# Table of contents

<table>
<thead>
<tr>
<th>Page</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Title Page</td>
</tr>
<tr>
<td>ii</td>
<td>Table of Contents</td>
</tr>
<tr>
<td>1</td>
<td>Site Preparation, Machine and Plasma</td>
</tr>
<tr>
<td>2</td>
<td>Site Preparation, HD Spirit® II systems</td>
</tr>
<tr>
<td>3</td>
<td>Site Preparation, FlexCut® systems</td>
</tr>
<tr>
<td>4</td>
<td>5100 Connections, Air &amp; Power</td>
</tr>
<tr>
<td>5</td>
<td>Machine Grounding</td>
</tr>
<tr>
<td>6</td>
<td>Site Preparation Sign-Off Sheet</td>
</tr>
<tr>
<td>7</td>
<td>Table Specifications</td>
</tr>
<tr>
<td>8</td>
<td>Customer Assistance Policy</td>
</tr>
</tbody>
</table>
Site Preparation

When installing a Torchmate 5100 in your shop, there are many factors that will influence the potential productivity, ease of use of the machine and the safety of the operator. The main factors to prepare for include the physical layout and placement of the machine in the shop, the availability of power, an EMI ground, compressed air and other gases, and ventilation.

- **Water Table vs. Downdraft**
  The Torchmate 5100 is offered in two configurations for fume control, a water table and a downdraft table. Each has certain considerations to be taken when preparing to install and operate the 5100 machine. The water table must have the ability to be filled with tap water frequently, especially in hot arid climates. A downdraft table must have clearance at the back of the machine to run 14” ducting to the fume extraction source. This ducting may cross a walkway or other cabling or hoses associated with the machine.

- **Plasma Cutter Options**
  The Torchmate 5100 machine is offered with several plasma cutting power supplies. Each have different input power requirements, gas type/volume requirements, etc. The site preparation guide generalizes this into two categories, an Air Plasma site preparation for either the FlexCut 125 or FlexCut 200 plasma cutters. The HD guide explains the requirements for the Spirit II model 275 and 400 plasma cutters.

- **Physical space around the Torchmate 5100**
  When preparing to install the Lincoln Electric CNC Cutting System, provide sufficient space to access the material bed and connections around the entire machine. It is recommended that three feet of work space should be maintained between the 5100 to any other objects.

- **Dedicated Earth Ground**
  A dedicated earth ground must be provided and installed for the Torchmate 5100 machine. It should be installed in a manner to reduce trip hazard, preferably nearest to the Star Ground located on the machine. This increases the effectiveness of the ground, and reduces clutter with running long cables between the machine and a separate ground.
Site Preparation, Equipment Layout (HD)

Lincoln Electric Kaliburn® Spirit II power supplies have a larger power box and a Automatic Gas Control box to mix several different types of gases utilized in HD plasma cutting. The placement of these products in relationship to the 5100 must be within 6’ of the end of the cable chain. This also determines the location of incoming power to the Spirit II plasma cutter, as well as the termination of gas leads to the Spirit II plasma cutters.

The hose length from the Automatic Gas Control box to the source gas is provided at 25’. For steel and aluminum cutting the Spirit II plasma cutter requires at minimum a 100% oxygen source, 100% nitrogen source, and Shop air. Consult the Spirit II users manual for gas pressure and volume requirements.
Site Preparation, Equipment Layout (FlexCut)

When installing a Torchmate 5100 in your shop paired with a FlexCut 125 or FlexCut 200 plasma cutter, consult the layout below.

5100

15’ Power Cord, NEMA 5-15P
Shop Air Supply
Earth Ground (provided by customer)

Incoming AC power for Plasma Cutter Shop air supply

14” Duct, Downdraft Models Only

FlexCut Plasma (within 10’ of cable carrier)

Operator Console

Load From This Side

167”

113.25”

MAINTAIN WORK AREA

Site Preparation Guide
Torchmate 5100 Connections

Internally the 5100 comes pre-wired and ready to run. All systems are test fired and disconnected at the facility before packaging and shipping. For shipping purposes, the plasma power supply is disconnected from the system and will require a connection to the machine. The table has a single input power cord with a 120v NEMA 5-15P plug that powers the table and computer/monitor. The plasma power supply chosen requires 3-phase electrical connections along with numerous other connections that are required by your specific power supply to interface with the machine, consult the specific plasma cutter manual for more details. Depending on the specific model plasma cutter, a power cord may not be included.

5100 - Table Power and Air connections:

Attach the supplied 120v NEMA 5-15P plug into a wall outlet. This will power the electronics and table functions. This should be a 120vAC @ 15amp circuit.

5100 - Pneumatic Connection:

The 1/4” Industrial Quick Disconnect input on the bulkhead will distribute the air to the plasma power supply along with table operations. Any accessories or collision sensors will also be provided shop air by tapping into the two provided output 1/4” Tubing Push-Connects.
Grounding Your Machine

Proper grounding must be provided to ensure personnel safety and to suppress high frequency noise. The foundation of good grounding is an effective earth ground rod. A star ground point connects to the rod with a short, heavy conductor. A simple copper clad steel rod can be driven into the ground to create a Grounding Rod. A ground rod must be installed.

Consult with a qualified electrical technician to verify your system grounding.

