What's the Cost for Quality?

Quality management is used to identify opportunities for significant savings. Many companies have quality management systems in place. This is not a surprise, quality management has been around for almost 50 years. It is not a passing trend. Leadership must give careful thought to various tools and techniques that can be identified and implemented to optimize their impact on manufacturing performance. So, bottom line, what is the cost for quality?

Thompson / Center, self proclaimed "Americas Master Gunmaker", located in Rochester, NH and now a Smith & Wesson Company attests to implementing numerous quality changes over the years. Their focus has always been to put the best quality firearms into the hands of the consumers. As little as 10 years ago the 'best quality' focus was achieved by putting every product through rigorous testing at final inspection. If the product failed on any test it was either reworked or scraped. The downfall to rework often resulted in costing the company more than what they sold the product for. Their costs for stringent quality were high. However today, quality is being built into each operation throughout the process. The 'cost for quality' is now saving the company money in every area. And their focus on the consumer has not faltered.

Develop the Plan

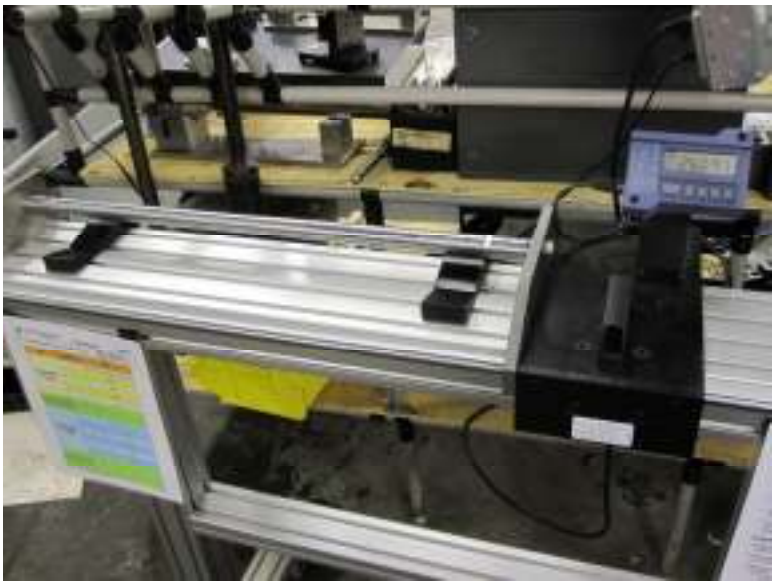
"We developed a control plan system over the years", explains Mike DeLisle, quality manager. "We standardized and simplified the gauging for various operator levels and we placed responsibility onto the individuals making the parts." This requires training and raising the skill level of the operators. With this responsibility comes a price. Employees are compensated a certain amount more per hour because they are more knowledgeable and are worth more to the company. "I believe employee skill and knowledge is money in the bank for the company," stated DeLisle. This cost in quality is well worth the training, time, dedication and quality commitment the company receives from its employees.

The plan also includes postings on charts that document production parameters for certain machining operations on various firearm styles. And they have instituted an exclusive '10 commandments; 0 failure process' which no one in the industry is duplicating. Without giving too much away, they produce the first 1000 pieces of any new product line; package them, label them, seal them and send the boxes to shipping. Those boxes are then opened and verified for proper packaging and markings, and are inspected using the criteria in the '10 C's' which include 30 critical items. If anything is not labeled properly or doesn't pass inspection, the line is shut-down and re-trained. When quality parameters are met, the line then has to produce 4 weeks of product with '0' failures otherwise the 4 week cycle starts over again. "No one else in the industry is doing this," said DeLisle. "But it is the reason that we have never had a recall."

Always On the Lookout

Even with a plan in place, DeLisle's team of seven quality assurance specialists still conduct random inspections, calibrate gauges and wear many hats throughout the shop to guarantee product quality. According to DeLisle, since Smith & Wesson purchased the company, they've made a lot of positive changes in the quality department.

One problem they were experiencing was the various lengths of barrels being produced for a large breadth of gun styles. Engineering drawings were complicated, measurements varied from one operator to another and some tolerances were too tight for the methods of measurement. Many barrels were cut too short and had to be reworked, or even scrapped. Production and material costs were out of line. The solution had to be found. A team was organized and an engineer on that team found a linear measurement table online; ProTable, from Accurate Technology in Fletcher, NC, www.proscale.com. ProTable is a completely portable (battery operated) linear dimension measuring system designed for QC/QA use on the manufacturing floor. A fixed stop at one end and a moving jaw with Digital Readout allows linear measurement to be made quickly and accurately up to 19.5 feet. Measurements are displayed in inches, centimeters or millimeters, and upper/lower limits, and measurement offsets can be programmed.



With the use of the ProTable, operators locate the firearm style on the control plan chart and set the machine and the ProTable to a specified program. When the machining process is complete the operator simply places the part onto the ProTable and the digital readout is fixed to flash "Pass" or "Fail". Each operator is required to measure 100% of all parts produced. "The software also records the number of pieces the operator checked and feeds that information, plus other data, back to our PC," said DeLisle. "We see everything that the operator has done and it helps us to evaluate operator errors, machine inconsistencies, and improvements we can make in the production process." Another great feature that DeLisle commented on about the ProTable was that it can hold up to 16 various programs for other operations in the shop and operators can check various parts throughout the day. Operators have found the ProTable to be extremely easy and convenient to use – so much so, that Thompson/ Center has purchased two more ProTables and plan to place more in various production locations.

Bottom Line

Changing the way a company has always done things can be difficult. People are generally reluctant to look into new methods of improving the process. But quality parameters should never be compromised.

According to DeLisle the introduction of the ProTable alone has simplified the operators' lives. With the first table, they found that operators from different locations in the shop had heard about it and were using the ProTable to measure their parts as well. This is what created the need for two more. "We get significant cost savings and better product from the ProTable," stated DeLisle. "The product comes out much more consistent and we capture data automatically that has proven to be invaluable to evaluate capabilities on various operations in the shop." DeLisle stated that the ProTable is probably the simplest measurement tool on the floor and yet it is the most effective tool they have for measuring.

Mike DeLisle *Bill Ruger*

So what is the cost for quality at Thompson/ Center? Bill Ruger, quality assurance/ calibration specialist and multiple "hat wearer", a member of DeLisle's team, stated it best, "We've invested the time to develop a control system that is unmatched in the industry, and we've opened ourselves up to new measurement products on the market and incorporated them into the process. We've strategically placed the ProTables in troublesome areas and have improved product quality and throughput dramatically. Our operators don't have to walk around the building to check parts, they don't have to worry about setting up complicated measuring tools or wasting time to get help. They are able to utilize the ProTable in record speed. We've not only improved quality, we've increased production. Our commitment to quality and investment in quality measurement has saved us in manufacturing costs throughout or shop. And, this has set the stage for years to come."