NEW GATE TECHNOLOGIES
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Automated inspection centers for automotive catalysts

NEWSLETTER :: NOVEMBER 2011

This month's in-depth article, *Control Limits and Spec Limits: What's the Difference?*, explains the challenges and misconceptions when developing control limits and specification limits. This month's feature video on our YouTube channel (**youtube.com/newgatetech**) showcases the CATPRO UT1520, a comprehensive inspection solution for internal defect detection in both manual and automated environments. Finally, we analyze one critical aspect of Steve Jobs' success in our President's Letter.

We're pleased you could take a few minutes to join us. Remember, we are always looking for your feedback on the type of content that is relevant and real for you. Enjoy!

Control Limits and Spec Limits: What's the Difference?

Every measurement should lead to a decision. It may seem tougher or more optimistic to say, "failure is not an option," but when it comes to measuring quality, failure is an important part of the process. If the goal is to generate good feelings about products or processes, contact the marketing department. But if the goal is to consistently produce reliable, high-quality products, every parameter must have defined limits for what passes and what fails.

Many components have a range outside of which they simply will not function. Typically a smaller range is selected as the specification. The component might function outside the specified limits, but an operator can be confident of acceptable function inside the specification limits. So what is the purpose of control limits in addition to specification limits? Specification limits are chosen by an individual concerned with product function, while control limits are a result of a given process. A common misconception is that control limits simply provide a smaller target—basically a tool to provide a safety factor. However, when developed properly, control limits can be much more powerful than a simple safety factor.

Control limits describe the range of natural and expected variation inherent to a stable process. For example, if the data can be described by a normal distribution, the upper control limit is calculated as the mean plus three standard deviations and the lower control limit as the mean minus three standard deviations. The sample mean and standard deviations are calculated directly from measurements of actual parts. Therefore, the limits do not change unless the process changes.

Notice the lack of relationship between specifications and control limits. Variation that results from machine or process inaccuracy is completely independent of generous (or exacting) specification limits. So, can control limits be larger than specification limits? Of course, but that doesn't mean either limit is wrong. However, it could mean that the scrap rate will be high because the process may be unable to consistently produce parts that meet specification. Again, control limits are a product of the process while specification limits are a product of an individual.

If the goal is to protect your customers from defects and protect yourself from the cost of a quality complaint, good statistical process control is a very cost effective tool. It requires some careful data collection and analysis at the beginning, but pays for itself in peace of mind and problem prevention. The most important elements are a stable process and capable measurement equipment. If the process has been designed appropriately, control limits will be smaller than specification limits. They will not only tell operators to intervene if a process begins to go out of control, but also indicate when those operators should not intervene if a stable process is simply producing natural and expected variations.

CATPRO 88SERIES AND 1520SERIES BROCHURE

Check out the latest lineup of CATPRO 88SERIES and 1520SERIES inspection centers in our quick-look brochure. Just send a message to afalcione@newgatetech.com and see what we can do for your line today!

Dear Friend of New Gate Technologies,


Eric Pierson, President

Steve Jobs loved innovation but he CARED about quality. It wasn't so much his innovations alone that were legendary; it was his innovations combined with his care for quality. If he didn't care about the quality of his innovations, they wouldn't have gone anywhere. We wouldn't be using and enjoying his innovative products because they would have died in the quality compromise.

After hearing the news of Steve Jobs' passing, I went online to see what people were saying about him. One of the overriding themes I found was his desire to do everything exceedingly well. Jobs knew that the only way to really care for customers and promote his vision for products was to have uncompromising care. He made product improvements and added features that most people would never notice, simply because it was the right thing to do. I'm sure there were added expenses and I'm sure he had to endure concerns about lower profits, but most of the time he didn't listen because he knew different. So what did he know?

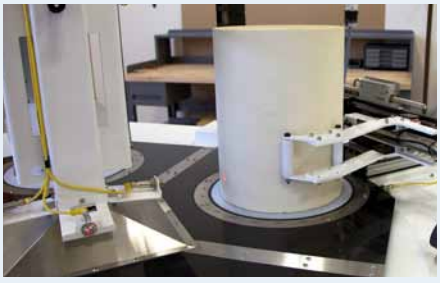
Jobs knew that he had to remain true to his vision to provide uncompromising quality, performance, and customer experience. If he did that, everything else would fall into place. It takes a lot of vision casting to get an entire company on board with the idea that business success is more about passion and doing things well, than it is about just getting the sale or making the shipment. Jobs knew that sales would follow, and he was right! Because of his approach, Apple was able to set a standard so high that sales are practically an afterthought, and the competition—well, there isn't much. We'll miss Steve Jobs' innovations but I think in the end what we will really miss is his CARE.

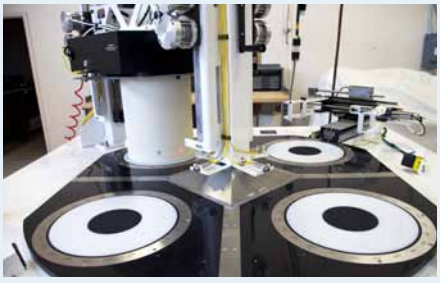
We have signs hanging on all our walls around the plant that say "Care and Excellence" and they've been there since we started the company. I'm not usually a guy who typically rallies behind some catchy slogan to get motivated but I like these signs because they serve as a constant reminder that we need to stay true to our vision to care about what our customers care about at every level and to make their experience the best that we possibly can. We want to have the Steve Jobs kind of care. The "even-if-nobody-sees-it-I'm-still-going-to-make-it-as-awesome-as-I-can" kind of care. We want to identify and partner with customers who value our approach and who believe the same. It may not be for everyone but we can let our actions dictate that. Not everyone owns an iPhone either—yet.

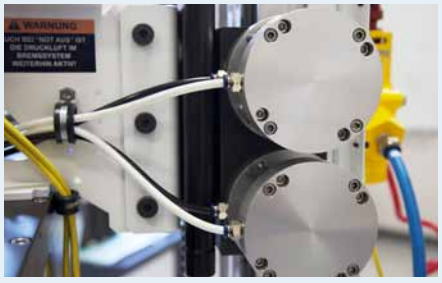
Sincerely,

Eric Pierson
President/CEO
New Gate Technologies

QUICK LOOK: CATPRO UT1520: ULTRASOUND INSPECTION FOR INTERNAL DEFECTS


The grippers center the part, allowing the "lift-and-spin" mechanism to rotate the part for label verification.


The part moves to the inspection station, where the precision ultrasound scan begins.


Only the very best components are installed on every CATPRO inspection center.