Case Study:
Full Risk Assessment

Quad Plus®

Consumer Goods Company Needed Help Following an OSHA Audit

Objective

- Perform a full risk assessment following an employee injury.

Solutions

- Created a muting zone using an area scanner and light curtain to protect workers from hazardous situations.
- Provided similar solutions to potential hazards throughout the production line.

Results/Benefits

- Risk mitigation and reduction solutions were applied throughout the production line, improving the safety conditions for all employees, and satisfying OSHA requirements following the incident.
- The muting zone eliminated the need for a lockout/tagout procedure while still keeping to OSHA guidelines, which resulted in a reduction of operational downtime.
- With less downtime, a slight increase in production volume was also realized.

Background

Our customer in the consumer goods industry reached out for assistance following an injury event involving an employee operating onsite machinery. The worker experienced several injuries, including broken bones, and the company was then subject to an OSHA audit. The customer needed a full risk assessment of the equipment line.

The machine in question has two turreting mandrels so operators can unload a finished roll while the other continues to wind the finished material. Operators need to regularly access this area at least once a cycle to interact with the finished roll and prepare to unload it. These two rolls are relatively close to each other and all machines stay energized during this process.

In addition to being exposed to a draw-in hazard on the winder, we identified two more primary hazards associated with the task being performed. If an operator were in the area when the rolls turret, they could potentially be crushed by the finished roll. As the rolls turret, a pneumatic splice knife fires that an operator could be in the path of, resulting in serious lacerations if not loss of fingers or a hand.

The current lockout-tagout procedure the customer put into place was particularly cumbersome and drastically slowed down production. LOTO is also an administrative solution and relies on personnel to go through the procedure properly, so engineered solutions are vastly preferable.

Quad Plus Solution

In most cases, we advise companies to perform risk assessments before accidents happen to avoid injuries, along with complications and fines assessed by OSHA. In this case, the accident already happened, and we were tasked with eliminating the dangerous conditions that contributed to the incident.

To provide safe access to the area containing the finished rolls, we created a muting zone utilizing an area scanner and light curtain. The primary safety device is the light curtain, which would trigger an emergency stop if breached. If an operator needed to access the zone, then they would press a Request Access push-button. Once the PLC confirmed all hazardous equipment was in a safe state, the operator would receive notification that the area was now safe to enter. Once the operator is finished with their task, they leave the area and press Request Secure. The area scanner will perform a brief check to verify that the hazardous area is clear, the light curtain will reactivate, and machine movement will be re-enabled.

OSHA Standard Number 29 CFR 1910 covers the safety requirements of this situation, and because the activities taking place were during normal production operations and “routine, repetitive, and integral to the use of the equipment,” we were able to bypass the LOTO requirement and implement the muting zone solution. It takes a significant amount of time to properly follow LOTO procedures while our streamlined solution only requires pressing a push-button before starting the task and a push-button after the task is complete. In that regard, this solution contributed to an increase in production volume.