Automation Innovation, Inc. Signature™ Series

Struts and Shocks
In-Line Staking Inspection

App Note 2000

Reduction of PPMs

100% In-Line Process Monitoring

Press Monitor

Tool Wear Monitor

Integration into Existing Automated Line

Load Cell Technology

Additional Applications Notes Available

Situation

A leading manufacturer of struts and shocks needed to assure that 100% of the nuts and/or studs were securely seated. They wanted a system that was in-line and fit into their existing tooling.

Solution

Automation Innovation designed two (2) press monitoring systems that utilized their proprietary Signature Analysis based Process Monitoring System and a standard load cell incorporated into the customer's existing tooling.

The customer's tooling was modified to incorporate a standard load cell. Off-axis loads and torque loading were minimized through the design to protect the life of the sensor. The basic design was used in both systems.

The stud or nut being pressed into the part was held by the customer's tooling. All loads seen during the actual press cycle were passed through the load cell sensor.

The signature analysis controller recorded the analog signal from the load cell and constructed a force profile of the operation.

The customer required that the press monitoring analysis to be performed without adding any additional time to the cycle. The controller determined the quality of the operation in less than ten (10) milliseconds after the staking had been completed (before the tooling had time to retract).

The systems eliminated customer returns and caught several "field failures." As a benefit to the system, it correctly determined micro-cracks within the customer tooling and signaled a problem approximately 100 parts before tool failure. Now the customer uses the systems to determine tool wear in addition to press monitoring.

Other Products

- Process Monitoring
- Thread Inspection
- Gauging Systems
- OEM Heat Treat Monitors
- Assembly/Verification Systems
- Packaging Systems
- Robotic Automation
- Engineering Services

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