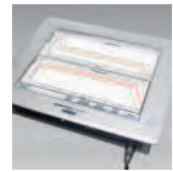
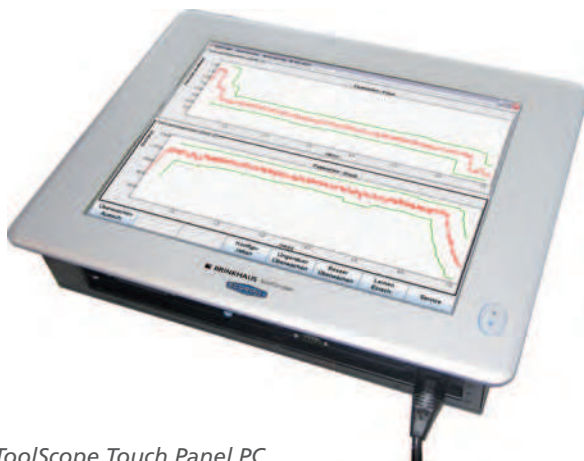


# Process Monitoring and Documentation with ToolScope



## Overview

In the face of increasing automation, process reliability is becoming more and more important with respect to production sequences; real time monitoring and long-term documentation of process parameters is a frequent requirement. In cooperation with Komet Brinkhaus GmbH, ECOROLL AG Werkzeugtechnik has developed ToolScope, a monitoring system that meets these requirements.



*ToolScope Touch Panel PC*

The ToolScope system enables the continuous monitoring and documentation of the critical process parameters used in deep rolling. With mechanical deep rolling tools, the actual, effective deep rolling force is measured and monitored. In contrast, when using the hydrostatic deep rolling tools, the parameters relevant to the process, the operating pressure and the flow rate, are monitored and recorded.

However, ToolScope provides significant benefits not only in monitoring the production process, but also in two other ways with the long-term process documentation: first, when purchasing components relevant to safety, manufacturers require suitable proof of compliance with the specified process parameters; second, in case of a compensation claim, the documentation provides proof of adherence to these parameters.

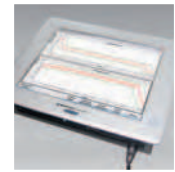
## Significant features

- Monitors signals from both mechanical and hydrostatic deep rolling tools.
- Online visualization of the process (oscilloscope function).
- Process monitoring with tolerance bands.
- Automatic, long-term documentation of process parameters.
- No separate visual and manual monitoring of process parameters required.
- Visualization of process errors with indicator lights.
- Further external processing of the error signal possible.
- Unambiguous identification of processes with and without errors.
- Operation using the HMI machine control or touch-screen.
- Optional advanced signal exchange between monitoring and production equipment/internal network.



