

FlashCut CNC Newsletter - April 2024



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FlashBot Featured at AUTOMATE Chicago, IL May 6–9, 2024 Booth 138



**Plasma cutting domes, beams, pipes, tubes and sheets
has never been easier**

Our latest innovation, FlashBot, seamlessly integrates our world-renowned CAD/CAM/CNC

technology with collaborative robotics, marking the advent of a new era in cutting automation on the shop floor. These workstations empower manufacturers to automate traditionally manual tasks that were previously unattainable on a standard plasma cutting table, **optimizing workflows and significantly boosting overall productivity**.

The **user-friendly interface and compatibility with major cobot and plasma machines** make the FlashBot perfect for a wide array of applications, including Beam, Tube, Pipe, Dome, and Flat Sheet Cutting.

Additionally, our solution can **easily be retrofitted onto existing cobots**. Stay ahead in the rapidly evolving world of automated manufacturing by exploring how FlashCut Robotics is reshaping possibilities with this cutting-edge solution.

If you can't make it to a show, feel free to contact us to schedule a live demo or a tour in our Deerfield, IL USA HQ.

Visit our [website](#), call us at 847-940-9305 or e-mail us at sales@flashcutcnc.com to delve deeper into this transformative technology and discover how it can elevate your machining capabilities.

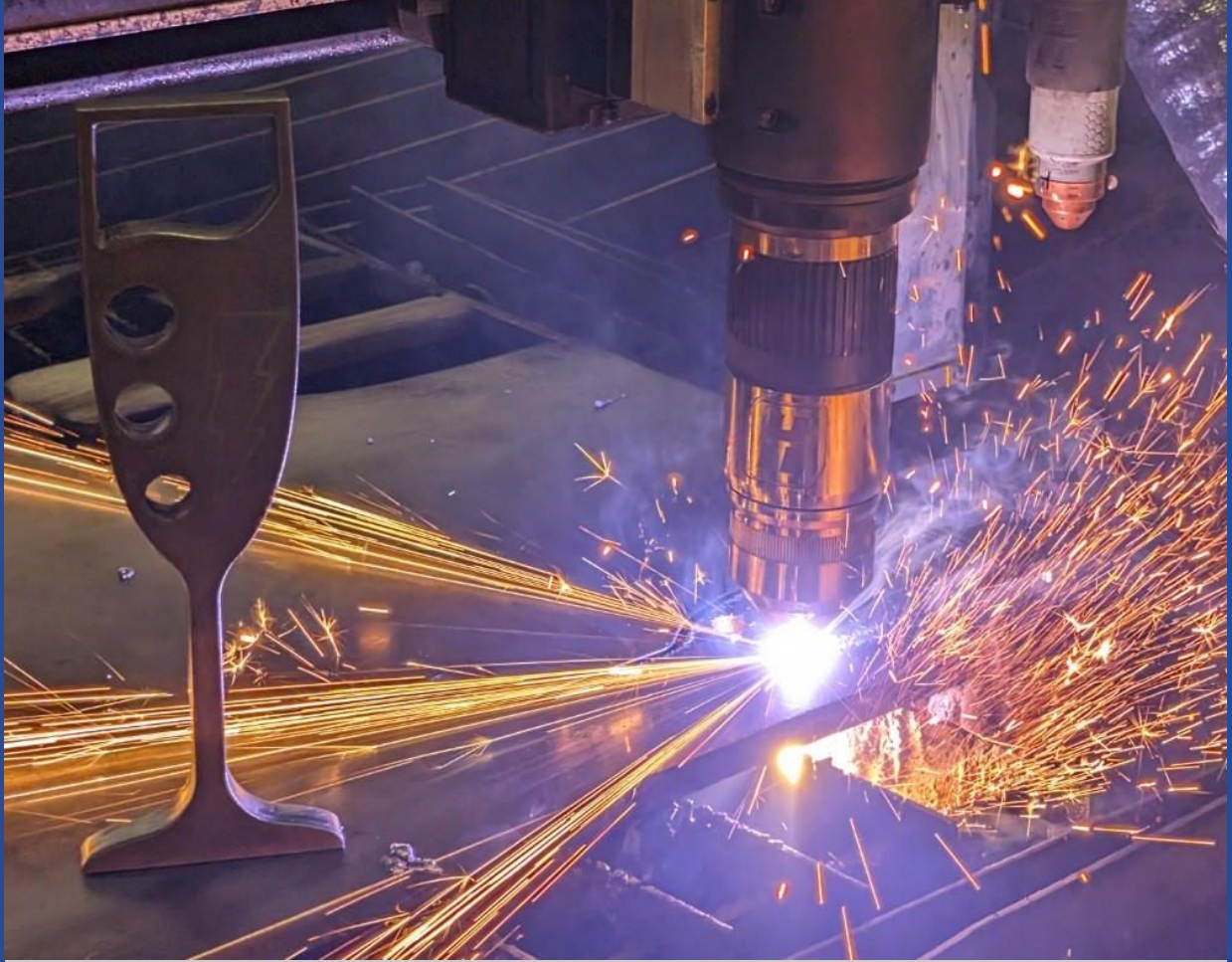
[Click Here for More Info on Cutting w/ FlashBot](#)

