LINCOLN ELECTRIC | Cutting Systems

TORCHMATE® 5100

QUICK START GUIDE

FLEXCUT®

April 10, 2019

LINCOLN ELECTRIC | Cutting Systems

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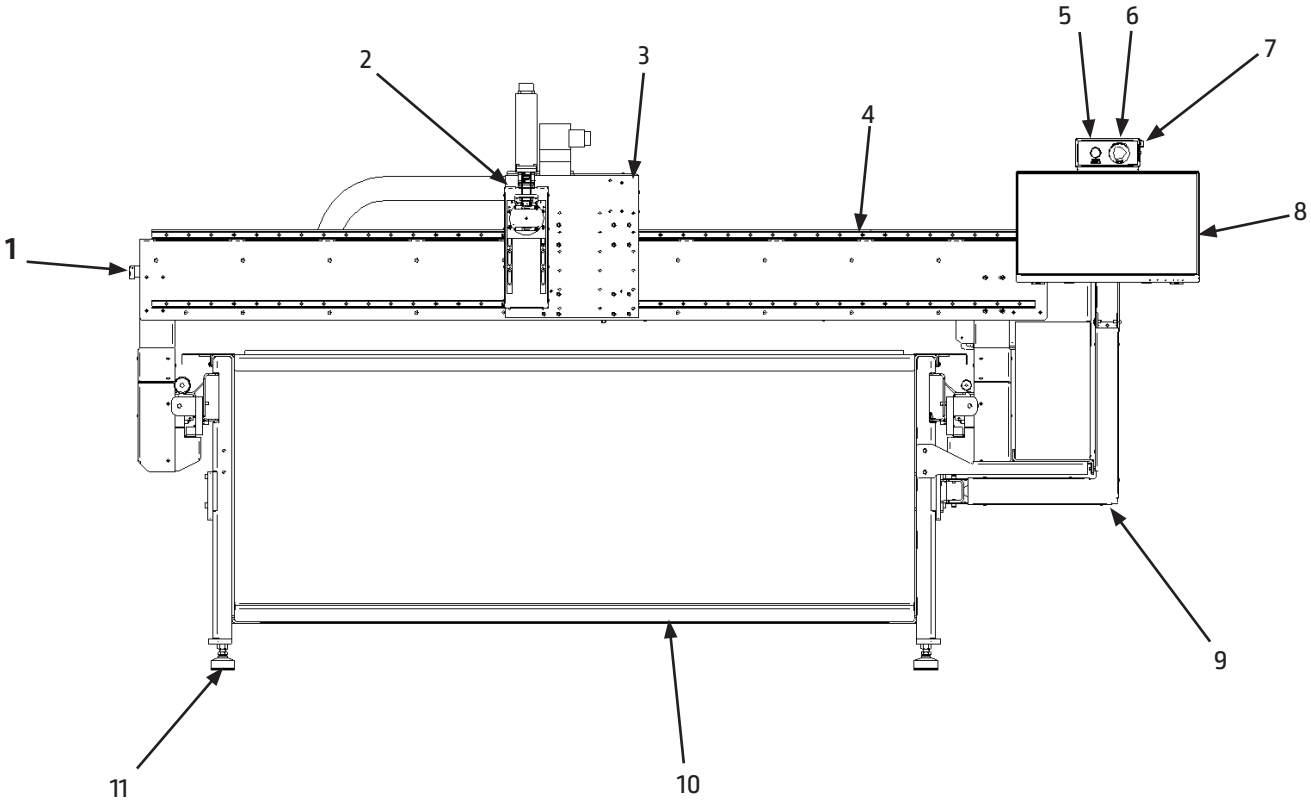
Machine Overview, Torchmate 5100, Front

This section will provide a brief overview of the components of your Torchmate 5100 machine

Front:

1. Emergency Stop button
2. Lifter Station
3. Tool Mounting Plate
4. Gantry
5. Drive Enable button
6. Emergency Stop button
7. USB Port
8. Touchscreen/Human Machine Interface (H.M.I.)
9. Monitor Arm
10. Machine Bed
11. Leveling Foot

