

EMERGENCY UPGRADE IN THE PLASTICS INDUSTRY

ADVANCED INDUSTRIAL CONTROLS



PROBLEM

AIC received an emergency service call during the Fourth of July holiday from a plastic sheet manufacturer in Kentucky. Their 1990s-era extruder with a cut-to-length flying knife system was down and they needed it repaired. The existing Siemens master drive was obsolete and difficult to find replacement parts for. Motion coordination is a critical component of this system, which uses a 3-axis continuous motion flying knife.

SOLUTION

AIC worked around the clock for four days during a holiday weekend to get the customer's manufacturing line up and running again. Our team did a complete tear-out and retrofit while installing a new control system. This installation was one of the first U.S. applications of a new technology which uses motion control through the PLC. AIC attained approval from Siemens for this application before the installation began. The upgrade included:

- PLCs and control panel, including Siemens SINAMICS S120 servo, motion control, and Siemens SIMATIC S7 1500 PLC
- 15" Siemens Comfort Panel human machine interface (HMI) with graphical touch screen, replacing outdated operator pushbuttons
- Master line encoder on the main press motor for speed control, which coordinates the motion the flying knife and other subassemblies.

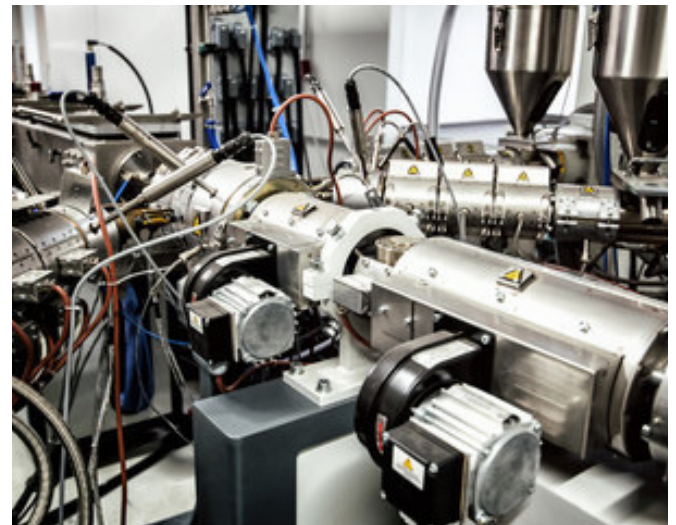
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RESULTS

Before the upgrade, workers had no way to control or track the motor speeds. With the new master line encoder on the main press motor, all auxiliary motor speeds are controlled and tracked to report how fast the machine is running, and ancillary machines adjust themselves based on the main motor's speed. This saves energy and reduces wear and tear.



SAVINGS

“AIC turned a critical downtime situation into a net positive for us,” said the customer's maintenance manager. “Due to part obsolescence, we could no longer repair the line. AIC responded quickly to our call during a holiday weekend and performed an emergency control system upgrade to get the line running again. We were so pleased with the economic and production results that we have committed to upgrading two additional lines.”



The customer was thrilled with the new control system, claiming the machine is now running better than it ever had, resulting in a 30% gain in throughput. The more robust control system gives added benefits such as monitoring and diagnostics for easier troubleshooting. After just six months, the customer has already seen a return on their investment and has made plans to upgrade a second line in 2018, and the final line in 2019. The productivity increase for the additional two lines is expected to give a return on investment in the 6-8 month range once again.