

Tool Specifications

Length 171.761 mm
 Radius 10.000 mm
 RPM 10000 1/min

Max. Runout

Value 2.1 µm
 Angle 50.0°

Min. Runout

Value 0.0 µm
 Angle 5.0°





LC-VISION

VISUALISATION AND ANALYSIS SOFTWARE

LC-VISION is an innovative visualisation and analysis software solution for DIGILOG laser measuring systems from BLUM. On the basis of the measured values, the software enables quick visual analysis of the tool and motor spindle quality.

A highlight is the intelligent analysis methods for enhancing the quality of machining. If the laser measuring system detects, for example, wear, the user can generate application-specific data to correct the tool parameters which can then be automatically included in the cutting process.

01 SYSTEM OVERVIEW TECHNOLOGY

The LC-VISION software has a modular design. The basic version provides the user with many helpful functions which support the use of the laser measuring systems. For specific applications, the range of functions can be easily extended by optional technology cycles such as "3D ToolControl" and "SpindleControl". For the options currently available, please contact your local BLUM office.



LC-VISION

BASIC FUNCTIONS


Views

- Status view
- Diagnostic view
- Licence Manager

TECHNOLOGY CYCLES

 3D ToolControl

- Measurement
- Visualisation
- Evaluation
- Compensation

 SpindleControl

(ISC)
Integrated
SpindleControl

(PSC)
Portable
SpindleControl

- Basic
- Expert

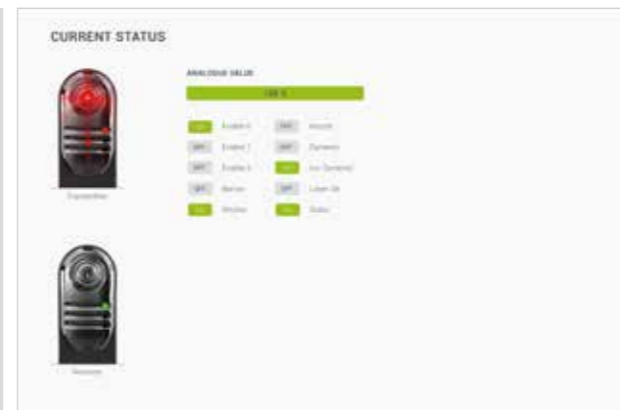
02 BASIC FUNCTIONS

STATUS VIEW, DIAGNOSTIC VIEW AND LICENCE MANAGER

In terms of functionality and user-friendliness, BLUM is breaking new ground with LC-VISION. Even the basic functions offer real added value, as important system information and data for preventive maintenance can be called up quickly and easily on the control screen. Special technology cycles can also be easily enabled.

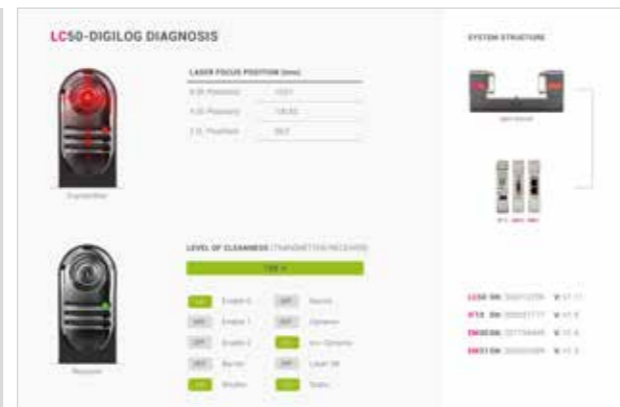
STATUS VIEW

The status view provides a quick overview of the activated functions and the current status of the laser measuring system – also during the measuring process.