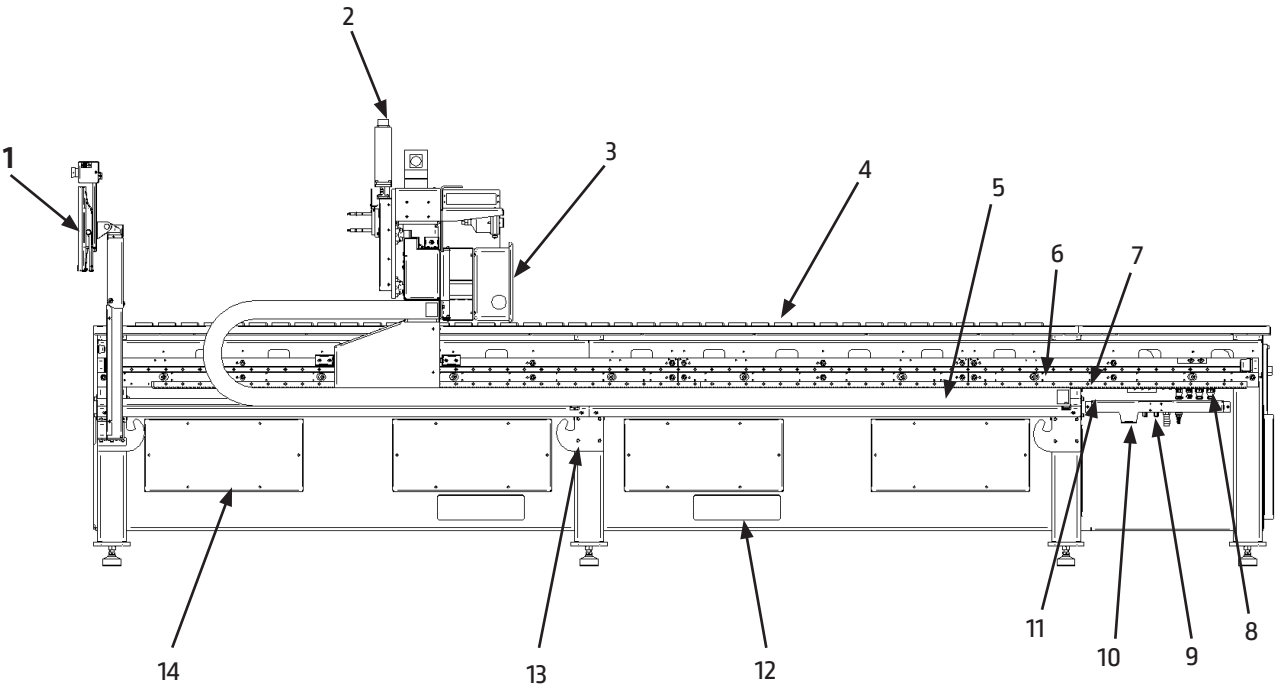


Machine Overview, Torchmate 5100, Side

This section will provide a brief overview of the components of your Torchmate 5100 machine

Cable Carrier Side:

1. Touchscreen/Human Machine Interface (H.M.I.)
2. Z Axis Motor
3. Remote Arc Start control box (FlexCut 200 and Spirit® II systems only)
4. Material Support Slats
5. Cable Carrier (Y Axis)
6. Linear Rail (Y axis)
7. Helical Gear Rack
8. Electrical Bulkhead
9. Pneumatic Manifold
10. Pneumatic Pressure Regulator for Collision sensor (FlexCut 200 or Spirit II models only)
11. Star Ground
12. Fork Pockets
13. Tie Down Hooks
14. Downdraft Zone Door Access Panel (downdraft models only)

