

## Simplified Controller Integration Speeds Time-to-Market

# Kollmorgen Partnership Drives Higher Performance for a Plasma Cutting Machine Manufacturer



## >12 hours

Reduction in wiring time\*

## 50+

Wires replaced by five Ethernet cables

*"This customer came to us to upgrade their motion control to the latest fieldbus-based technology, but they had controller integration and performance challenges. Leveraging Kollmorgen's know-how in optimizing motion, the customer eliminated integration and noise issues allowing them to continue to innovate while growing and being recognized for high quality machines."*

— Senior Product Manager at Kollmorgen

## Challenge

The market for plasma cutting machines in North America is highly competitive, with customers looking for a variety of solutions—from big machines with high capacity and throughput to smaller machines for fabrication shops with more limited resources. A machine builder in Mexico looked for new ideas to successfully grow in this challenging environment.

The demand for smaller machines was rapidly expanding. Inexpensive machines with analog control were dominating that segment of the market, but many customers were looking for higher quality without a higher overall cost. Many shops with existing machines were looking to upgrade them for better performance. And the builder needed to deliver custom machines faster, with assurance that they were configured and tuned for reliable operation.

Finding success in building these smaller and custom machines all depended on precise motion, achieved quickly, affordably and reliably. That's where Kollmorgen came in.

The machine builder's analog control systems had several drawbacks. These systems cannot easily be scaled to different machine sizes. Controls and drives must be hardwired—a complicated and labor-intensive task of properly routing and terminating 10 or more wires for each axis. Among the 50+ cables in a typical machine, a single miswired or failed cable can lead to problems that result in damage to components or even the entire control panel. Even when wired correctly, insufficiently shielded cables can act as antennas for the high EMI/RFI noise in the plasma cutting environment, leading to problems with cut quality.

## About Kollmorgen

Kollmorgen has more than 100 years of motion experience, proven in the industry's highest performing, most reliable motors, drives, linear actuators, gearheads, AGV control solutions and automation platforms. We deliver breakthrough solutions that are unmatched in performance, reliability and ease of use, giving machine builders an irrefutable marketplace advantage.

For more information  
[www.kollmorgen.com](http://www.kollmorgen.com)

## Solution

To address these issues, the builder selected an industry-standard controller used on many plasma machine systems, known for its proven performance and speed to market. Initially, the controller was paired with another manufacturer's servo drive and motor, but an unacceptable failure rate led the builder to turn to Kollmorgen with guidance from its local distributor. With reliable motor and drive performance, simple EtherCAT integration, and Kollmorgen's expertise in motion for plasma-cutting applications, the company is now producing better performing, more reliable machines that are easier to build and tune.

Kollmorgen's AKD servo drives and AKM servo motors are seamlessly integrated with industry-standard controllers via a high-performance EtherCAT bus. Replacing 50+ hardwired cables, the digital system uses five standard ethernet cables with simple click-in connectors. Instead of laboriously tuning motion performance on each machine, Kollmorgen drives offer easily configured autotuning that is repeatable across machines. And the plug-and-play motion system is far more reliable, with no danger of miswiring, minimal risk of cable failure, excellent noise immunity and digital accuracy.

With Kollmorgen's know-how for optimizing motion to meet the needs of laser, waterjet and plasma cutting machines, plus its vast selection of readily-available, off-the-shelf configurations, the company is producing better machines faster, driving increased sales in a highly competitive market.

## Results

Kollmorgen's extensive experience in laser, waterjet and plasma cutting applications provides optimized motion performance for the smallest to the largest and the simplest to the most complex machines.

- » Instead of one-size-fits-all, drives and motors can be scaled to the exact requirements of each machine.
- » Machines at every cut-bed size can be smaller, lighter and faster.
- » Existing machines can be upgraded for significantly higher precision and throughput.
- » Machines are far easier and more affordable to build and wire, with more compact components and only one click-in cable between each drive and the controller.
- » Digital control using an EtherCAT bus improves precision and reliability for multi-axis control while allowing drives to be mounted anywhere for optimized machine design.
- » AKD family drives provide extensive safety functions for safe motion.
- » AKM motors with Kollmorgen SFD (Smart Feedback Device) provide highly accurate feedback with exceptional resistance to dirty conditions, temperature extremes, vibration and electrical noise.

## Learn More

Ready to design and build a more ambitious machine?  
Visit [www.kollmorgen.com/tool-less-cutting](http://www.kollmorgen.com/tool-less-cutting)