment value.

Fig 85 Jog tab

3.10.6 Feed Rate tab

> ⚠️ **CAUTION**
> **FEED RATE WILL HAVE AN EFFECT ON THE QUALITY OF THE CUT. IT MUST ONLY BE ADJUSTED BY PERSONNEL WITH AN UNDERSTANDING OF THE PROCESS. CHANGING THE FEED RATE ARBITRARILY CAN PREMATURELY WEAR CONSUMABLES.**
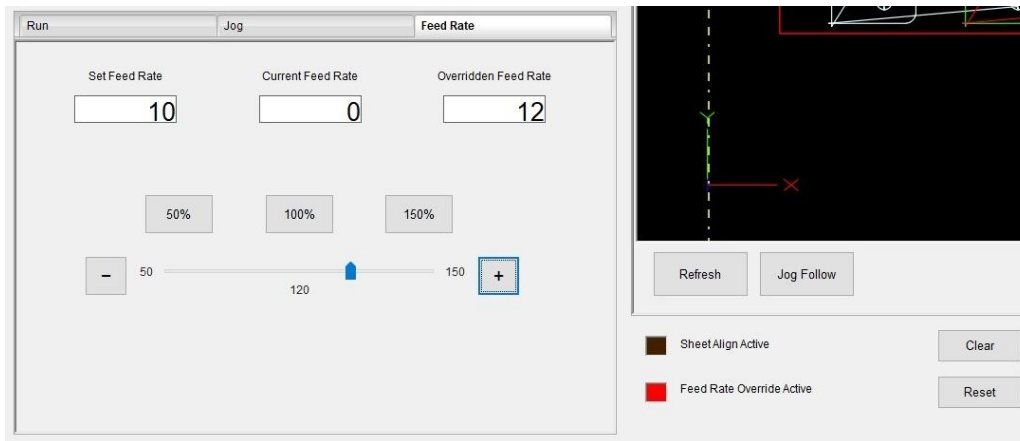
Fig 86 Feed Rate tab

1.   The Set Feed Rate field shows the feed rate set by the G-Code file.

2.   The Current Feed Rate field shows the current feed rate of the torch.

3.   The Overridden Feed Rate field shows the set feed rate plus the amount of override that has been applied. If the feed rate is overridden, the orange Feed Rate Override Active indicator on the right-hand side of screen will illuminate. The override active status can be reset using Reset button adjacent to the Feed Rate Override Active indicator or by resetting the feed rate to 100%.

4.   Feed rate override can be adjusted using the on-screen +/- keys or the percentage adjust buttons (50/100/150).

3.10.7 Sheet Functions tab

3.10.7.1 Sheet Alignment

1.   The sheet alignment function can be used to align the tool path with material that has been placed on the cutting bed at an angle.

2.   To align a sheet, proceed as follows:

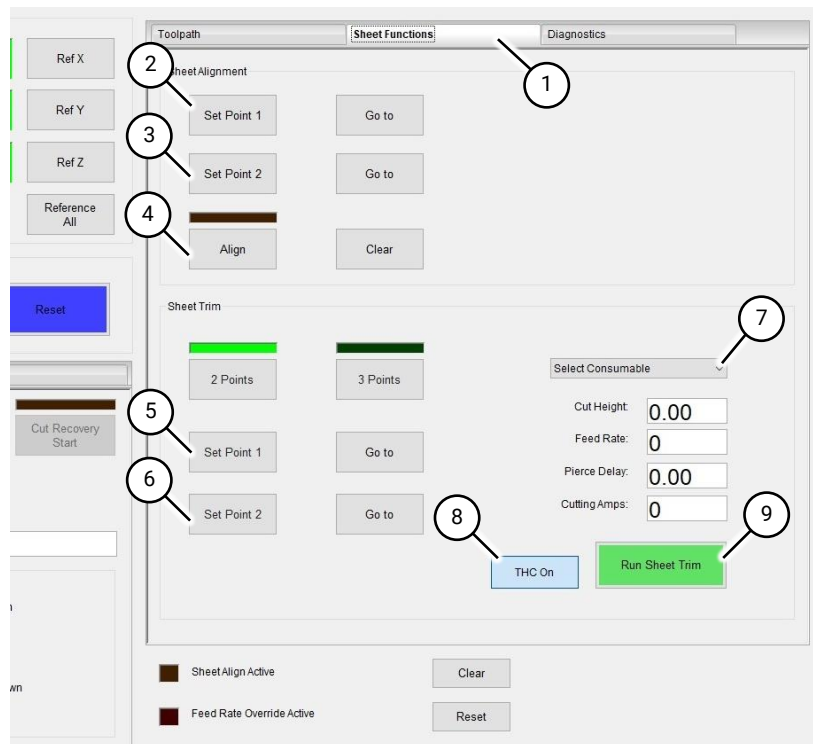   2.1   Select the Sheet Functions tab (Fig 87 (1)).

