

qualityworx

Use QualityWorX to quickly identify the root causes of quality issues affecting yield. Storing and analyzing all process and test results – including signatures – is critical to timely and accurate root cause determination. This information empowers manufacturing personnel to take corrective actions and prevent the same defects from re-occurring. Reporting and analysis features such as the *Failure* and *Defect Pareto* enable you to clearly identify the top defect priorities to address while *Trend Analysis* allows you to correlate data from across the line and accurately identify the bottlenecks.

QualityWorX reduces the cost of production. Reduce scrap, unnecessary rework, and lost machine cycles by establishing root cause, and implementing corrective actions rapidly. Monitor, compare, and analyze data from pilot builds, model year change over, tooling changes, supplier and material changes so that any anomalies can be isolated and corrected before they turn in to expensive problems. See the case studies below for more examples.

CASE STUDY

Improving Limits on a Quality Monitor

An automotive manufacturer experienced a high rate of repair for engine fuel rails at end-of-line due to leaks. All the parts had passed quality tests along the production line, including leak testing.

The QualityWorX Trend report was used to examine the leak test data for the faulty components. It was determined that the problem parts were marginal passes and that there was an issue with the limits for the leak test. The customer learned that the limits were based on an engineering specification limit that had never been adjusted for live production.

The process engineer applied new test limits to one week of historical data in QualityWorX to quickly determine the impact of using statistically based limits (3-sigma). The analysis identified an additional number of faulty engines that had not yet been flagged.

The result was that the manufacturer was able to identify the root cause of the leak, pinpoint other affected engines before shipment and adjust the test stands to prevent reoccurrence of the issue.

Process signatures are data-rich and provide the best insight into a process.

Only QualityWorX enables both the storage and analysis of complete process signatures.



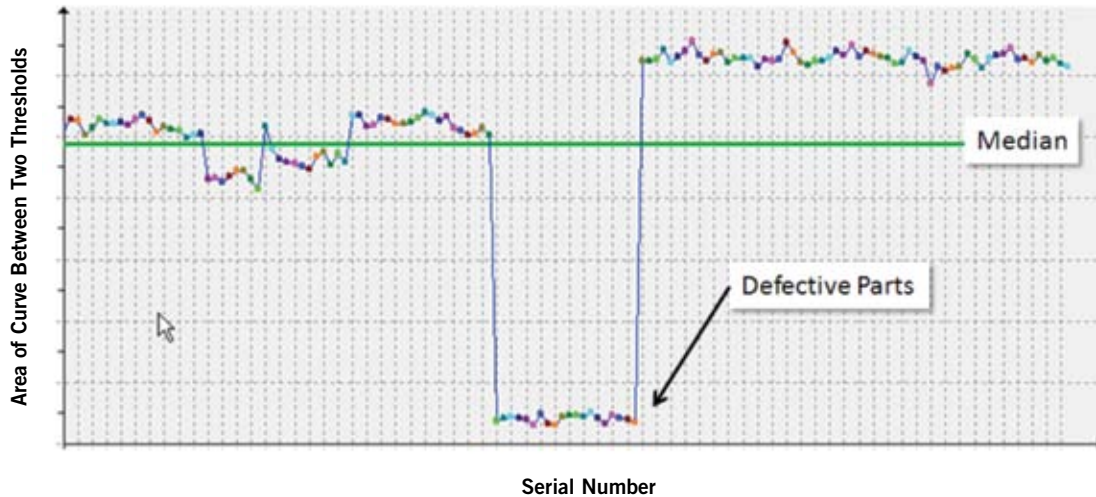
the science
of quality

How to Address Issues Affecting Quality and Yield

EXAMPLE

Introducing New Feature Checks

Suppose an inline test involves measuring temperature versus time when joining together two polymer materials. The “WhatIf” tool can create a new dataset by calculating the area under the curve during heating and cooling, for each part. By graphically examining the trends in this new feature, patterns emerge where some known defective parts clearly deviate from the norm. A new correlation has been discovered and this new calculation can be added to the series of controls used to determine pass or fail on the factory floor, thus fine tuning the quality of manufacture.



