Plasma Cutting Table Leader, Embraces PlasmaCAT and Considers LaserCAT from E-CAT CNC

Customer Overview

An early adopter of Mach4 PlasmaCAT CNC thermal cutting software, who is known for delivering high quality, innovative Plasma CNC machines that produce precisely the same results as machines that cost twice the price, is now seeking to adopt LaserCAT too. They achieve their breakthroughs by focusing on implementing the most innovative and open CNC control software that executes on an industrial PC rather than relying on a black-box, inflexible low-cost CNC controllers or highly expensive customizable controllers. They are innovating their control systems by adopting PlasmaCAT from E-CAT CNC and soon may adopt LaserCAT too.

Plasma Cutting Industry Overview

The plasma cutting process is a thermal cutting method. Which means that it uses heat to melt the metal instead of mechanically cutting it. The overall mechanics of the system are always the same. Plasma cutters use compressed air or other gases, such as nitrogen. Ionization of these gases creates plasma.

Typically, the compressed gases come into contact with the electrode and then ionize to create more pressure. When the pressure builds up, a stream of plasma is pushed towards the cutting head. The cutting tip constricts the flow to create a stream of plasma. This is then subjected onto the workpiece. As plasma is electrically conductive, the workpiece is connected to the ground through the cutting table.

As the plasma arc contacts the metal, its high temperature melts it. At the same time, the high-speed gases blow away the molten metal.

Emerging Plasma Industry Challenges

The plasma cutting industry is facing new challenges from recent technological innovations. First, the EtherCAT fieldbus standard has emerged as the most adopted and game-changing innovation since digital fieldbuses were created.   EtherCAT offers completely new economics to any cutting machine and in some cases the cost for the EtherCAT-enabled plasma controller infrastructure is 56% less than all other fieldbuses or proprietary hardware.   So, machine builders in the plasma cutting industry must consider EtherCAT if they want to remain competitive in their market.

A second challenge that plasma cutters face is that the cost per diode for fiber laser is dropping exponentially so the price of a low-end fiber laser is approaching the price of the high-end plasma cutting. The operational costs and the post-cut machining costs from Plasma cutting are higher than laser cutting. The Total Cost of Ownership (TCO) for fiber laser tables is quickly approaching that of plasma tables. Plasma still has a Total Cost advantage but to further that advantage plasma cutting machine builders are turning to EtherCAT as a way to increase their TCO advantage.

However, technological challenges are not the only reason fiber laser is quickly becoming more competitive than plasma cutting.   Customers have new application requirements, and they are pressuring cutting machine builders to support machining that can mill harder materials, can cut more geometrically complex shapes, can deliver higher dimensional accuracy, can support part miniaturization, can handle multiple and versatile operations, or can even work on rough or non-flat surfaces of a product part. Machine builders are starting to upgrade their high-end plasma cutters to fiber laser to address these new requirements.

Customer Solution

Consistent with its mission to innovate the plasma cutting industry by innovating the Plasma CNC controller, this thermal cutting machine builder is now implementing EtherCAT by using PlasmaCAT from the E-CAT CNC. They expect to release their first EtherCAT-enabled plasma cutter machine later this year.

EtherCAT has proven to be so powerful and laser cutting technology so competitive, machine builder is now exploring the possibility of expanding their product portfolio at the high end to now offer laser cutting tables. They believe they can just repurpose a high-end plasma table which satisfies the rigid requirements for laser cutting and install the laser equipment, EtherCAT drives and the LaserCAT controller from E-CAT CNC and suddenly they have a completely new and competitive solution from the industry. Because the cost of laser is dropping, they will once again lead the market with a solution that delivers high quality, innovative fiber laser cutting CNC machines that produce precisely the same results as machines twice the price...not just for plasma but for the fiber laser industry too!

Resulting Benefits

By adopting PlasmaCAT, their new machine controller infrastructure cost is reduced and their machine assembly time and effort to create the entire plasma table is dramatically reduced. Additionally, this machine builder still offers the most open and flexible plasma controller that outperforms competing black-box plasma controllers and allows more flexibility than even the most expensive controllers.

In conclusion, as has been their long tradition, this Mach4 CNC customer can now offer a far better performing Plasma Cutting Table without increasing prices to their customers. Further they have the possibility to enter the fiber laser cutting market with a solution that aligns with their mission to innovate controllers and pass the savings to their customers.

Summary

LaserCAT provides the only truly open, low-cost, PC-based, EtherCAT-enabled, laser-cutting CNC solution that is able to machine smaller parts for miniaturization, to cut harder materials for quality and weight, to deliver higher dimensional accuracy, to support advanced geometries to work on parts rather than on flat steel, and to enable multi-operations in a single machine.

About E-CAT CNC

ArtSoft, a leader in the CNC industry, and IntervalZero, a leader in RTOS solutions, joined forces to create a groundbreaking joint venture called E-CAT CNC. This strategic collaboration aims to redefine the CNC machine market by introducing innovative solutions that address the pressing needs of CNC machine builders worldwide. The inaugural product of this partnership, LaserCAT, promises to revolutionize the industry with its unmatched capabilities and affordability.

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