Fig 87 Sheet functions

   2.2   Jog the torch axis (crosshairs) to the bottom left hand corner of the material. Use a slow jog speed if required, to assist alignment.

   2.3   Press the Set Point 1 button (Fig 87 (2)). A message box confirms that the sheet align point has been recorded.

   2.4   Jog the torch axis (crosshairs) to the bottom right hand corner of the material. Use a slow jog speed if required, to assist alignment.

   2.5   Press the Set Point 2 button (Fig 87 (3)). A message box confirms that the sheet align point has been recorded.

   2.6   Press the Align button to set sheet alignment (Fig 87 (4)).

   2.7   The Sheet Align Active indicator (Fig 88 (1)) flashes orange to show that sheet alignment is active.
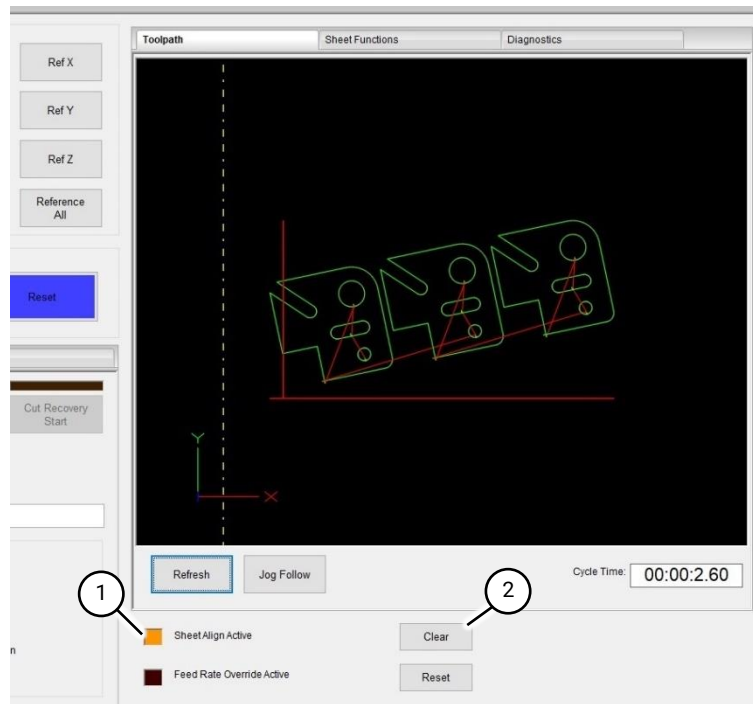
Fig 88 Sheet alignment active

2.8   Pressing the Clear button (Fig 88 (2)) de-activates sheet alignment. Sheet alignment will remain active until cleared.

3.10.7.2   Sheet trim

1.   The Sheet Trim function can be used to cut a sheet into two sections or to remove scrap sections of material. To use this function, proceed as follows:

1.1   On the Sheet Functions tab select between 2 Point or 3 Point trim mode.

1.2   Jog the torch to the trim start point. The centre of the torch must be positioned just on the edge of the sheet.

1.3   Select 'Set Point 1' (Fig 87 (5))

1.4   Jog the torch to the second position

1.5   Select 'Set Point 2' (Fig 87 (6))

1.6   If 3 Point mode is selected, jog the torch to the third position and select 'Set Point 3'

1.7   When setting the last position of the trim operation ensure the torch is clear of the sheet for complete severance.

1.8   The set positions can be returned to by selecting the 'Go to' button for each point. The position can then be refined and overwritten by selecting the respective 'Set Point' button.

1.9   Select the 'Go to' for point 1 and then select the 'Zero Z' button to set the Z height.

1.10   Open the consumable drop-down menu (Fig 87 (7)) and select the consumable that will be used for the trim operation.

