



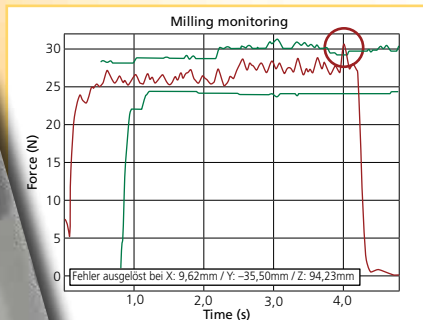
Clamping situation 1



2 Tool breakage



Breakage detection 3



4 Breakage alarm



KOMET® BRINKHAUS ToolScope – Tool breakage detection during milling

Against a background of increasing automation, process and machine monitoring is becoming ever more important.

In the example shown here – detecting the tool breakage of small tool diameters – experience provides important insights.

The KOMET® BRINKHAUS ToolScope system detected a 1.9 mm solid-carbide end mill when machining steel with a 27 kW spindle by determining physical measurements, such as spindle torque or the feed rate force of the drive motor, by processing the machine's internal power consumption/effective power.

Generally, the following can be established:
The detection range lies between 0.5-1% of the motor's nominal power (spindle, z-axis, etc.). This means that a process can be controlled reliably if the nominal power is 1% above the idling capacity.

Typical practical uses:

- 3 mm drilling in aluminium with 17 kW spindle.
- 1.9 mm solid-carbide end mill for machining steel with 27 kW spindle with simultaneous evaluation of the feed force
- Detecting smaller tools largely depends on the machine's configuration

BENEFITS for you:

Breakage monitoring even with small tool diameters

Machine: Sigma Leader 5

Antriebsleistung: 27 KW

Tool: Solid carbide milling cutter Ø 1.9 mm

Material: 1.2562

- 1 Workpiece clamping situation on the machine
- 2 Tool breakage detection using KOMET® BRINKHAUS ToolScope
- 3 Breakage detection when outside the tolerance range
- 4 Breakage alarm was triggered due to excessive feed rate