



Know the Laws. Use the Tools. Profit.

Factory Physics® Case Study: Increasing Throughput at an Aluminum Wheel-Making Plant

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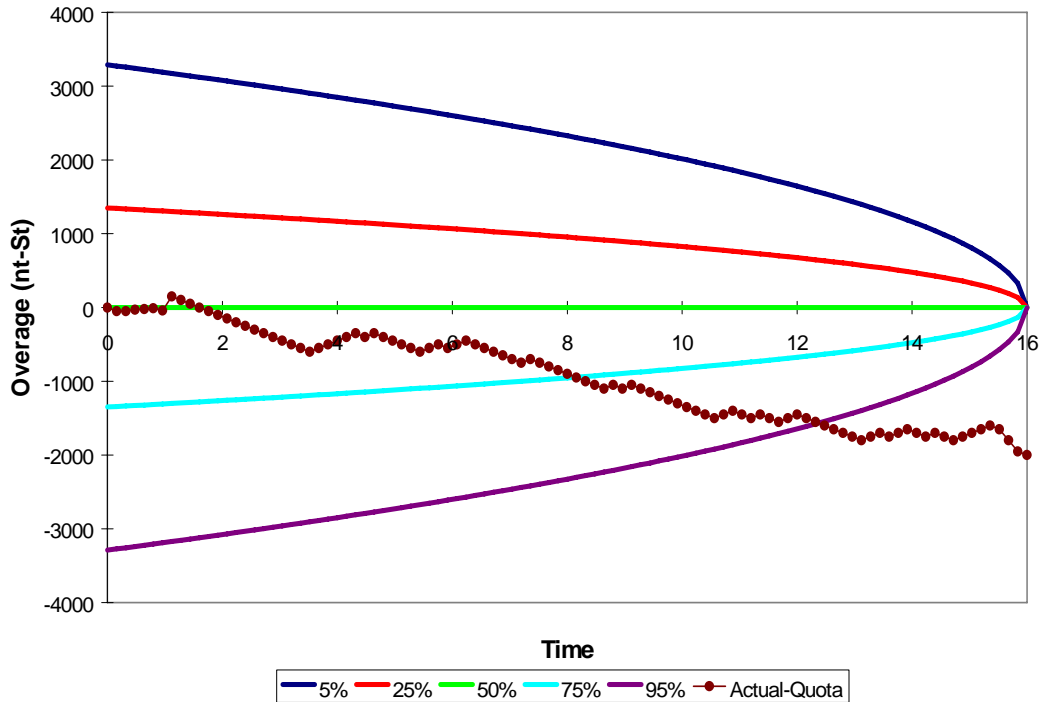
Wayne, the production manager at a wheel-making plant for cars and trucks, telephoned for help on a throughput problem. In new work for a key customer, his process was averaging about 940 parts per day. But he knew that the customer would soon ask for 1220 parts per day. Wayne needed to get 280 more parts per day or the plant might lose the business. Previous efforts to get higher throughput had not succeeded.

At our first meeting, Wayne told us about the production line and the hourly production reporting system. Each of the twenty or so stations in the line reported their hourly part counts. The production reports, totaling 480 per day, formed an imposing pile on his desk. Despite the plethora of data, Wayne was frustrated by his inability to make sense of it. He needed a tool to help him quickly sift through the data so he knew when and where to take action. Only in this way would he be able to increase part throughput.

We suggested that he try Statistical Throughput Control (STC). STC plots production data on a chart that, at a glance, shows where the process is with respect to the production quota (see figure below). On the STC chart are a set of contours corresponding to the percentages 5%, 25%, 50%, 75%, and 95%. The contours show the probabilities of not making the production quota. One-way to use the STC chart is to observe whether the process is slipping from, say, the 5% contour to the 25% contour. If so, then immediate action is warranted to find out what is going wrong so that the process can be put back on track.

At our second meeting, Wayne said he was willing to try STC. Using the process data he gave us, we used our STC application to plot the plant's hourly box counts. Wayne turned out to be a skilled manager of in the use of Factory Physics principles and applications. He took the STC template and started to plot the hourly box counts. He did this in near real-time – no more waiting until the end of the shift or day to study the data. Whenever the STC chart signaled an undesirable change to the process, he went out to the plant floor, identified the problem, and took corrective action. Then, he noted the reason on the chart.

Probability of Missing Quota by End of Regular Time



After doing this for two weeks, Wayne got a much better understanding of the recurring problems that detracted from production. Mostly, he learned that the throughput problems were due to unplanned downtimes at specific machines. Using this information, he was effective in directing his maintenance resources to minimize downtime. So successful was he, in fact, that at our third (and final) meeting, he announced that the problems in meeting production quota had completely gone away!

Results –

- **25% increase in throughput**
- Quick identification of improvement opportunities
- **Retention of a major customer's business**

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