

Case Study:

Complete Electrical Retrofit



Steel Service Center Struggling with Obsolete Systems Receives Complete Electrical Retrofit.

Objective

- Retrofit obsolete and unsupported motors and controls and supply the customer with spare parts to improve their line's reliability and prevent lengthy downtime.

Solutions

- Calculated the complex algorithm for electronic camming functionality due to missing schematics and descriptions.
- Integrated new drives, motors, and controls into the existing line.
- Integrated remote monitoring equipment and software so the Quad Plus diagnostics team could assist with future problems within one hour.
- Utilized muting zones in lieu of gates and fences and lowered control voltages to provide a safer work environment.
- Supplied customers with spares for all new systems to eliminate lengthy downtime in the event of a part failure.
- Provided the customer with detailed documentation, including a detailed PLC program with comments and AUTOCAD electrical and mechanical prints.

Results/Benefits

- The customer no longer has to worry about a weeks-long disruption to their production line in the event of failure.
- The customer now enjoys a well-documented system, including prints and schematics, to make future improvements or repairs easier and safer.
- Improved line accuracy which allows the customer's line to operate at a higher speed and therefore increased their monthly sales potential.
- Improved safety measures for a safer work environment for maintenance and production staff.

Background

The Quad Plus team received a call from a steel service center with concerns about obsolete equipment controls. Because spare parts for their controller were no longer available, a controller failure would result in significant downtime. The approximate time frame to rebuild the system in the event of a controller failure ranged between 12 to 24 weeks, an unacceptable amount of time for the line to be shut down. The customer's equipment also featured a custom-made rotary shear motor, which was made by a company that is no longer in business.

Quad Plus Solution

The first obstacle the Quad Plus team faced was that there were no existing control programs or electrical schematics that described how the machine was supposed to operate. Our experts understood that the success of this line is greatly tied to very precise control of the rotary shear, but the existing control was a proprietary and dedicated "black box" with no description of its operation.

Our experienced team put our years of experience to work for the customer to perform the complicated and precise calculations to create an algorithm for the electronic camming functionality. We then were able to integrate new drives, motors, and controls into the customer's existing line. All the components are new and readily available, and we provided the customer with spares to keep onsite at all times. We also integrated remote monitoring equipment so our service staff can get online and diagnose any future problems within an hour. Lastly, a detailed machine safety study was performed to identify areas to improve the work environment for maintenance and production staff.



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