[Click Here for a Free Ticket to Automate 2024](#)

Unparalleled XPR Cut Quality With Our Integrated EtherCAT CAD/CAM/CNC

Over the past few years, FlashCut has been working diligently with Hypertherm to develop a truly outstanding XPR cutting experience. Thanks to the process settings in FlashCut Version 10, our latest EtherCAT communications software and our Smart360 hole cutting technology, we are achieving unparalleled accuracy and smoothness along with unsurpassed bolt hole quality where you can snugly slide gage pins in and barely tell the difference between the top and back sides of the hole. Hypertherm came to our lab to put their stamp of approval on our XPR development and they gave it a big thumbs up.

Superb cut quality combined with our world-renowned CAD/CAM/CNC integration makes our solution a no-brainer for anyone who wants power, ease of use and incredible cut quality. Call us today for more information.



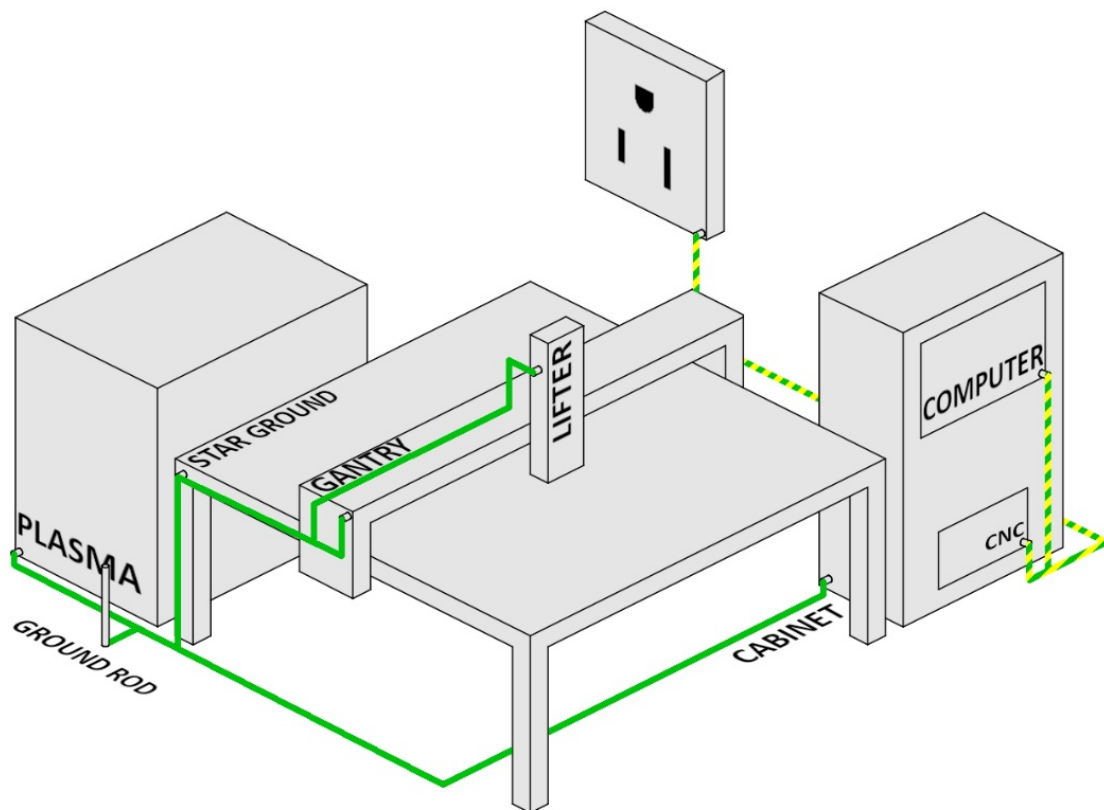
Click Here for More Info on Our EtherCAT Controls for High Definition Plasma