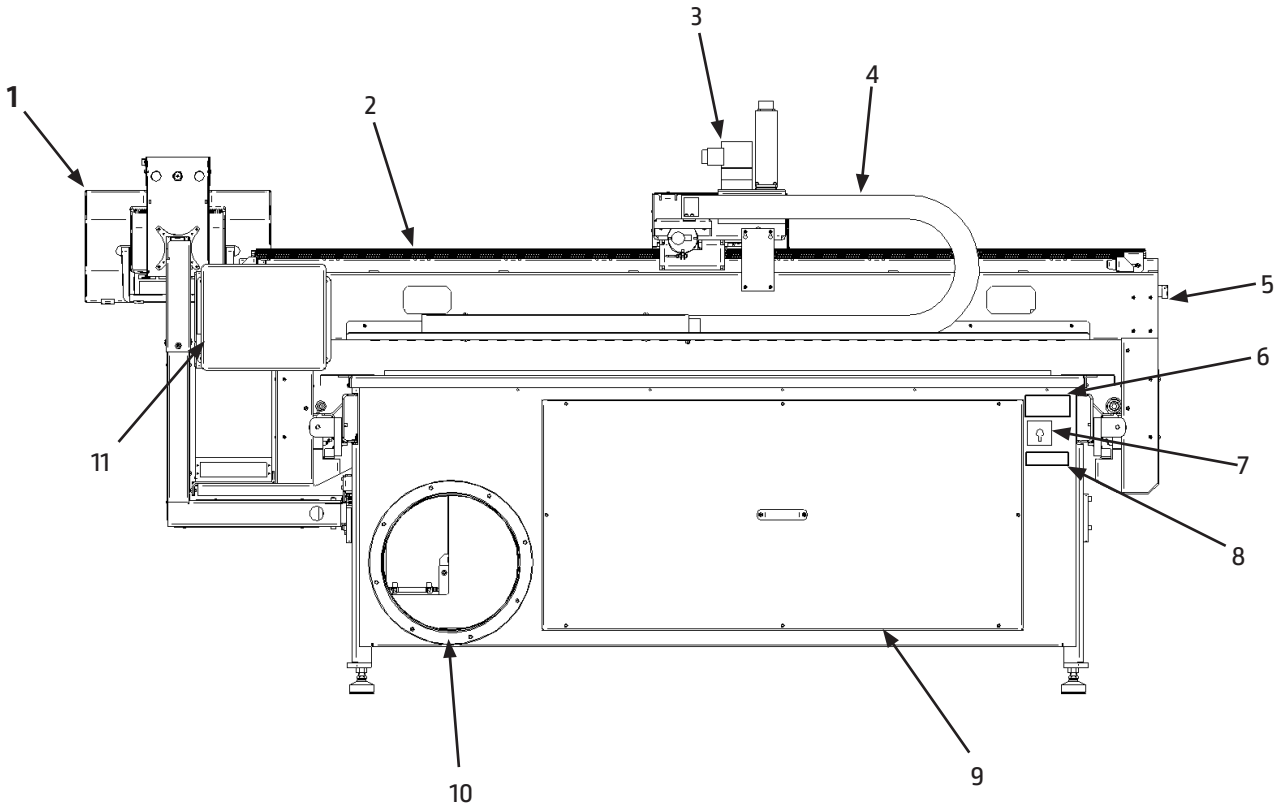


Machine Overview, Torchmate 5100, Rear

This section will provide a brief overview of the components of your Torchmate 5100 machine

Rear:

1. Touchscreen/Human Machine Interface (H.M.I.)
2. Linear Rail/Helical Gear Rack (X axis)
3. X axis servo motor
4. Cable Carrier (X axis)
5. Emergency Stop button
6. Machine Serial Number Placard
7. Power On/Off
8. QuickCAM/Nest Serial Number
9. Electrical Panel Access door
10. 14" ducting flange (downdraft model only)
11. Remote Arc Start control box (FlexCut 200 and Spirit II systems only)



FlexCut 125 Plasma Overview

Please refer to the complete operation and user manual for your FlexCut 125 located with the plasma unit. When the machine is turned on, an auto-test will execute. During this test, the control panel will light up.

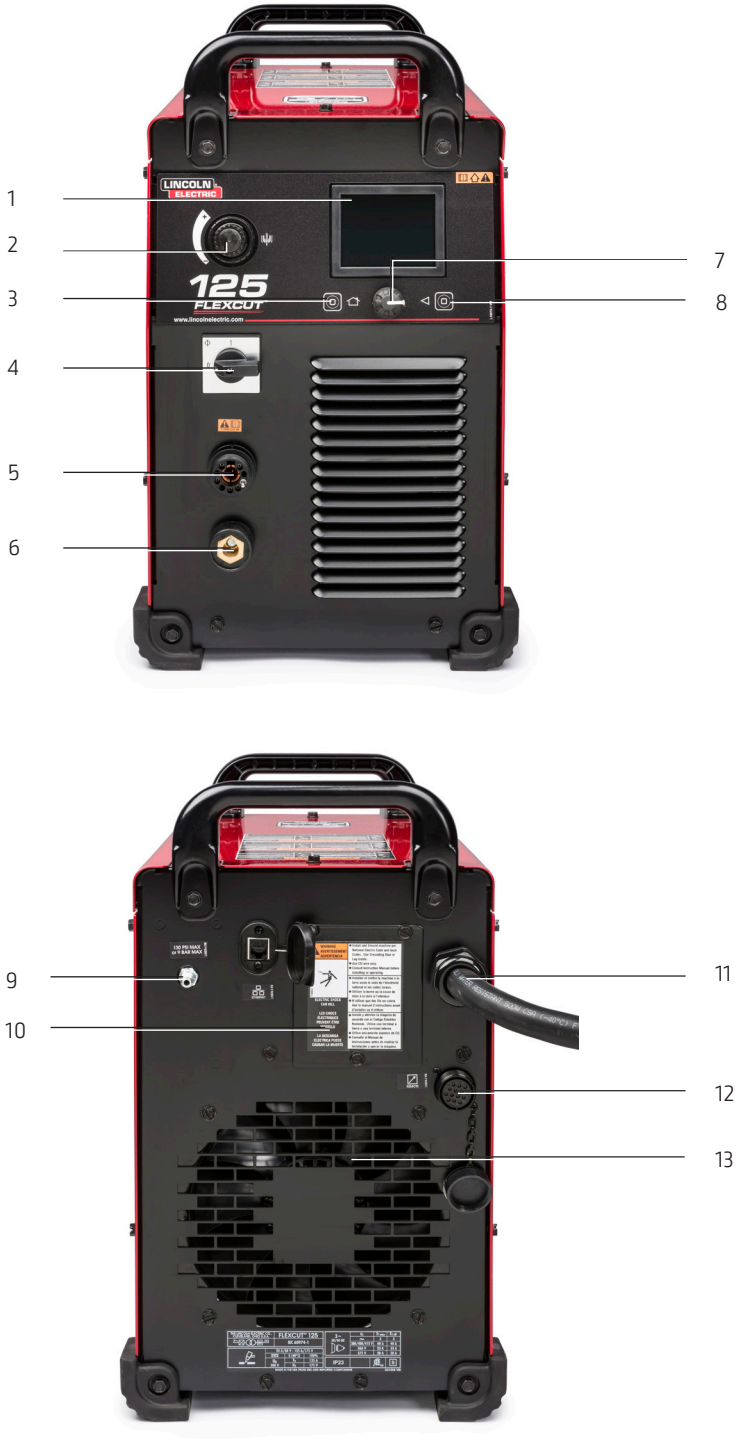
Controls »

