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Case Study: Easy-to-Use Quantum Software Hits the Mark at Federal Cartridge Company

Headquartered in Anoka, Minnesota, Federal Cartridge Company has been providing hunters and shooters with high-quality rimfire, centerfire and shotshell ammunition since 1922. Federal Cartridge pioneered the Premium category of ammunition and is part of the world's leading ammunition manufacturer, ATK Ammunition Systems Group. The company focuses on technology, advancing the state of the art in product performance, and the fundamentals - better quality, better service and lower delivered cost to the customer.

The Challenge

Federal Cartridge is committed to a continuous improvement strategy to maintain its technological leadership as the world's foremost manufacturer of recreational and military ammunition. Over the past decade, the company has invested more than \$50 million in improvements to manufacturing operations. Federal also reorganized production facilities for greater efficiencies instituted a just-in-time manufacturing process and significantly expanded its product development staff.

The improvements have paid off for recreational shooters, hunters, law enforcement officials and even Olympians. ASI DataMyte software has contributed to the improvement process and has been in use continuously at Federal's Anoka plant since 1992.

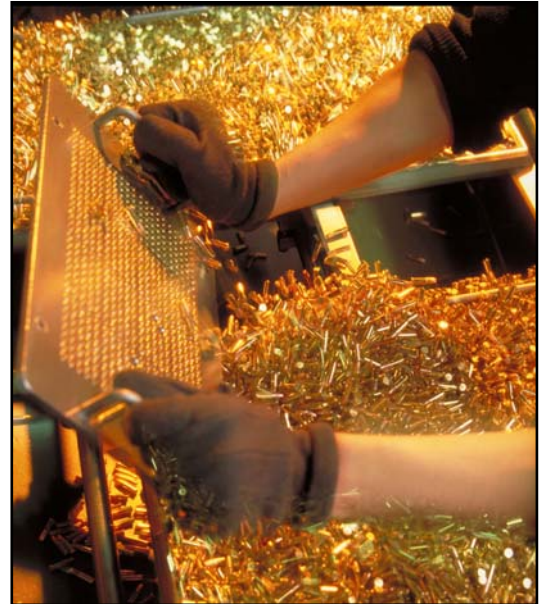
The Quantum Software Solution

"We have continued to add to and upgrade our ASI DataMyte system because it is reliable and easy to use," said Ann Reed, Federal's Quality Administrator. Products in use throughout the Anoka plant include Quantum DC Data Collection Software, DataMyte Setup Editor and Analysis and Reporting Software, and Quantum Archiver and Database Tools. ASI DataMyte multiplexers are used to interface the software to gages used in various production departments, including Mettler balances, Mitutoyo micrometers and digital indicators, and force gages.

For example, in three bullet assembly operations, Quantum software is used to collect data on a variety of characteristics, including bullet weight, core weight, jacket skive length, core skive base thickness, sidewall thickness variation, hollow point depth, lead set max height and cannellure diameter.

"Quantum software is also used for data collection and analysis on loader lines in Centerfire and Shotshell, including government product lines," said Mike Hollen, Quality Manager of Government Contracts for Federal Cartridge. "It is also at workstations on four JIT lines, two primer insert areas, two primer assembly areas and two primer component areas," he added.

In all, approximately 40 different characteristics are being measured throughout the plant. "This includes major characteristics that must be tracked on the government product lines," Hollen said. Data collection takes place at varying intervals depending on the characteristics being collected. Some are collected four times per shift, others after each bin, and others at the start of each shift.



An operator sorts bullets prior to packaging at the Federal Cartridge Company plant.

As Reed stated, ease of use is one of the primary reasons for selecting ASI DataMyte software. "Some operators are apprehensive at first, but are okay with it once they are trained and discover how easy it is to use," she said. "It usually takes about an hour to train on use of the software on the first day. Then I check in with the operator each day for a week to answer any questions or resolve any issues that come up," Reed added. She also uses that time to make any changes needed at individual workstations.

Operators can view X-bar and R charts right at their workstations to be certain that the process is in control. "Our Quality Managers and Production Engineering Managers can also view histograms and summary reports for process control and evaluating process capability," Reed said. Upper management also has access to histograms and summary reports.

Benefits

Federal Cartridge realizes major benefits in the areas of scrap reductions, improved process yields, time savings and reduction of liability and warranty issues. "We have realized significant time savings on the Government Product lines through automated data entry and documentation of required inspection checks," Hollen said. The company plans to continue using ASI DataMyte SPC workstations in the production facility, with the Metallurgical Lab adding a workstation in the near future.



Samples from the Shotshell line are weighed and data is recorded using Quantum SPC/DC.



Ann Reed of Federal Cartridge reviews training materials with ASI DataMyte Application Engineer Denise Lucas.