

# ARC FLASH STUDY, ELECTRICAL CONVERSION, & CONTROL SYSTEM REDESIGN FOR RELOCATED EQUIPMENT

## ABOUT THE CLIENT

Our client is a global, Fortune 500 medical device manufacturer on the front lines of medical technology innovation and healthcare. They have high standards for worker safety, earning the Business Group on Health's "Best Employers: Excellence in Health & Well-being Award."



## SERVICES

Electrical Engineering  
Controls & Automation  
Safety Consulting - Arc Flash

## HIGHLIGHTS

- Redesigned Chinese control system to easily relocate & integrate vial, sterilization, and production line into US facility
- Converted voltages and performed arc flash study to meet power requirements and ensure equipment safety
- Increased production of pre-treated tubes to meet consumer demand

## PROBLEM TO SOLVE

Our client had an in-demand product line of chemically pre-treated tubes that are used in healthcare applications ranging from hematology and glucose testing to blood banking. In order to meet commercial demand, the manufacturer needed to quickly relocate a vial handling, sterilization, and packaging line from a facility located in China to the US facility producing the pre-treated tubes. The line was complex, comprising an assortment of spray dryers, coaters, chillers, and robotic handling equipment. Integrating the US and Chinese lines proved to be a challenge. Because the US facility had different power requirements than the facility in China, our client needed to convert the voltages of the electrical components of the relocated equipment and complete an arc flash study to ensure system safety. The success of the integration also required the complete reprogramming of the Chinese language control system to align with the configuration of the systems in the US facility.

## APPROACH & SOLUTION

EAD undertook the challenging task of converting the voltages of the electrical components and reprogramming the automation system of the line from the international facility to ensure it would seamlessly integrate with the production line in the US facility. Working within a tight deadline, EAD performed an arc flash analysis to identify potential safety hazards. We specified new electrical componentry for equipment along the production line and updated the electrical power model to minimize the risk of an arc flash hazard. We also updated the equipment nameplate information to ensure compliance with NFPA-70E Standards. Our client also sought out a solution to ensure the IT security of the relocated line. EAD eliminated all risk by wiping the existing HMI programming from the relocated line and reprogramming each piece of equipment using safety Integrity level 3 (SIL3) components.

## RESULT & BENEFIT

Leveraging our electrical and controls engineering expertise, we successfully integrated the relocated production line so that it operates seamlessly within our client's complex manufacturing environment. Within the tight project schedule, we were able to fully convert the power from Chinese to US standards and completely re-program the control system. The relocated line is now secure, meets NFPA-70E standards, operates efficiently, and is safeguarded against arc flash hazards. EAD's engineering solution helped our client meet consumer demand, significantly increasing production at their US facility and supporting their long-term business growth.