FRONT

1. LCD DISPLAY
2. PRIMARY AIR, GAS PRESSURE GAUGE AND REGULATOR KNOB
3. HOME BUTTON
4. ON/OFF SWITCH
5. TORCH CONNECTION
6. WORK LEAD CONNECTION
7. MENU CONTROL KNOB/BUTTON
8. PURGE

BACK

9. AIR OR GAS INLET (1/4"IN. NPT QUICK CONNECT)
10. RECONNECT PANEL ACCESS
11. INPUT CORD STRAIN RELIEF
12. 14-PIN CNC INTERFACE
13. FAN



FlexCut 200 Plasma Overview

Please refer to the complete operation and user manual for your FlexCut 200 located with the plasma unit. When the machine is turned on, an auto-test will execute. During this test, the control panel will light up.

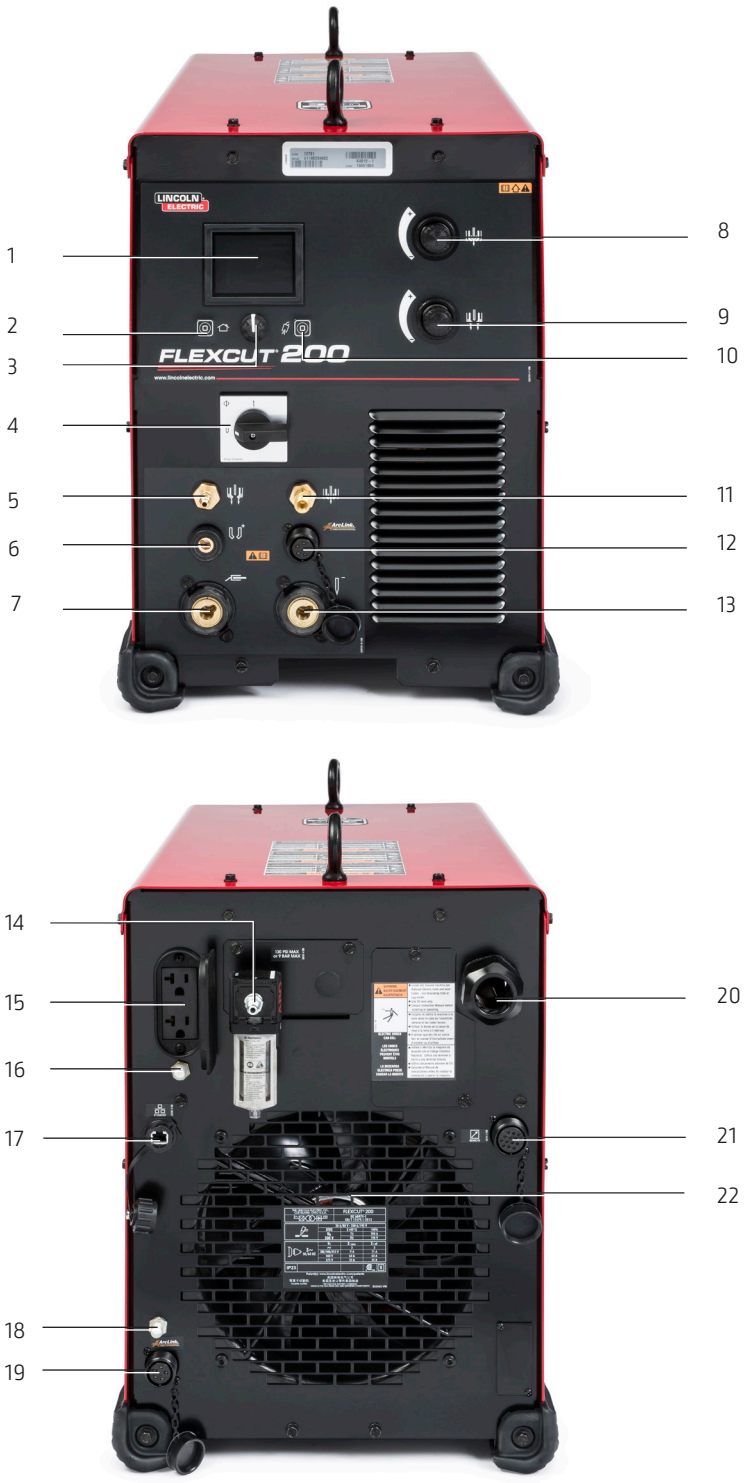
Controls »

FRONT

1. LCD DISPLAY
2. HOME BUTTON
3. MENU CONTROL KNOB/BUTTON
4. ON/OFF SWITCH
5. SHIELD GAS OUTLET
6. NOZZLE LEAD CONNECTION
7. WORK LEAD CONNECTION
8. ELECTRODE LEAD CONNECTION
9. ARCLINK CONNECTOR (5-PIN)
10. PLASMA GAS OUTLET
11. PURGE
12. SHIELD GAS REGULATOR
13. PLASMA GAS REGULATOR

