

## Oil Filter Plate Internal Thread Inspection and Sorting



### App Note 1000

#### Reduction of PPMs

#### 100% In-Line Process Monitoring

#### Defect-Free Threads

#### High Production Rates

#### Material Handling for Various Part Sizes

#### Capacitive Sensor Technology

#### Additional Applications Notes Available

#### Situation

A leading producer of automotive, construction and agriculture oil filters needed to assure that 100% of their product was free from thread defects. This meant that five (5) different thread sizes in three (3) various plate sizes needed to be moved through the same inspection machinery.

#### Solution

Automation Innovation coupled their proprietary Signature Analysis based Process Monitoring System to their Patent Pending Capacitive Thread Probes and created a fully automated machine which queues, inspects and sorts the manufactured oil filter plates.

The automation system utilizes a feeder to orientate the plates and present them to a rotary table. The rotary table consists of eight (8) pockets that hold the plates.

The plates are rotated from the pick-up point while capacitive thread probes move in and out of the threaded holes. The signature analysis controller checks the signature obtained for each threaded hole and determines the quality of the threads.

The plates are rotated to a discharge point where the plates are removed from the rotary table and

sorted into good and bad pathways. Good parts are placed on an off load conveyor which takes them to the next operation.

System production rate was up to 4,000 parts per hour or 0.90 seconds cycle time.

100% of the product was inspected for thread quality. Labor needs were reduced from 36 operators in three (3) shifts to three (3) part-time operators. The client realized a net return on investment in less than seven (7) months based upon labor savings. Oil filter shipments are now virtually defect-free for threads with their PPMs due to threads being less than one (1).

#### 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**

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