

Real-time Data Drives a Hole-in-one

Titleist Golf Balls Shares Value of Statistical Process Control

By Thomas R. Cutler



Plastics manufacturers are facing unprecedented increases in Cost of Goods Sold (COGS) because of the increases in the cost of oil – the building block of plastic resin. Real-time production knowledge helps manufacturers control these costs in several ways.

According to Evan Miller, CEO of Hertzler Systems and maker of GainSeeker, “By using real-time statistical process control (SPC), plastics manufacturers can immediately know when a process shifts and when they need to make adjustments. This real-time knowledge can reduce or even eliminate the amount of scrap that is produced – which reduces the total COGS.” By reducing the amount of scrap, manufacturers can reduce the ‘overages’ scheduled to compensate for the anticipated scrap levels, again reducing the COGS.

Another benefit of reduced scrap is that equipment is freed to do productive work. A shop with a 5 percent scrap rate and 20 molding machines has one machine dedicated to making scrap. Using real-time production data to eliminate scrap is the equivalent of buying a new machine.

Titleist Golf Balls Hit Hole-in-one with SPC

Ken Welchman is the director of quality for Golf Ball Operations at the Acushnet Company (makers of Titleist golf balls.) Welchman believes that Titleist is like many other plastics manufacturing organizations: “I think the main challenge of any high-volume industry is to reduce variation of the products and to monitor your process real-time to ensure

that any variation is minimized and corrected as quickly as possible. There also is a lot of competition for business from overseas manufacturers.”

In searching for an SPC solution, Titleist had specific challenges they were looking to meet. According to Welchman, “We were growing very quickly and our data collection system was not able to give us real-time data. The system that we had could only run overnight and only one associate knew how to access the data. We also were experiencing data entry errors. We needed a system that was operator/user friendly and that could interact between multiple facilities.”

In addition, Welchman was challenged by upper management to continue improving the products. In order to do that, he needed to know where the variation was, which then allowed projects to be identified that could eliminate that variation. “We needed a data collection system that helped us organize the data so that we could analyze our processes real-time,” explained Welchman. Unlike some plastics manufacturers, there is not a Lean or Six-Sigma program at Titleist.

Titleist selected the GainSeeker Statistical Process Control Suite. “The system was unique in that it could handle both attribute and variable data. We did not want two separate systems. The system also was able to be linked directly to our measuring devices (to eliminate operator data entry error). The system was PC-based and was easily configured and administered,” commented Welchman.

Simple Expectations at Titleist

The Titleist quality team expected and realized real-time data leading to real-time monitoring and solutions. One key factor driving the implementation of a SPC system was customer returns of golf balls. In 2002, eight balls per million were returned. Now the return rate is less than 1/4 per million and the company ships 580,000 golf balls per day; this exceeds the Six Sigma standard of excellence. In addition, what once required a full-time employee functioning as a customer return specialist prior to the implementation is now a job taking one to two hours per week. The improved rejection rate had unexpected consequences. Titleist provides practice balls free of charge for the tours worldwide (including the PGA). The defect rate is now so low, there are not always enough balls to supply the tour and new balls have to be used!

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All the data generated at Titleist Golf Ball Plants regarding golf ball quality is stored in the new SPC system. Most recently the company added all raw materials data to the system as well. “The new Dashboard Technology is going to allow us

to begin the process of inputting production data into the system with easy-to-view Dashboard desktops for all to see,” reported Welchman.

Thanks to the raw material data, everyone involved in the monitoring of raw material supplies (from purchasing to engineers)

receive auto-notification, data point, specs, and trends, and are sent a note via e-mail if there is a problem. Since the Titleist production is 24 hours per day and an inventory of only one to two weeks is kept on hand during the summer months, current data is essential.

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Welchman noted, “We are finally able to answer upper management’s product specification questions. We are able to show how improvement efforts are progressing. We are finally able to identify where the variation was happening. We can show upper management any piece of data they want to see quickly and reliably.”

Holding on to #1

The competitive pressure is very real. Welchman acknowledged, “When you are *The #1 Ball In Golf*, everyone is gunning for you. In order to maintain our competitive advantage, we need to improve our products and services every day. The quality of our products is judged every day by the best golfers in the world.”

Welchman advised other plastics businesses to insist on an SPC solution: “In today’s world, quality of the products is the number one concern of the customer. The only way to ensure quality and improve quality is to measure your processes and products. You need to do that in real-time, not after the product has already been made and shipped.”



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Hertzler Systems’ Miller is equally adamant that, “By using advanced drill-down analytical tools, manufacturers can drive variation out of their processes. In a plastics molding environment, this effort can be focused on squeezing the excess material out of the product so that less raw material is needed, again reducing the COGS.” ■

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