BACK

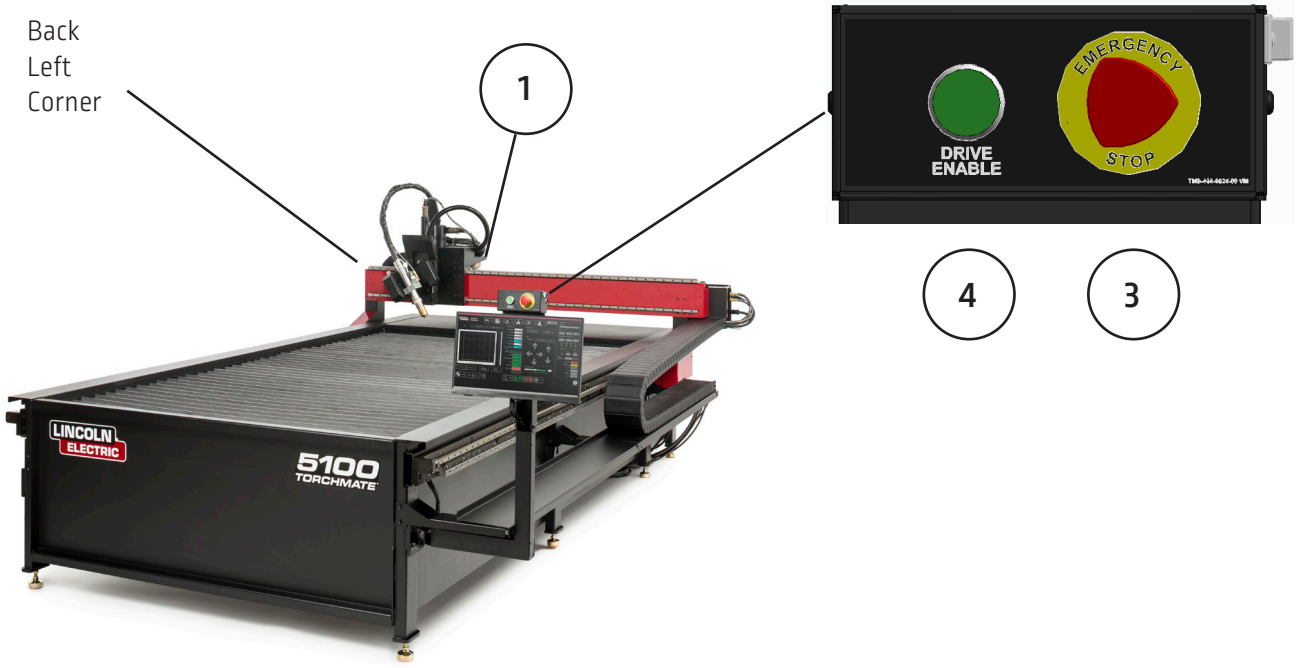
14. AIR OR GAS INLET (1/4"IN. NPT QUICK CONNECT)
15. 115V/15A AUXILIARY POWER RECEPTACLE
16. 15 AMP CIRCUIT BREAKER
17. ETHERNET CONNECTOR
18. 10 AMP CIRCUIT BREAKER
19. FLEXCOOL CONNECTOR
20. INPUT CORD STRAIN RELIEF
21. CNC INTERFACE CONNECTOR
22. FAN

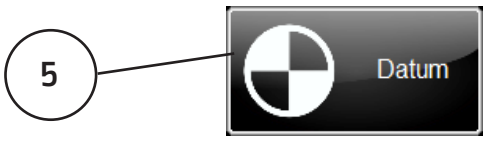


Powering up the Torchmate 5100

To power up your Torchmate 5100 CNC machine, the following items need to be powered up; Machine and Plasma Unit. The machine will power the controller, computer, and touchscreen. The switch is located on the backside of the machine. Once switched on, the computer and all the electronics will power up. The power switch for the plasma power supply is located on the front of the unit. The complete user guide is available as an embedded file in the VMD. Use the button with the question mark to access this file.

1. Power up the machine by using the ON/Off switch. (back left of the machine)
2. The VMD Application will auto start with the computer, wait for control panel to load (run.wap)
3. Verify the EMERGENCY STOP(s) are disengaged by turning the RED EMERGENCY STOP button clockwise. One on the non-cable carrier side of the gantry and one above the monitor.
4. Press the GREEN BUTTON above the Operators Console. (This will power the motors)
5. Press DATUM. (Machine will seek back left corner)
6. Go to the plasma torch head to check and evaluate the consumables. Turn the plasma power supply on and set the appropriate amperage for the consumables and the material you will be cutting. Cut charts are available in the Flex-Cut manual. Verify air pressure is correct per manual.