CASE STUDY

Using QualityWorX Trend Reporting to Increase Yield

A failure rate of 1.27% for electronic throttle bodies at the engine cold test station reduced yield by 180 engines a month.

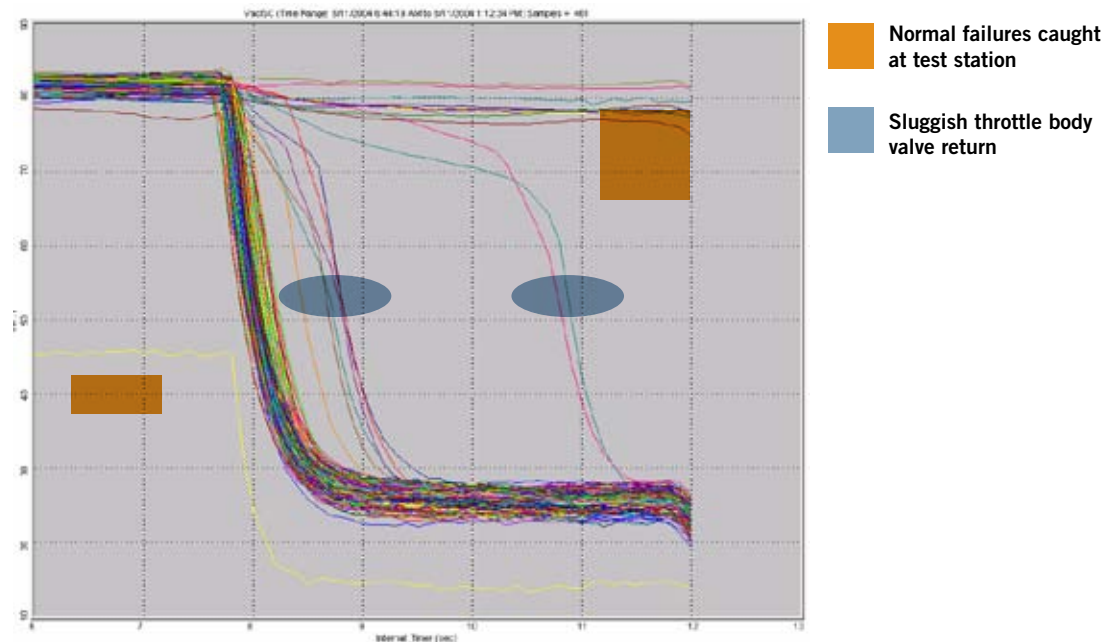
Using QualityWorX trend reports, the engineer was able to uncover the root cause. The trend report below clearly showed the normal failures caught at the test station. The signatures also showed the parts that were downstream failures but passes earlier in the process because they met the start and stop limits set in the test station. The problem indicated by the signatures was mainly due to stuck or sluggish throttle bodies (77%) with the balance due to other upstream process failures.



QUALITYWORX FACT SHEET: MAXIMING YIELD

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To correct the sluggish throttle body issue the manufacturer changed the valve return spring to increase force during the process. Based on the data analysis, they were also able to adjust the test stations along the line to recognize the problems should they reoccur. Analysis of the outliers showed that 77% of these failures were due to stuck or sluggish throttle bodies and the remaining 23% due to upstream process failures. The manufacturer changed the valve return spring to increase force to address the issue and

The result is that failures were caught much earlier in the process and the failure rate reduced to 0.07%, delivering 170 more engines per month.

Although the examples used in this document are automotive, QualityWorX is used by a range of industries. Contact Sciometric for more information.

TALK TO SCIEMETRIC ABOUT HOW QUALITYWORX CAN HELP YOUR APPLICATION



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