

Mounting Studs Internal Thread Inspection and Sorting

App Note 1001

Reduction of Return Charges

100% In-Line Process Monitoring

Defect-Free Threads

Dimensional Gauging of Part Features

High Production Rates

Material Handling for Various Part Sizes

Capacitive Sensor Technology

Displacement Sensor Technology

Additional Applications Notes Available

Situation

One of the world's largest producer of automotive and truck electronic computer systems needed to assure that 100% of the mounting studs used to secure the electronic chassises to the vehicle's frame were free from thread defects. They produced two (2) different styles of studs with one (1) style having two (2) different lengths. The customer wanted the inspection system to handle all variations of mounting studs.

Solution

Automation Innovation designed an automated machine to orientate, inspect and sort the parts that utilized their proprietary Signature Analysis based Process Monitoring System, their Patent Pending Capacitive Thread Probes and various gauging sensors.

The automation system used a bulk feeding system for ease of loading which feed a bowl feeder that orientated the parts. The parts were moved through the inspection system via a walking beam mechanism.

The parts were inspected for length at one (1) station using retractable gauging. At another station, capacitive thread probes moved in and out of the threaded holes. The signature analysis controller checked the signature obtained for



each threaded hole and determined the quality of the threads.

The parts moved through a sorting station where good parts were placed in production totes to be shipped to the final assembly facility, while bad parts were placed into a secure area to eliminate the chances of part mixing.

System production rate was 64 parts per minute or 0.94 seconds cycle time.

The previous inspection method was to use only Go-No Go Gauging and to spot check only a few parts, but now 100% of the product was inspected for thread quality and length. Labor requirements were reduced from 12 operators in two (2) shifts to two (2) part-time operators. The client realized a net return on investment in less than three (3) months based upon labor savings and eliminated return charges.

Other Products

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

Providing Process Monitoring Automation to Achieve Zero-Defects

3337-3 Air Park Road • Fuquay-Varina, NC 27526 • Tel: (919) 557-6824 • Fax: (919) 557-8170 • E-mail: sales@auto-in.com