

Modular Assistance System ToolScope



For Your Production The comprehensive Industry 4.0 solution

Together with our Partner KOMET® TYROLIT offers a comprehensive assistance system for your smart grinding process.

ToolScope assists your production by utilizing machine signals without the excessive use of external Sensors. Special apps help the end user

to access and evaluate machine data, production data and process data in a simple manner.

App TS-PM

Tool / Process Monitoring

- Self-learning process monitoring with statistical-based or customized tolerance limits
- Free configuration of monitoring parameters

- + Process visualization gives rapid feedback to the operator
- + Detecting tool breakages, missing workpieces/tools, incorrect clamping and faulty processes
- + Reduction of scrap parts, rework and tool overload

App TS-TCLog

Automatic Tool Change Log

- Tool life quantity counter, tool life recording
- Provision of tool change data in a computer-readable format

- + Analysis of tool life and reasons for tool changes, especially for single layer electroplated CBN and diamond tools
- + Technical assistance to reveal potential savings together with TS-PM

App CD-xDim

Collision Detection

- Deployment of a vibration sensor or strain sensor to detect a collision
- Collision detection is possible in more than one dimension
- Triggering of an emergency stop if a collision occurs (direct intervention in the axis release without detours via the PLC)
- 2 ms reaction time (emergency stop message to the machine)

- + Repair costs can be significantly reduced by triggering a collision emergency stop
- + Reduces costs and time spent in the event of a collision and minimises machine downtime

App TS-QRep

Quality Monitoring / Documentation

For many processes the quality of a manufacturing characteristic is a key factor. This app assists the process documentation.

- Quality differences can be detected by monitoring the machine's internal sensor values
- Generation of a PDF document for each monitoring procedure

- + Automatic process documentation
- + Quality certification for customers
- + Special requirements for monitoring and documentation (e.g. GEP11TF12, MTV 548-4, QDAS, etc.) can be addressed

App TS-AFC

Adaptive Feed Control

- Variation of feed override dependent on torque load at the spindle

- + Save cycle time by increasing the feed rate in case of low tool utilization (Cycle time optimization)
- + Tool protection by reducing the feed rate in the case of overload
- + Ability to allow for variations in stock removal or fluctuations in hardness or material composition

App TS-MDA

Automatic Shift Log

- Provision of operating status data in a computer-readable format
- The log files are created in such a way that they can be imported into standard evaluation tools and databases

- + Enables to evaluate machine uptime, downtime and machine assignment by NC programs, etc.
- + With Excel file examples for evaluation of machine conditions

App TS-CM**Condition Monitoring**

With this app it is possible to periodically generate and document a fingerprint of the machine tool.

- Monitoring the internal sensor values provides answers to the condition of the machine tool
 - Monitoring of machine vibrations and dynamic behavior of several axes
- + Actual machine tool condition is permanently visible
 - + Maintenance support and specific search for machine tool problems
 - + Greater predictability of maintenance measures

App TS-Cloud**Cloud database function**

The cloud function enables the process data to be stored either in a local or globally available database.

- The app enables ToolScope data to be imported automatically into company networks
 - Cyclical and manual copy jobs
 - Automatic backup of tool settings
 - Exchange of monitoring parameters between machine and server
 - Protocols: Windows network, FTP, SFTP
- + Operating status data, tool change logs, etc. are made available by network push functionality to the company server or online cloud
 - + Process data can be used and analyzed worldwide from every workstation in the company
 - + Enables process documentation to be saved automatically for long term storage purposes

App TS-Data Pro**Customized data generation**

- Powerful tool for generating process specific information in *.csv format
- + Provision of important process information (freely configurable)
 - + Enables easy generation of process specific information

Additional benefit: Our service

TYROLIT is your partner to gain the utmost from your grinding processes. We are ready to support you with our expertise and experience in processes and tools.

- Various service packages from tool optimization up to quality control
- + TYROLIT optimizes your tool usage, process time and the way you manufacture
 - + Shorter cycle times through NC program adjustment and process sequence optimization
 - + Maintenance of tools and assistance systems by TYROLIT

Unique feature: Offline testing

- Simulation environment for the assistance system can be downloaded free of charge
- + Reduction in machine downtime by preparing changes to settings offline
 - + Changes to assistance system settings can be tested directly on the office PC using the time lapse function

The assistance system for manufacturing

A comprehensive Industry 4.0 solution for manufacturing processes.

TYROLIT in cooperation with its partner KOMET Brinkhaus has created a milestone in Industry 4.0 in grinding technology: With the firmware version 11 ToolScope has become the comprehensive assistance system in production machining.

In order to generate the customer independent added value, TYROLIT is offering a number of applications known as apps, that can be simply licensed and activated. These allow users to easily access and utilize the

recorded machine, operating and process data. The new developments focus on ease of operation and modularity.

The system provides a method for quality control never seen before, in addition to the usual methods of process monitoring.

To complement these features, TYROLIT offers various services relating to tools and the ToolScope assistance system. This is not the only reason we are a strong and reliable partner at your side.



App TS-PM
Tool / Process Monitoring



App TS-MDA
Automatic Shift Log



App TS-Cloud
Cloud Function



App TS-AFC
Adaptive Feed Control



App TS-Data Pro
Customized data generation



App TS-QRep
Quality Monitoring / Documentation



App TS-TCLog
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App TS-CM
Condition Monitoring



App CD-xDim
Collision Detection

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