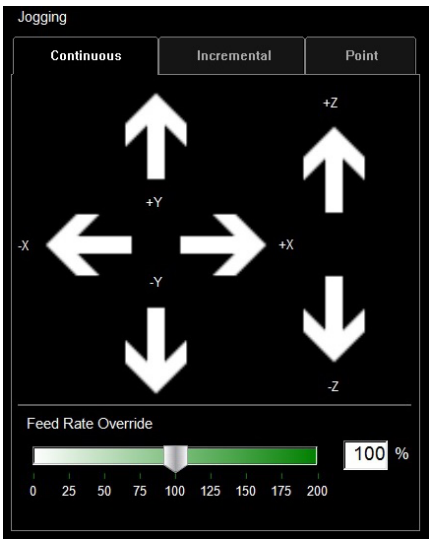


Running a Job

For your first machine cut, we highly recommend cutting the Factory provided test cut program, and comparing it to the sample that was cut in the factory. This will help verify that the machine is operating to factory specifications.

Datum:

When you first turn on the machine, it will already be configured and ready to run. A screen displays PLEASE SWITCH DRIVES ON. Press HIDE and then in the lower left corner press DATUM. The Torch will travel to the limits of the machine and establish the MACHINE ZERO.



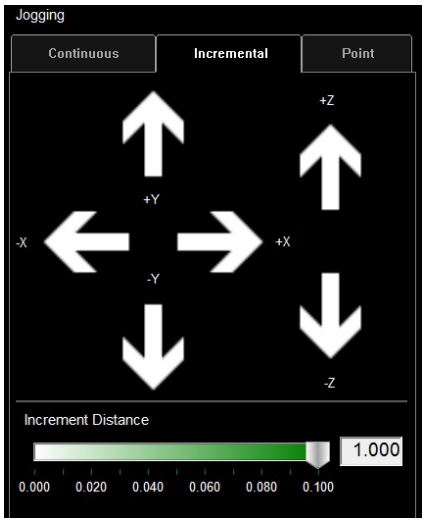
Continuous Jog:

Pressing one of the arrows on the screen will move the torch-body in the direction you are pressing. When released, the head will stop.

The distance from your finger press to the base of the arrow will determine the speed at which the machine moves. While you are jogging, sliding your finger in the direction of the arrow will increase or decrease your speed.

Running a job (continued)

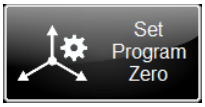
Follow the steps below to Jog the tool around the table



Incremental Jog:

Pressing one of the arrows on the screen will move the torch-body in the direction you are pressing, the amount of distance specified in the “Increment Distance” setting.

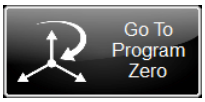
By using the slider, you can set increments between .000 - .100”. You can directly enter any number into the dialog.



Set Program Zero:

This establishes the Lower Left corner of the program, centerline of the torch body. This will be where the job will start from for any part or nest programmed for the Torchmate 5100 .

Establish the plates position by pressing SET PROGRAM ZERO.



Go To Program Zero:

This will move the torch body back to the established PROGRAM ZERO, at the highest possible torch position to avoid torch collisions.

Plasma Cutter Configuration

With the machine set into the correct position over the material, finalize the plasma cutter settings. See the details below on configuring the FlexCut 125 and FlexCut 200 for your First Cut.

FlexCut 125 main panel:

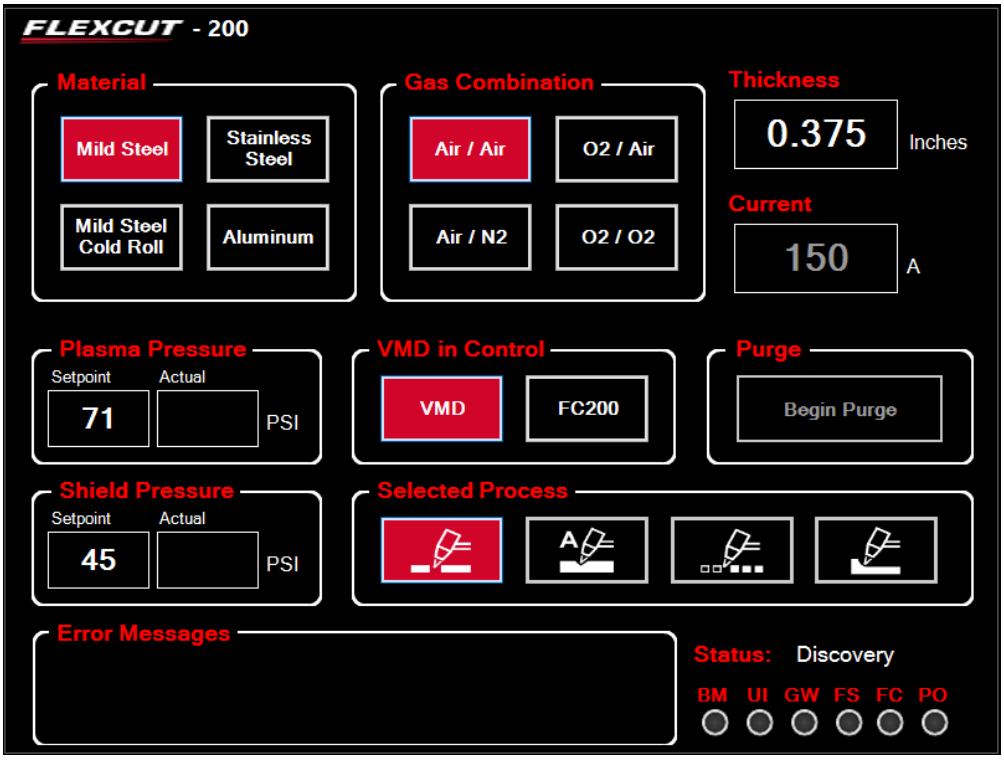
On the front panel of the FlexCut 125, turn the main dial to display 65

Press and hold the Purge button, and adjust the regulated air pressure to be 70PSI.

