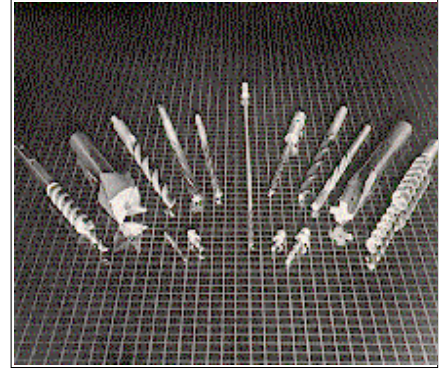


## Drill Bit and Tap Wear Monitoring



### App Note 3002

**Reduction of PPMs**

**100% In-Line Process  
Monitoring**

**Prolonged Drill Life**

**Scrap Reduction**

**Capacitive Sensor Technology**

**Inductive Sensor Technology**

**Additional Applications Notes  
Available**

#### **Situation**

A leading machining company needed a system to continuously monitor their drilling and tapping processes. Defects were not found until farther down the machining process which meant that hundreds of parts could be defective.

#### **Solution**

Automation Innovation coupled their proprietary Signature Analysis based Process Monitoring System to an analog output from either an inductive or their Patent Pending Capacitive probe. These probes were integrated within the customer's existing machine lines to form these inspection systems.

The inspection system consisted of inductive and capacitive probes in various shapes to monitor the tool wear on drill bits and taps. The shape of the probes ranged from cylinders where the drill bit or tap passed through the cylinder therefore creating a signature of the tool's geometry. Other probes were tubular shaped sensors intended to extract certain tool geometry characteristics.

The signatures were processed by the signature analysis controller to determine the current status of the tool. Defective tools were flagged

for removal while good tools were logged for service reports. A complete history of the tool was compiled in a database to document tool life, warranty issues, design changes, etc.

The installation of the system allowed the customer to change their retooling schedule from a simple count to one based upon the quality of the tool. Tool life was extended and defective tools were identified within one (1) part. PPMs were dramatically reduced and the queue of defective parts at later stages in the machining process were eliminated (reduction in scrap costs).

#### **Other Products**

- Process Monitoring
- Thread Inspection
- 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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