

CASE STUDY

When a leading household goods manufacturer sought to expand production capacity by implementing a new packaging line including a robotic end-of-line solution, they engaged Polytron early in the process to identify safety standards compliance issues before the equipment arrived onsite.

Standards Compliance: Early Engagement Expedites Startup

The Project

An international manufacturer in the consumer household goods industry needed to expand their production capacity with a new packaging line spanning from primary packaging through an advanced robotic end-of-line solution. This new equipment, once successfully implemented, will serve as the blueprint for additional packaging lines across multiple regions. Much of the equipment will be provided by OEMs that are new to this manufacturer. With safety as a top priority, there was no time to waste.



EXECUTIVE SUMMARY

► Standards Compliance: Early Engagement Expedites Startup

Client: Leading Household Goods Manufacturer

Challenge:

The manufacturer was under pressure to integrate their new equipment on a tight schedule. But before the new equipment could be put into operation, they needed assurance that safety risks were identified and mitigated.

Solution:

Polytron's machine safety services group evaluated safety-related documentation from a dozen OEMs to identify compliance issues early. This enabled OEMs to make corrections at their facilities before equipment was shipped.

Results:

Polytron's early involvement minimized on-site rework, expedited startup, and ensured the new line could be operated safely by plant personnel. As a result, the manufacturer was able to maintain their aggressive startup schedule.

The Challenge

The startup schedule for this new packaging line was aggressive, and staying on schedule was vital to meeting the increased market demand. This new equipment could only be placed in production operation if safety risks were identified and mitigated. So, this manufacturer faced several challenges:

- Adherence to machine safety regulations and industry standards driven by the manufacturer's corporate initiative
- New OEM partners that may bring uncertainty and present safety-related challenges
- An aggressive production startup schedule

This manufacturer partnered with Polytron's machine safety services group to overcome these challenges and ensure that the equipment was safe for their associates to operate.

The Approach

Polytron's machine safety group was certainly up for the challenge! Our standards compliance service leverages decades of experience in machinery and automation, as well as a deep understanding of machine safety regulations and industry standards. With this solid foundation, Polytron engaged quickly to review safety-related machine documentation from a dozen OEMs. This documentation included the following:

- Electrical & pneumatic schematics
- Electrical & pneumatic bills-of-material (BOMs) for safety-related parts of the control system
- Safety PLC & safety controller programs
- Mechanical layout drawings
- OEM hazard analyses or risk assessments
- Photos & videos of several machines during the OEM's build phase

Standards compliance issues were identified relative to machine safety regulations and industry standards such as OSHA, ANSI, ISO, RIA, and NFPA in the following areas:

- Functional safety
- Electrical safety
- Machine guarding
- Administrative controls

Polytron's standards compliance service offers optimal value when we are engaged early in the procurement process. By performing our analysis between the OEM's design and build phases, or at least prior to the factory acceptance test (FAT), the OEM can often address the compliance issues while the equipment is still at their facility where they have the materials and resources to implement the necessary changes.

The Valued Result

For this packaging line, Polytron's machine safety services group identified standards compliance issues including the following:

- Hazards located within the calculated safety distance for movable guards with non-locking safety interlocks
- Whole body access areas without an escape release function on guard-locking safety interlocks
- Whole body access areas with no means of preventing unexpected startup
- Operator control stations without an emergency stop device
- Emergency stop pushbuttons without yellow backgrounds
- Light curtains positioned to allow access under the bottom sensing beam
- Safety functions achieving a performance level (PL) less than required (PLr) by client minimum or risk assessment
- Single-channel safety output wired to both channels of category 3, PLd output devices located in a separate enclosure
- Safety applications not using verified safety instructions
- Actuator feedback wired to a safety logic device but not being monitored by safety application
- Safety functions that included non-safety-rated devices
- Manual reset functions configured to take place on the rising edge of the signal
- Lack of hard or soft limiting devices to ensure the robot's restricted space is within the safeguarded space
- Shock hazards accessible inside control enclosures
- Hazards located within reach over, under, or around guards, or through guard openings
- Pneumatic isolators located within hazardous areas
- Pneumatic safety exhaust valves with no silencers

This is just a small sampling of the standards compliance issues that were identified on this project. Other projects may present similar and often unique compliance issues.

The value of our standards compliance service was clear for this manufacturer. For some OEMs, the compliance issues were addressed prior to machine delivery. For other OEMs, the new designs and associated materials were delivered to the manufacturer's site soon after machine delivery. In all cases, our standards compliance service helped to expedite the startup curve and ensure the safe operation of the new packaging line.

In addition, our standards compliance service is quite cost-effective since all services are performed remotely, meaning no costs to our client for travel time or expenses. This savings can then be applied to on-machine risk assessment and validation services once the equipment is installed. See our [machine safety webpage](#) for the full range of services we provide for new equipment.



Polytron's machine safety services group is ready to serve as a trusted partner throughout the lifecycle of your new and existing equipment.

[Contact us](#) to discuss your machine safety goals, and please ask for more information on our standards compliance services for your new equipment



About Polytron

Polytron partners with manufacturers to address complex business challenges. We first develop a thorough understanding of opportunities and then leverage our expertise and industry best practices to develop and implement a strategy that delivers results.