Tech Tip: Eliminating EMI Noise in Any Plasma Environment

Noise from EMI (Electro-Magnetic Interference) can be prevalent in many plasma systems and can be a silent problem affecting cut quality and system down time unless the proper steps are taken to mitigate it. In our 25+ years of producing CNC controls for plasma systems we have seen our fair share of noisy plasma power supplies and have always used engineering knowhow to eliminate the issue. Below are some basic guidelines for doing this:

System Grounding

Correct grounding of the system is essential both for safety and proper operation. This document is a general guide on what connections should be made to ensure proper noise mitigation. While this guide is tailored to the demands of plasma cutting systems, the same principles can be applied to any CNC machine.



Ground Loops

When multiple ground paths are created, the potential for ground loops exists. These will negatively impact the system's overall grounding capabilities. As such, ground connections not covered in this guide should be avoided unless explicitly recommended by a FlashCut engineer.

Point-To-Point

Each connection should be made from a single point to another single point and not daisy chained. For example, the connection between the star ground and the lifter should be made directly instead of connecting the lifter to the gantry ground point and relying on its connection to the star ground.

Electrical Isolation

When two components are physically connected but electrically isolated, non-conductive hardware must be used. This is especially important when mounting control components in an enclosure that is bonded to the machine.

Grounding Overview

Ideally, two separate ground schemes should be used—a machine ground and a control ground. This will protect the more sensitive control electronics from the plasma system. The following diagram shows an example of proper grounding. The two schemes are denoted by the differently patterned wire colors: solid green represents the machine grounding and striped represents control grounding.

Machine Grounding

Machine grounding encompasses the connections between the table bed, plasma, mechanics, star ground, and ground rod. These are installed to give electrical noise (EMF) induced by the plasma system a path to drain away from more sensitive electronics. Without this system in place, EMF will propagate through other conductive paths to reach ground, potentially striking sensitive equipment such as the control electronics. These connections should be made point-to-point, radiating like branches of a tree. This grounding scheme will prevent ground loops; a common source of EMF. One frequently overlooked cause of ground loops is motor mounting. The shield of motor cables should only be connected at one end, preferably the controller side. 10 AWG or greater should be used for connections between the star ground and machine components.

Ground Rod to Star Ground

The connection from the ground rod to the star ground must conform to the recommendations of the plasma manufacturer. In lieu of manufacturer guidelines, one should follow the recommendations in the Wiring Guidelines section. This connection ensures that any extra energy created by the plasma system has a safe route to follow to ground.

Control Grounding

Control grounding entails the ground connection between computer, controller, monitor, and any other low-power devices. Often times, this will be accomplished through the devices' AC cables. If only DC power is supplied to the computer or controller, an external ground wire should be run to the power supply. The control grounding scheme must be separate from the machine grounding scheme. Following recommended practices will keep control grounds electrically isolated from machine grounds and prevent ground loops. To verify this, a resistance measurement can be taken from the chassis of any of these devices to the frame of the table. This value should read in kilo-Ohms or greater.

Cable Routing

Another potential source for electrical noise-related problems is cable routing. Care should be taken to isolate cables connected to the control system from cables connected to the machine system as much as is possible. In particular, long, parallel runs of both types of cables should be avoided. One of the most common errors is running the CNC plasma control cable alongside the plasma lead. While visually clean, the proximity of the cables allows for noise to easily transmit from the machine system into the control system.

Piles and coils of cable may also have a deleterious effect on the electrical health of the machine. If cable runs are longer than necessary, a “figure-eight” should be used instead of a straight coil.

If you have any tech tips of your own, please feel free to e-mail them to us at asales@flashcutcnc.com.

Click Here For More Information About Eliminating Noise and Grounding Principles

FlashCut Future Engineers Awards 2024

The FlashCut CNC Future Engineers Scholarship Award is given annually to college-bound students pursuing an engineering or science degree at a four-year college or university.

This year FlashCut CNC is pleased to announce two joint winners: Charles Jakymiw and Olga Shinkarev. Congratulations to both outstanding students!

FLASHCUT CNC

CONTROL MADE SIMPLE

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FlashCut CNC | 444 Lake Cook Road, Suite 22, Deerfield, IL 60015

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