*Independent monitoring system*

# ToolScope for Hydrostatic Tools

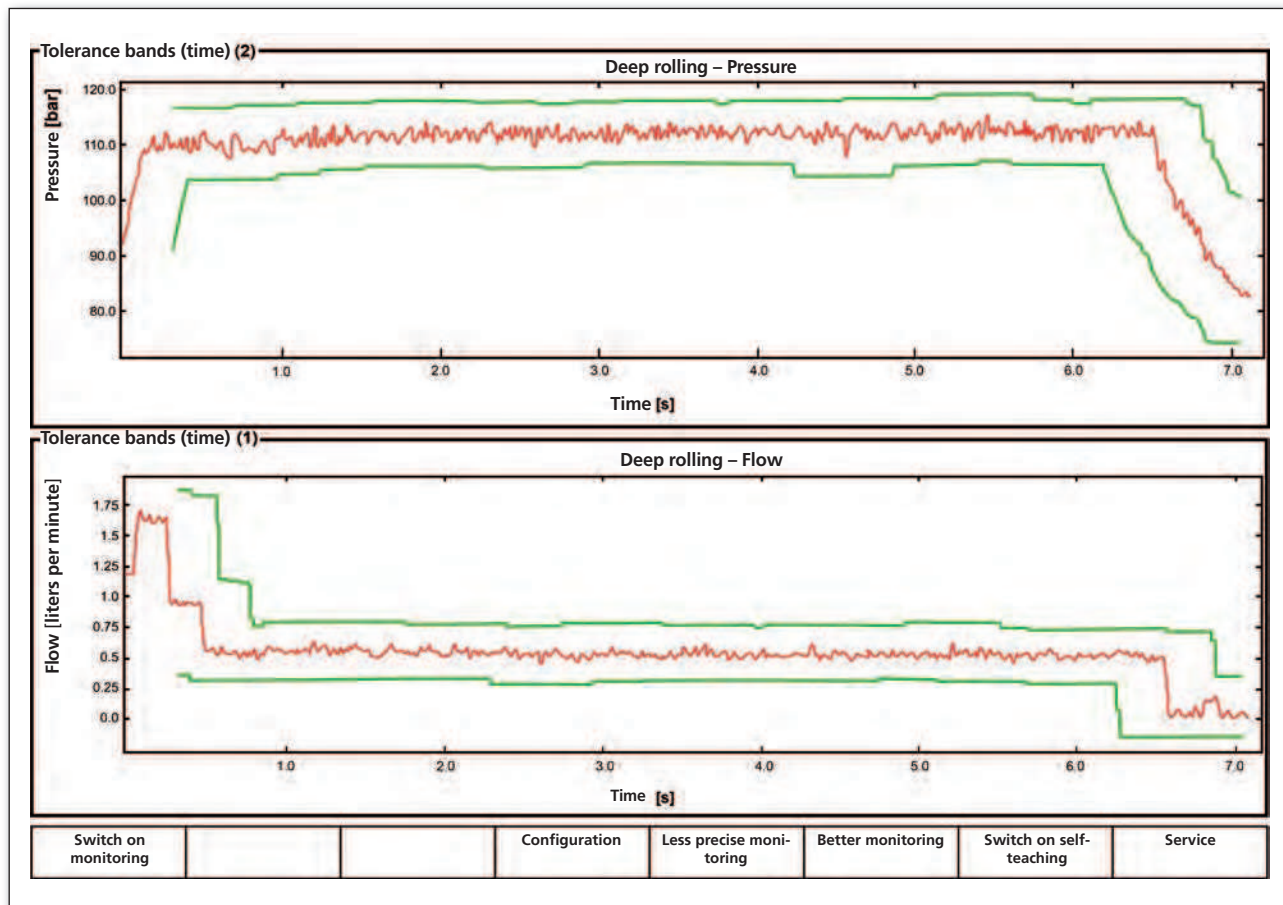


## Process monitoring during deep rolling with hydrostatic tools

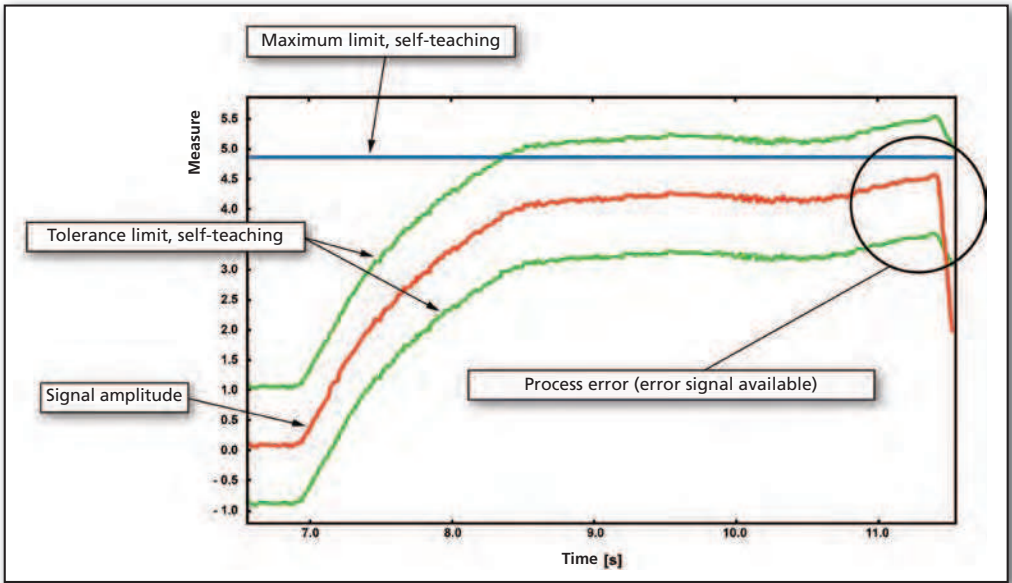
When using the hydrostatic deep rolling tools in the HG series, the parameters relevant to the process, the operating pressure and the flow rate, are monitored and recorded. ToolScope recognizes deviations from the process parameter specifications immediately, resulting in an error message. The process can only continue after the error has been checked and cleared, which significantly reduces rejects, reworking and related damage. Moreover, ToolScope provides long-term process documentation, which offers proof of adherence to the specified process parameters.

