

CQS Innovation, Inc.

Customer returns reduced by 75%

PC-based data collection system quickly alerts operators to an error and identifies cause for effective corrective action

- Reduces materials waste.
- Provides documented quality assurance.



◀ PROBLEM

Wasted wire and customer returns were two of the problems VAI eliminated for this copper wire producer.

Could the world's largest integrated copper producer improve its product quality? Could their materials waste be reduced? A study of their production data collection system by CQSI showed they could be...quickly and effectively...

BACKGROUND

Check thousands of miles of wire: Is the insulation open to short circuit?

Each day, the world's leading copper producer draws large coils of copper into miles of finely drawn wire. The bare wire is then electrically insulated with a liquid coating, dried and cured.

If the liquid coating is imperfect or marred by the curing process, faults can develop in the insulation. Left undetected, the faulted wire can end up wrapped layer to layer in motor windings (or other magnetic coil devices) — where it can short circuit and cause costly product damage.

To assure customers that a short circuit is unlikely, the wire manufacturer subjects the insulated wire to thousands of volts. If the insulation passes the test, it is shipped to the customer. If it fails, the faulty section is excised from the wire and scrapped.

CHALLENGE

Measure AND correct to improve delivered quality.

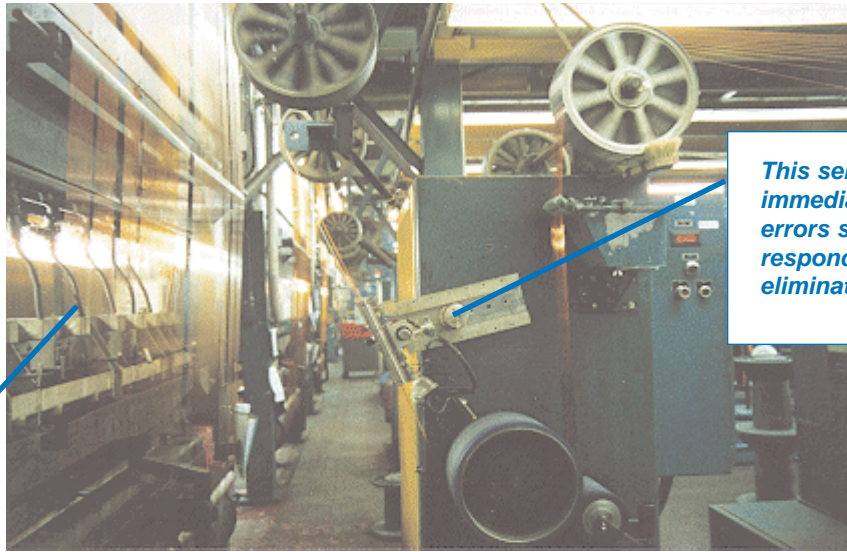
The fault rate is a clear indicator of a coating or curing process problem. But under the previous system, it was not possible to use the test results to check for patterns that could reveal where the problem originated. Instead, each problem was solved through trial and error often resulting in further product waste.

Operators wanted to be notified immediately when a process error began so they could take quick corrective action.

Quality department wanted a reliable record of each spool for accurate archival data analysis.

Sales wanted the wire's pedigree to accompany the product to the customer for their records.

Marketing, understandably, wanted hard data to brag about product quality.



Wire-coating process

This sensor system gives immediate feedback on errors so operators can respond quickly - eliminating materials waste.

PC-based data collection system quickly alerts operators to errors.

SOLUTION

Build improvements into existing system.

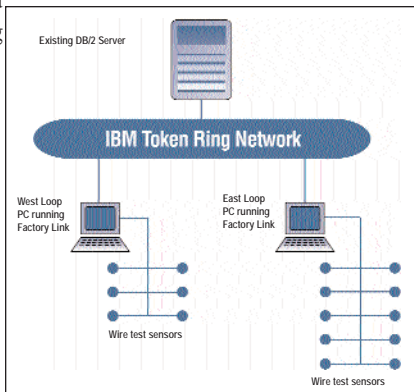
By understanding the capabilities and limitations of the existing equipment, CQSI was able to implement a solution that allowed the manufacturer to achieve its performance objectives without replacing the system already in use.

Instead, CQSI used Factory Link® software to link the signals from the existing wire testers to the existing DB/2 server via two PCs and an existing Token Ring LAN.

Now:

- Operators enter the wire specs into a PC.
- The PC “taps into” the server and gets the faults-per-segment limits.
- The wire test sensors identify any faults and feed the information into the PC.
- The PC compares the data against the limit values and signals an alarm if it exceeds the limit.
- Using simple menus, the operator enters the error corrective action and disposition codes into the PC where they are stored for analysis. This information is also downloaded to the server for analysis by Production and Quality, or transmission to the customer.

In addition, an on-line display shows current fault data for all wire strands in each machine — helping operators to quickly identify fault patterns.



RESULTS

Measurable savings and increased quality.

The system was first set up and tested at CQSI — where the manufacturer’s staff was brought in and thoroughly trained. Then the system was installed on the shop floor and retested so quality data collection could begin without delay.

Immediate benefits the copper producer accrued from the improved system include:

- **Materials waste reduced by more than 50%** due to immediate notification of processing problems. Operators now take steps to minimize materials affected.
- **Data analysis now reveals cause patterns**, providing data for more effective solutions.
- **Wire pedigree data can be printed for each spindle**, giving wire customers documented assurance of the insulation quality.
- **Improved monitoring** has decreased customer product returns rates by 75%.

Making your manufacturing world-class.

From plant-wide systems to customized solutions for specific needs, CQS Innovation, Inc. has the experience in automation systems to meet your project’s goals.

For more information on how our integration of computer systems, controllers, networks and software systems can improve your manufacturing site’s product quality, production flexibility and quality-control tracking, call (800)860-1968, ext. 385.