Use 6 AWG Stranded Wire to connect the Star Ground on the table to the customer supplied dedicated earth ground. For proper operation of your CNC cutting tables you are required to run a 6 AWG cable from the “star” ground to a dedicated earth ground rod. Ground rod installations are covered by NEC Section 250.

Place the plasma unit on the appropriate location. Re-install the power lead and the table ground into the plasma power supply.

The FlexCut plasma unit is shipped with a factory ground attached to the star ground. In addition, a work ground is attached to the star ground to connect to your material to be cut. If the work piece is painted or dirty it may be necessary to expose the bare metal to make a good electrical connection.

Earth Ground Rod is not included with machine.
Site Preparation Sign-off Sheet

In order to maximize the amount of time the operators will receive during machine training, Lincoln Electric requires a signed off completion sheet by the customer prior to scheduling an on-site machine commissioning or training. Please sign and return to customersuccess@torchmate.com to guarantee the soonest possible scheduling.

Torchmate 5100 Customer Sign-Offs:

- Machine is installed and fully leveled in the length and width
- 120vAC 15A circuit is installed and active
- Plasma Cutter AC circuit is installed and active
- Plasma Cutter Torch and Coolant connections are connected
- Oxy Fuel Accessory Connected to Oxygen/Preheat gas (if applicable)
- Shop air is plumbed to the 5100 air manifold, and active
- Ground Rod is installed, and connected to the 5100
- Gas Supplies and Regulators are installed (HD Only)
- 426 gallons of tap water is available to fill water table (water table only)
- Fume Control system is plumbed to the machine and active (downdraft only)

Company/Site Name: ____________________________________________

Responsible Installer: ____________________________________________

Date: _________________________________________________________
## Table Specifications

**Input Power**
- 120V / 1Ph / 15A / 60Hz (table and computer)
- 380-600V / 3Ph / 50-60Hz (Plasma Power Supply specific)

**Machine Size**
- 60” x 120” (1524mm x 3048mm) Cutting Area
- 113.5” x 167” (2895.6mm x 4241.8mm) Footprint

**Traverse Speed**
- 1,500 ipm (0.635 mps)

**Cut Speed**
- Up to 1500 ipm

**Plate Capacity**
- Holds Up To 4” (102mm) 5’x10’ (1524mm x 3048mm) Mild Steel

**Weight**
- 6,600 lbs

**Operating Temperature**
- 32-104° Fahrenheit (0-40° Celsius)

**Motors**
- Servo Motors Fitted with Rotary Glass Encoders

**Drive System**
- Helical Gear Rack and Hardened Pinion with Lubrication System

**Linear Guidance**
- Profile Linear Rail

**Acceleration Rate**
- 0.08g [0.06g Bevel]

**Deceleration Rate**
- 0.08g [0.06g Bevel]

**Input Pneumatics**
- Minimum 115PSI Supply Pressure
- Volume - 7 SCFM (420 SCFH) @ 90PSI

**Height Control**
- Ohmic Sensing
- Automatic Torch Height Control
- 6.75” Z-axis Travel

**Bevel Capabilities**
- +/- 45° Rotation (dependent on material thickness and power supply configuration)

**Software**
- Easy-To-Use Lincoln Electric User Interface
- CAM with Irregular Part Nesting
- Popular Shape Library

**Fume Extraction (Optional Accessory)**
- 61,801 ft³/hr or 1,750 m³/hr minimum
- Automatic Filter Cleaning, Pressure Controlled

**Downdraft Configuration**
- Multiple Zones Controlled By Motion Controller

**Safety**
- Dual-Channel Safety System Supporting Emergency Stop Switch
- Safety System Extended To External Peripherals
- External Drive Power On Switch

**Warranty**
- *1 Year Warranty

### TORCHMATE 5100 CNC PLASMA SYSTEMS

<table>
<thead>
<tr>
<th></th>
<th>FLEXCut 125</th>
<th>FLEXCut 200</th>
<th>SPIRIT II 275</th>
<th>SPIRIT II 400</th>
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<tbody>
<tr>
<td><strong>PRODUCTION CUTTING CAPACITY</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mild Steel</td>
<td>1” (25mm)</td>
<td>1.25”</td>
<td>1.5” (38mm)</td>
<td>2” (50mm)</td>
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<tr>
<td>Stainless Steel</td>
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<td>1.5” (38mm)</td>
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<tr>
<td>Aluminum</td>
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<td>3/4” (20mm)</td>
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<td>1.5” (38mm)</td>
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<td></td>
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<tr>
<td>1/4” MS</td>
<td>210 ipm @125A</td>
<td>200 ipm @200A</td>
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<td>1/2” MS</td>
<td>88 ipm @125A</td>
<td>110 ipm @200A</td>
<td>125 ipm @275A</td>
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<td>65 ipm @275A</td>
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<td><strong>PROCESS AMPS</strong></td>
<td>20A - 125A</td>
<td>15A - 200A</td>
<td>30A - 275A</td>
<td>30A - 400A</td>
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<td><strong>INPUT VOLTAGE</strong></td>
<td>380/400/415V</td>
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<td>600V 3Ph 50/60Hz</td>
</tr>
</tbody>
</table>
Customer Assistance Policy

The business of The Lincoln Electric Company is manufacturing and selling high quality welding equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric Cutting Systems for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric Cutting Systems is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric Cutting Systems is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric Cutting Systems is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric Cutting Systems affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.torchmate.com for any updated information.