Plasma Console in Visual Machine Designer software: (FlexCut 200)

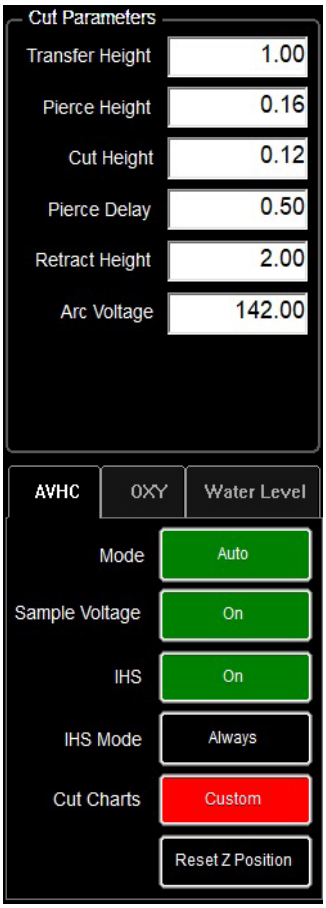
The FlexCut 200 allows you or the G-Code program to set variables for the plasma cutter to operate with.

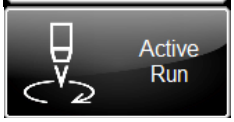
- Material - Choose the appropriate material type
- Gas Combination - Based on input gases and material selection
- Thickness - material thickness
- Current - 50, 100, 150, or 200 depending on material thickness and consumables
- Plasma/Shield Pressure, Set Point - Based on material type, gas type, thickness, and amperage, the correct pressures are displayed for that combination for the operator to set
- Plasma/Shield Pressure, Actual - These should be set after clicking the “Begin Purge” button by adjusting the pressure regulators on the front panel of the FlexCut 200. These values are also displayed on the FlexCut 200 LCD display
- VMD in Control - Either the settings can be controlled via the VMD software on the HMI (default ON) or only at the FlexCut 200 power supply
- Purge - Begins purging the Plasma and Shield gases allowing the operator to set the pressures
- Selected Process - Plate cutting, Arc Marking, Expanded Metal cutting, and Arc Gouging modes. See FlexCut 200 manual for details.
- Status - Information regarding the status of the plasma cutter, see FlexCut 200 manual for details.



Performing Your First Test Cut (straight torch NON BEVEL)

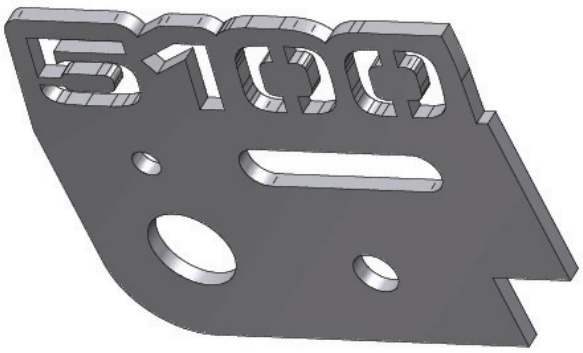
The LINE SPEED TEST.gm and 5100 Test Cut.gm is provided to determine the proper feed rate in IPM to cut the material thickness to the amperage you have set on the plasma power supply. These have been included in your pre loaded first cut on the Torchmate 5100 models. The plasma torch body is pre-loaded with 65 amp consumables (FlexCut 125) or 100 amp (FlexCut 200) for a 3/16" material cut from the factory. We highly suggest your first cut is our pre-loaded, *FC125/200 INLINE TEST CUT 65A/100A.gm to ensure your machine has transported in the same condition it has left the factory. Please locate the factory test sample located in the waterbed and load a piece of 3/16" mild steel for the comparison cut test.





