Posted On: 11/5/2008

Cintas Takes Control of Quality

Stacey Kusterbeck

With more than five million people going to work every day in apparel made by Cintas, it's no surprise to find the company's label inside uniforms worn by employees at NASCAR, Starbucks, McDonald's, W Hotels and Royal Caribbean. But what is surprising is the level of control the company has over the quality of those uniforms, thanks to its web-based quality software system, which has cut defect levels in half.

Headquartered in Cincinnati, OH, Cintas Corp. was founded in 1929 as a small business reclaiming and cleaning rags for local factories. It became an industry pioneer by introducing a polyester/cotton blend fabric that made uniforms longer-lasting and easier to clean.

Cintas now operates more than 400 facilities in the United States and Canada, including 11 manufacturing plants and eight distribution centers, with more than 34,000 employees and fiscal 2008 sales of $3.9 billion. More than 51 million items are sourced from more than 1,500 suppliers worldwide.

While Cintas supplies some garments to customers by purchasing raw materials, moving them to its cutting and sewing plants and then transporting the goods into the company's distribution network, others are purchased "off-the-shelf" from suppliers such as Carhartt and Timberland.

In the 1990s, the number of suppliers Cintas did business with increased dramatically because of the company's tremendous growth. This presented new challenges for controlling product quality.

Product defect rates were creeping into an unacceptable range. The "send someone to the plant to help them fix the quality problem" approach commonly used in the past wasn't practical any longer, given the number of vendors and their worldwide locations.

Most of Cintas' garments are designed to withstand a significant number of washings in the tough industrial laundry environment. "A high level of raw material and construction quality is imperative," says Dave Wheeler, vice president of global production and logistics. In addition, the sheer volume of products modified in the distribution centers, which customize garments with direct embroidery, emblems and hemming, became an additional quality control challenge.

New system for quality auditing

Cintas set out to establish a thorough and structured quality control program. First, a new quality sampling process was adopted, using the ANSI/ASQ Z1.4-2003 standard.

Next, Cintas made sure that its product specifications were accurate for comparison purposes, so that defects could be accurately pinpointed. Another step in the process was to determine standard categories and defect types, such as skipped stitches or omitted bar tacks.

Lyons Information Systems, Inc. in Raleigh, NC developed a web-based system called the Cintas Quality Audit Tracking System (CQATS). The system allows any manager or quality auditor to enter defect data, including purchase order information, the supplier name, product details, the number of defects and the defect category.

Quality reports can be generated by supplier, distribution center, defect type, shipment and other criteria. "The system is now used not only for finished garment data, but also inbound fabric quality rates, cut piece quality rates and in-process quality within the distribution centers," says Wheeler.

After Cintas had its own entry and exit points covered, the next step was to get its suppliers to do their own quality auditing, determining their defect rate before shipping their product to Cintas.

In 2002, Cintas created its own Designated Auditor Program to train and certify suppliers in performing their own in-plant quality auditing, and entering data into the CQATS system.

"The data allows us instant access into the supplier's performance on the shop floor," says Wheeler. "We can focus our resources on suppliers with current quality issues rather than based on reports issued weeks from now."

As with any new system that requires data entry from multiple remote locations, the main challenge was ensuring the data was entered into the system on a regular basis. "This was simply a change management challenge," says Wheeler. "Other than that simple hurdle, the system was implemented seamlessly."

Data cuts defect rates

Wheeler says that the greatest benefit of CQATS is being able to "manage with data rather than with speculation and memory." The company's Six Sigma team uses CQATS data to target tough-to-solve issues at specific suppliers and distribution centers - misaligned emblems, skipped stitches and direct embroidery thread color accuracy. "New vendors tend to start with high defect levels," says Wheeler. "Using the CQATS data, we can quickly tackle the training and mechanical issues to get them within goal."

The defect rate of incoming product has fallen by more than 50 percent since the system was implemented. The company now has instant access to the precise data needed to isolate and solve problems.

For example, Cintas used data that pointed toward one fabric mill that was adding unacceptable levels of fabric flaws across multiple sewing plants, resulting in excessive numbers of irregular garments. By narrowing down the source and working with the mill, those defects were reduced, along with the associated cost of producing irregular garments.

In 2007, a bi-monthly quality review meeting was established for suppliers and distribution centers falling above their acceptable defect level.
"With executive level management asking suppliers the reasons for their quality issues and reviewing their improvement plans, no supplier or DC manager wants to be invited to that meeting," says Wheeler.

With a common specification, set of defect definitions and easily accessible system, global supply chain managers can "speak the same language" with suppliers when reviewing quality levels. "With so many suppliers spread across the globe, this has proven to be an incredible efficiency improvement," says Wheeler.

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Instant access to quality levels

When a quality issue is identified with one of its suppliers, Cintas can now quickly ascertain if there is an upward trend in defects or a certain defect type. "Having access to the data at our fingertips cuts days of analysis out of the process of resolving the root cause," says Wheeler. For example, if a customer complains about quality issues involving trim, the system can be queried for supplier history to analyze whether the trend is recent or a long-term build-up. "Knowing this helps determines what type of actions to take," says Wheeler. "Not having the data quickly could result in knee-jerk reactions, causing more harm than good throughout the supply chain."

In 2008, Cintas designed a major enhancement that allows distribution centers to enter "in-process" auditing data. "We found we had some hidden 'rework' that tended to cover up real cost and delay within the distribution centers," says Wheeler.

In-process auditors would catch defects within the production lines and send them back for rework. Although the data was captured in a spreadsheet, there was no instant visibility across the DC network, so taking action was challenging and time-consuming.

The data collected and the reports generated in CQATS help to uncover the root causes, such as a specific machine, a certain operator, a certain order type or specific product.

"Reworking the defect prior to reaching the end of the line is much better than waiting until the product is packed in the box, though our goal is to eliminate all rework within the distribution centers," says Wheeler. "The new reporting ability in CQATS is allowing us to focus on these issues and drive down defect levels and manage costs."

Cintas is currently evaluating enhancements to the system to automatically create control charts for attribute and variable data, so suppliers and management can easily identify trends in quality levels. Although data can be taken from CQATS offline to produce control charts, a more automated approach readily available to suppliers would quickly highlight when their processes were trending outside of control limits or specification levels.

"We're always looking for methods to simplify the process and efficiently pinpoint issues well in advance of getting defective products into the pipeline," says Wheeler. "This looks like the next logical step to help us exceed customers' expectations."

Stacey Kusterbeck is an Apparel contributing author based in New York.