## Significant features of the system

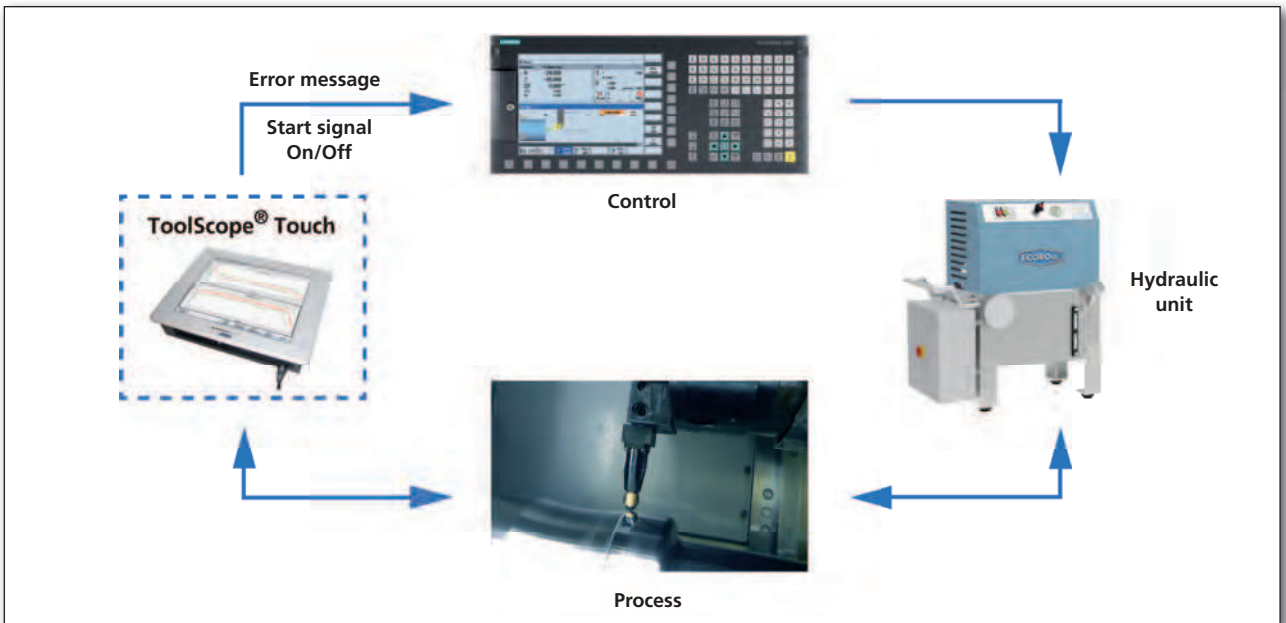
- Self-teaching process monitoring.
- Achieves qualified machining processes.
- Highly accurate signal recording with sensors.
- Machining processes used months earlier can be reproduced.
- Touchscreen operation.



Process monitoring with tolerance bands

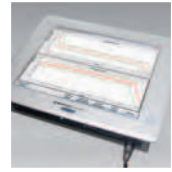


Visualization of parameter limit violations



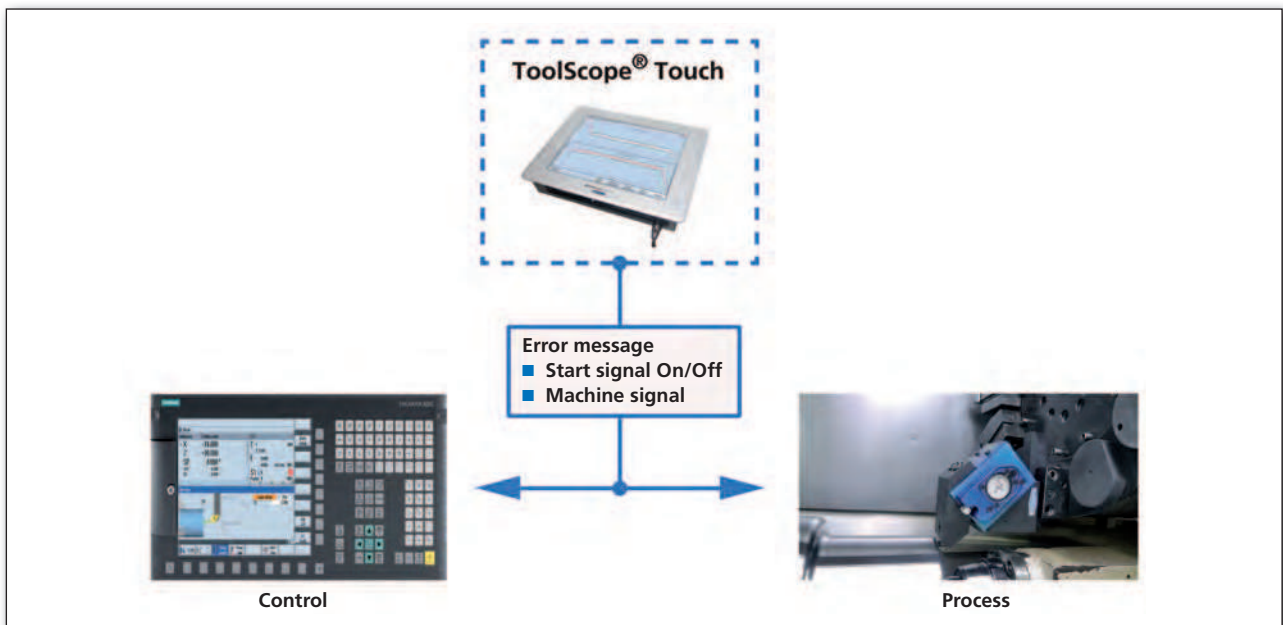
Process monitoring sequence with hydrostatic tools

# ToolScope for Mechanical Tools



## Process monitoring during roller burnishing with mechanical tools

With mechanical tools, the actual, effective burnishing force is measured and monitored.



Process monitoring sequence with mechanical tools