1.11   Populate the cut parameter fields below the consumable drop-down according to the consumables used, material type and material thickness being cut. Refer to the cut charts in the plasma sources documentation.

1.12   Torch Height Control can be turned on or off using the 'THC On/Off' button (Fig 87 (8)).

1.13   Press the 'Run Sheet Trim' button (Fig 87 (9)) to start the trim process.

1.14   The process can be halted at any time by pressing the 'Stop' button.

WARNING

THE STOP BUTTON ON THE SWIFTY-CNC SCREEN IS NOT AN EMERGENCY STOP BUTTON. ITS USAGE WILL BRING THE MACHINE PROCESS TO A CONTROLLED STOP. IN THE EVENT OF AN EMERGENCY, PRESS THE EMERGENCY STOP BUTTON ON THE LAPTOP STAND TO IMMEDIATELY STOP THE MACHINE.
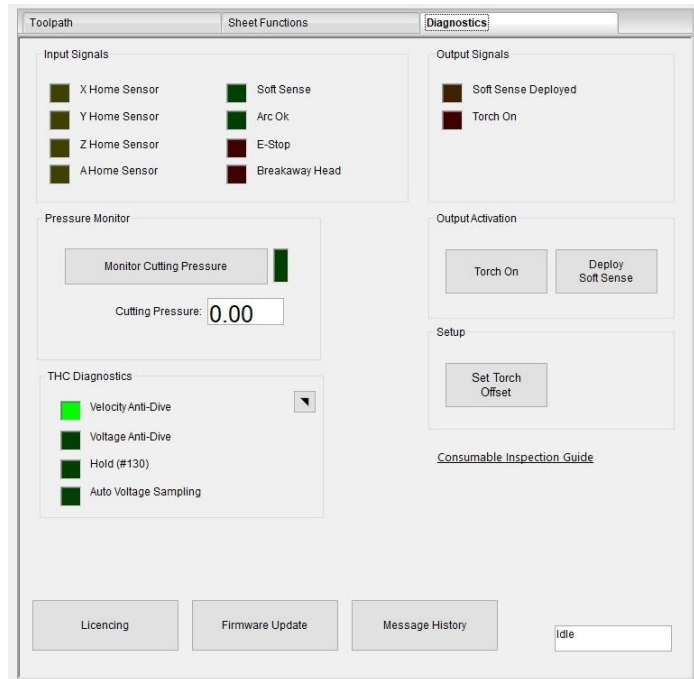
3.10.8 Diagnostics tab

Fig 89 Diagnostics tab

1.   The Diagnostics tab displays the state of the input and output signals of the machine. When an input or output is active, the indicator will illuminate.

2.   The cutting pressure of Hypertherm Powermax plasma sources can monitored during cutting to identify faults.

> 2.1   Select Monitor cutting pressure. The indicator will turn green

> 2.2   During the next cut, the cutting pressure will be displayed.

> 2.3   Ensure the monitor is disabled when not required.

3.   The torch output and soft sense deployment can be manually activated to check functionality.

4.   The Consumable Inspection Guide displays information for identifying worn consumables.

5.   The THC Diagnostics pane provides further information on which THC function is causing the THC motion to hold.

3.11 **Keyboard shortcuts**

3.11.1 **Jog**

1. Arrow keys - Jog at the set jog rate.

2. SHIFT + arrow keys - Jog at maximum speed (this overrides any set jog rate).

3. +/- keys - Adjust jog speed.

4. Ctrl = arrow keys - Incremental jog at the incremental value.

5. Ctrl + +/- keys - Set the incremental value.

3.11.2 **Sheet functions**

1. Ctrl + 1 - sets sheet alignment 1.

2. Ctrl + 2 - sets sheet alignment 2.

3. Ctrl + alt + 1 - sets sheet trim 1.

4. Ctrl + alt + 2 - sets sheet trim 2.

5. Ctrl + alt + 3 - sets sheet trim 3.

3.12   Settings Menu

1.   The Settings icon (⚙) in the upper right-hand corner of either the Program Run Basic or Program Run Advanced screens, opens the settings for the Swifty-CNC software.
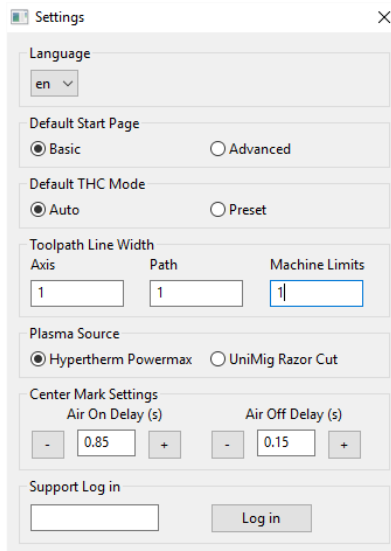

