

## KOMET® BRINKHAUS ToolScope – Condition monitoring Monitoring of machine statuses

### Condition monitoring reduces operating costs

Systems for monitoring machine statuses (condition monitoring systems) ensure that changes in the machine or different machine behaviour are discovered at an early stage.

This makes it possible to avoid serious damage to the machine, protect production and plan maintenance measures in advance. Condition monitoring therefore helps to avoid rejects and reduces downtimes.

Because of advancements in sensor technology, small, low-cost sensors are available. These are used to detect sluggish axes and spindles, damage to bearings and ball-type linear drives, tool imbalance and collisions.

All sensor signals are brought together and evaluated in the KOMET® BRINKHAUS ToolScope .

The system can combine sensors and display a message in the controller if an error is detected. The error can also be forwarded to a control level or an internal company network.

The remote maintenance interface of the KOMET® BRINKHAUS ToolScope also makes it possible to monitor systems that are installed in other locations.

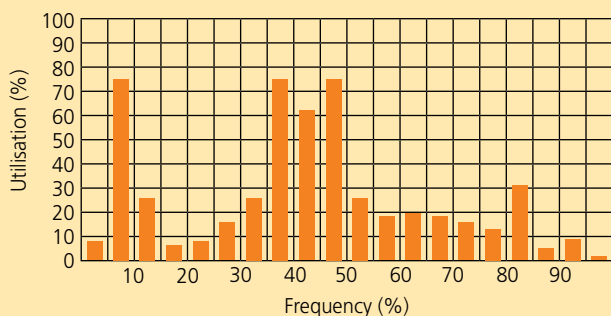
### Ideal system for condition monitoring

The KOMET® BRINKHAUS ToolScope can be used for both monitoring machine statuses and monitoring the machining process. It can record information from sensors that are integrated in machine components (force, acceleration, structure-borne noise, pressure, bearing temperatures, etc.). However, it can also record controller-internal data (torque, operating status, etc.). The KOMET® BRINKHAUS ToolScope obtains information about axis and bearing problems, number of operating hours, number of tool changes, excessive acceleration values/imbalance, crashes) and excessive loads in this way. It can display long-term trends for many conditions. In many cases, critical process and machine statuses can be reliably detected in good time. The information that is obtained can be displayed on the machine controller and transmitted to a higher-order control level. The system can also trigger safety functions (e.g. NC start-up block) in the machine.

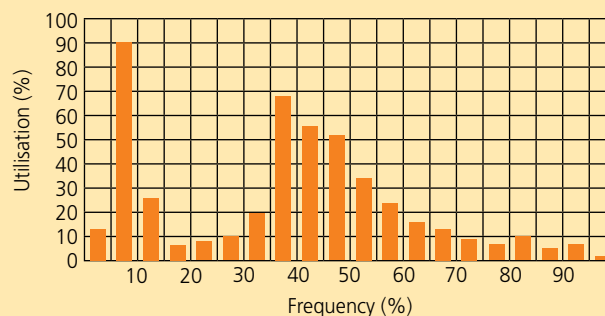
### BENEFITS for you:

- Increase in availability, since unplanned downtimes are avoided
- More control over the timing of maintenance and repair work
- Lower maintenance costs due to avoidance of operating problems
- Savings on manpower, components and downtimes

Utilisation history: last 4 weeks



Utilisation history: Total



Reserve of front bearing



Remaining: 33%

Utilisation history: Total

Machine operating hours	21642
Spindle operating hours	19231
Number of tool changes	231030
Number of overload events	12
Spindle temperature (°)	43
Front bearing wear reserve	31 %
Rear bearing wear reserve	49 %
Piece counter	43021

## KOMET® BRINKHAUS ToolScope – Condition monitoring Monitoring of spindle statuses

### Machine status monitoring with KOMET® BRINKHAUS ToolScope

The KOMET® BRINKHAUS ToolScope provides various evaluation methods in the field of condition monitoring.

The KOMET® BRINKHAUS ToolScope evaluates the current status of the spindle on the basis of the vibration sensors integrated in the spindle. The utilisation of the spindle can be documented and displayed via average effective power consumption or torque generation. The current vibration behaviour can be recorded via a simple test cycle, e.g. after the warm-up phase. Among other things, this provides information about the remaining service life of the bearings.

Other important information about the utilisation history of the spindle can be evaluated, documented and displayed.

### The ideal system for spindle monitoring

#### BENEFITS for you:

- Tachograph function for the spindle
- Counts operating hours, tool changes, overload events, quantities
- Triggers preventive maintenance when faults detected
- Clear utilisation histograms
- Bearing wear detection possible
- Acceleration sensors for monitoring bearings can be enabled
- Can all be operated via the HMI