MIDDEX ELECTRONIC

BROKEN TOOL MONITORING
MOTOR DRIVERS
CUSTOMER SOLUTIONS

APPLICATION REPORT

MIDDEX // PROCESS MONITORING

Customer:
Amphenol Precision Optics GmbH in Sinn-Fleisbach

Data

Middex Product

Monitoring system: WK5

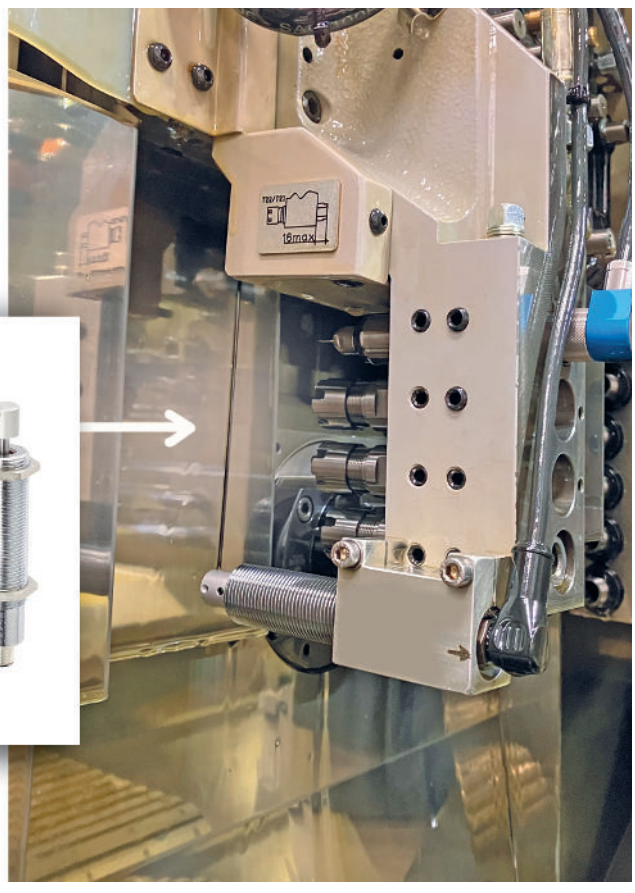
Function: Monitoring of smallest tools

CNC Swiss-style lathe

Manufacturer: NOMURA

Model: NN-10J FN

Dependable tool monitoring for use in micro-manufacturing



Maximum precision and 100% quality are top priorities in manufacturing products for medical technology. When performing medical procedures, physicians depend on top-quality surgical instruments. Amphenol Precision Optics GmbH, located in Sinn-Fleisbach, Central Hessen, is a leading developer and manufacturer of high-precision connection technology for fibre optic systems in Europe.

Since its establishment in 1972, the company has specialised in precision mechanical parts and is renowned for its excellence in micro-manufacturing.

Monitoring production processes is crucial for achieving maximum precision. A CNC Swiss-style lathe model NN-10J FN from NOMURA is utilised for high-volume production of parts, primarily for medical purposes.
When it comes to tool breakage monitoring, Amphenol Precision Optics has relied on systems from Middex-Electronic for about two years. The WK5 system is primarily used to scan drills with a diameter ranging from 0.28 millimetres to 0.12 millimetres and inspect them for breakage. The WK5 system is in constant use, and the customer values the system's quality and dependability.

Amphenol Precision Optics as had excellent results using the probe featuring a carbon fibre tip.
Since implementing the tool breakage monitoring system, the tip has undergone multiple microscopic inspections as part of the quality assurance process. After two years of use, the probe shows no signs of damage and remains fully functional. Amphenol Precision Optics is very pleased with the quality of the product from Middex-Electronic. Thanks to the system, the company was able to reduce the number of rejects and eliminate the need for costly reworking.
As a result, plans are underway to install a WK5 system in two additional machines from the manufacturer Star.

Amphenol PRECISION OPTICS

Valeri Blaschke, manager of the CNC department at Amphenol Precision Optics, commented:

"I first witnessed the WK5 system from Middex-Electronic in action at Weber Präzisionstechnik in Gosheim. After being informed by department manager Paul Beck that the sensor can reliably monitor the tools within one second, we made the decision to install the WK5 system on a NOMURA NN-10J FN CNC Swiss-style lathe. On a Swiss-style lathe, the tools on the main side cannot move in the Z-axis, so we had no other options in this diameter range. We were also impressed by the unique features this system has to offer. It operates solely on electricity, and the sensor can effortlessly monitor drills with a diameter of 0.1 millimetres."

In summary:

- **Monitoring of tools from Ø 0.1 mm**
- **Scanning direction right or left**
- **Probe diameter only 22 mm**
- **Completely leak-proof under the most challenging conditions**