Fig 90 Settings window

1.1   To set the language, click the drop-down menu and select the desired language. A prompt will request to restart the software. Upon restarting the selected language will be shown.

1.2   To change the default start page. Select the desired option. Upon restarting the chosen page will be shown.

1.3   The default THC mode can be changed by selecting the required option. Upon restarting the chosen mode will be selected.

1.4   To increase or decrease the linewidths on the toolpath, first load a g-code file. Depending on the resolution of the screen values of up to 500 may need to be entered in the axis, path and machine limits boxes. Increase or decrease the value in 50's followed by the enter key until the desired thickness is achieved.

1.5   To change the type of plasma source being used, select the correct option and restart Swifty-CNC. Hypertherm Powermax is set by default.

1.6   See sub-section 3.14 on page 92 for setup of the Centre Mark delays.

3.13 CAM button

1. The 'CAM' button returns screen to the SwiftCAM application.

Fig 91

3.14 Centre Mark delay setup

1. The delay settings for the Centre Mark operation can be adjusted to improve the resultant mark. Open the settings window by the clicking the icon in the top right-hand corner of the Swifty-CNC software. There are two delay settings:

    1.1   Air on delay – for when the Centre Mark operation is requested when the post gas flow from the torch is still on e.g. When the torch has just turned off but the air is still flowing.

    1.2   Air off delay – for when the Centre Mark operation is requested when the post gas flow from the torch is off e.g. When the torch is off and there is no air flowing from the torch.

2. Setup a g-code file with multiple Centre Mark operations and run the file.

3. For each of the conditions (paragraph 1.1 and 1.2) analyse the mark created. If the mark is too deep, reduce the delay value. If the mark is too shallow, increase the delay value. The values can be increased or decreased using the + or − buttons within the settings window (Fig 92).
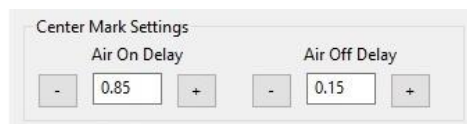

Fig 92 Centre Mark Settings

4 MAINTENANCE

	Daily Checks	Weekly Checks
Compressor / Air System	1. Drain the compressor of water. 2. Check the air system for leaks.	1. Check air system filters and replace if required.
V-rails	1. Clean accumulated debris and dust from the X and Y axis v-rails. Use a solvent based degreaser. A scouring pad can be used for debris that is difficult to remove.	
Soft Sense	1. Check security of fasteners on the guide rods.	1. Clean any accumulated debris and dust from the Soft Sense mechanism using a solvent based degreaser.
Work Lead	1. Check the security of the work lead at the back of the table and plasma source. A lose connection can cause overheating. Refer to plasma source documentation for correct procedure for plasma side connections.	
Water table	1. Check water level, refill if required.	1. Antifungal tablets should be added every 7 days. If using chemicals to treat the water, the water should be changed monthly. 2. If not using additives, change the water weekly.
Work support slats	1. Check for damaged support slats that could fail when loaded with material. Contact your Swift-Cut agent for replacement slats.	1. Removal of dross and slag build up on the work support slats. This can create an uneven surface for the material to sit on.
Breakaway Head		1. Clean the mounting surface and location points for the breakaway head.
Plasma Torch	1. Check that the torch clamp is tight and secure. Reset the torch offset if the torch has moved.	
Plasma Source	1. Refer to plasma source documentation for maintenance information.	

5 SUPPORT

5.1 Contact

1. Please contact your distributor for support.

2. Further information can be found at www.swift-cut.com/contact

5.2 Remote Support

1. If remote support is required, please use the remote support application on the USB flash drive supplied with the Swifty 1250 (44).

2. Copy and paste the file onto the desktop and double click it.

3. An ID and password will be displayed which must be provided to the support engineer to be able to remotely connect.

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