1. Press SELECT JOB
2. Locate FC125/200 (amperage of plasma) INLINE TEST CUT 65A/100A (plasma machine).gm and press OK
3. Verify that your amperage on your plasma power supply is set to 65 amp (FC125) or 100 amp (FC200)
4. Set AVHC Mode to AUTO
5. Set AVHC Sample Voltage to ON
6. Set IHS (ohmic detection) set to ON
7. Set IHS Mode to Always
8. Set the Machine to Active Run (If Dry Run is displayed, press once to toggle to Active Run)
9. Verify that the FEED RATE OVERRIDE is set to 100% beneath the Continuous Jog Buttons
10 PRESS RUN JOB (machine may throw sparks)
11. The cut will progress as follows:
    - Rapid travel to the first inside feature
    - Z Axis moves toward the material, touching the top of the material (IHS -ohmic detection)
    - Torch retracts to set PIERCE HEIGHT and will fire
    - Dwells until the PIERCE DELAY is expired
    - Drops to set CUT HEIGHT and starts the program
    - Will cut all inside features first, then move to the outside geometry

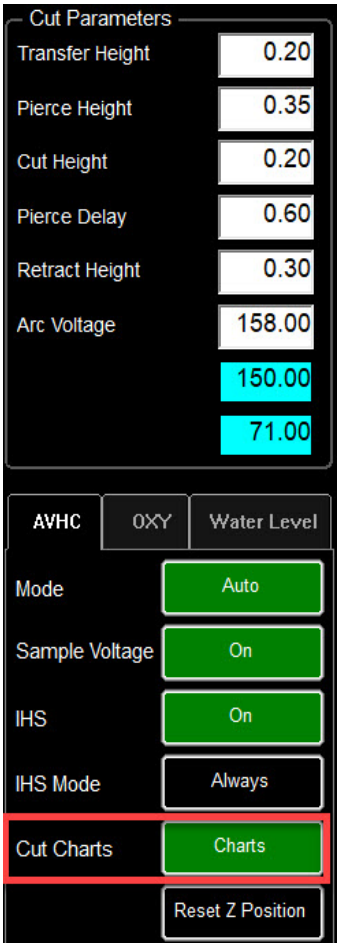
Once cut is complete, compare the cut to the provided sample and verify that they match. This will provide verification that the machine is functioning properly.



If you need to stop the machine at any time please hit the stop button on the touch screen.

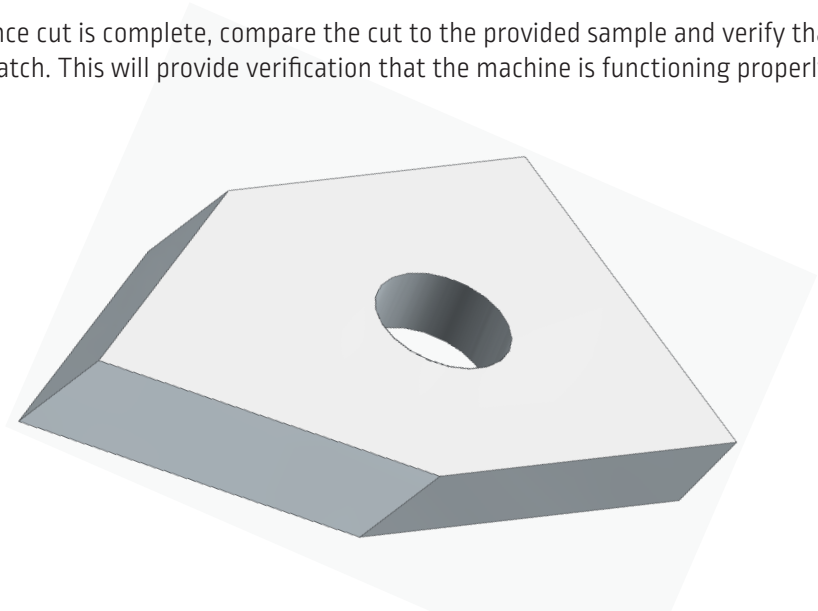
Performing Your First Test Cut (BEVEL)

With the BEVEL head, the plasma torch body is pre-loaded with 125 amp consumables (FlexCut 125) or 150 amp (FlexCut 200) for a 1/2" MS material cut from the factory. We highly suggest your first cut is our pre-loaded, *FC125/200 BEVEL TEST CUT 105A/150A.gm* to verify your machine has arrived in the same condition it has left the factory. Please locate the factory test sample located in the waterbed and load a piece of 1/2" mild steel for the comparison cut test.



1. Press SELECT JOB
2. Locate FC125/200 (amperage of plasma) BEVEL TEST CUT 105A/150A (plasma machine).gm and press OK
3. Verify that your amperage on your plasma power supply is set to 105 amp (FC125) or 150 amp (FC200)
4. Set AVHC Mode to AUTO
5. Set AVHC Sample Voltage to ON
6. Set IHS (ohmic detection) set to ON
7. Set IHS Mode to Always
8. Set the Machine to Active Run (If Dry Run is displayed, press once to toggle to Active Run)
9. Verify that the FEED RATE OVERRIDE is set to 100% beneath the Continuous Jog Buttons
10 PRESS RUN JOB (machine may throw sparks)
11. The cut will progress as follows:
    - Rapid travel to the first inside feature
    - Z Axis moves toward the material, touching the top of the material (IHS -ohmic detection)
    - Torch retracts to set PIERCE HEIGHT and will fire
    - Dwells until the PIERCE DELAY is expired
    - Drops to set CUT HEIGHT and starts the program

Once cut is complete, compare the cut to the provided sample and verify that they match. This will provide verification that the machine is functioning properly.



If you need to stop the machine at any time please hit the stop button on the touch screen.

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