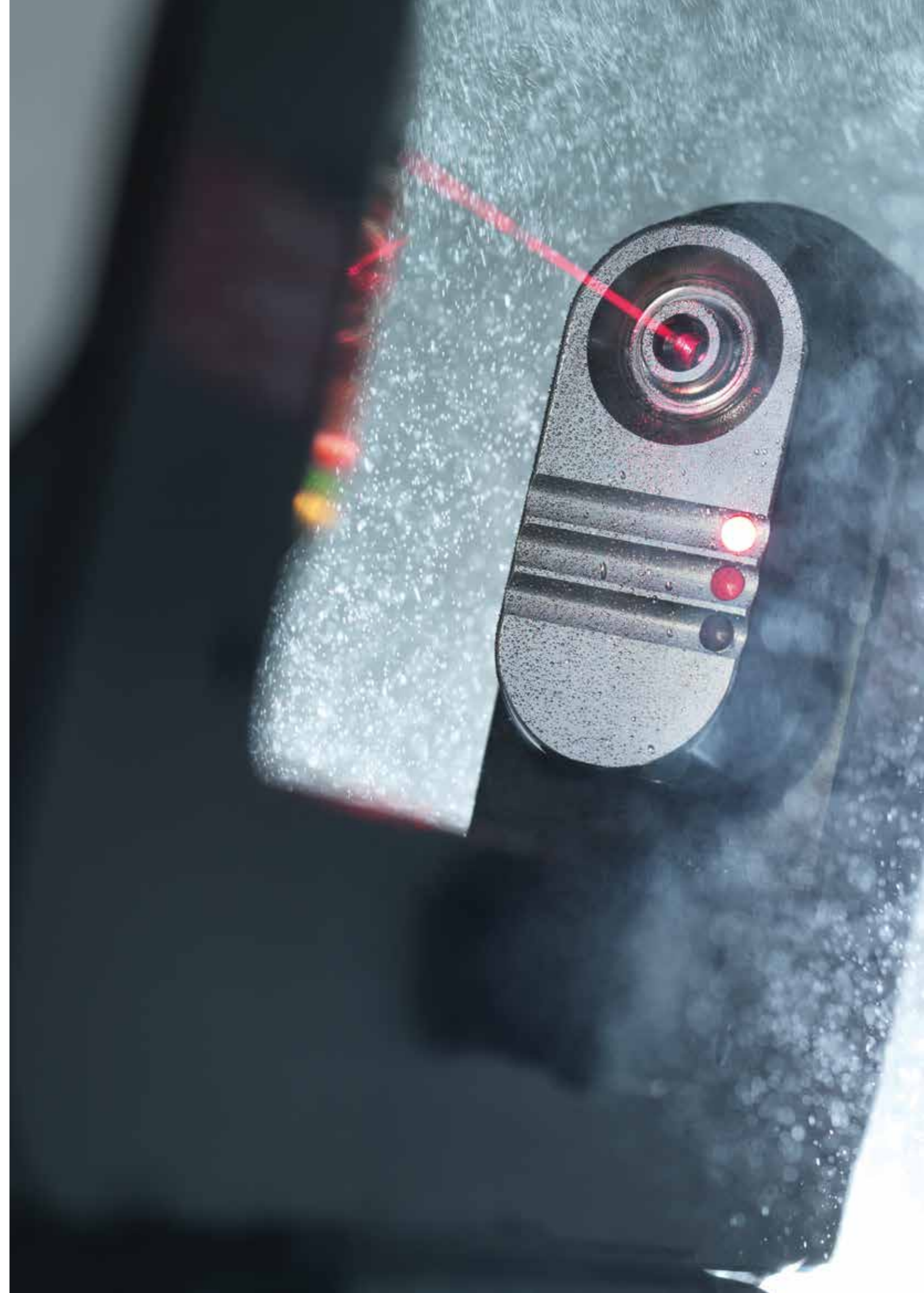
DIAGNOSTIC VIEW

This view shows important system data, enables manual activation of laser functions and provides preventive maintenance information.



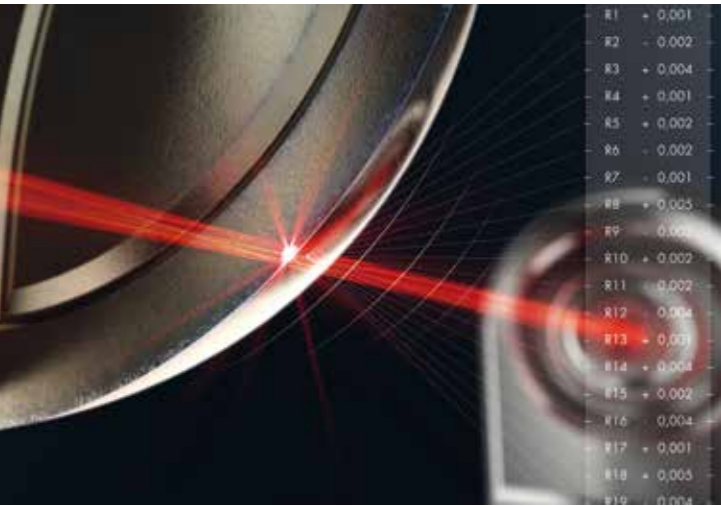
LICENCE MANAGER

The Licence Manager can be used to display the currently available technology cycles and to easily activate further options via an activation code.



03 OPTIONAL TECHNOLOGY CYCLES FOR LC-VISION

HIGH-TECH FUNCTIONS OF THE NEXT GENERATION



Only in conjunction with LC-VISION can the new possibilities of BLUM's DIGILOG laser measuring systems be fully utilized. It has, for example, never been easier to objectively assess the condition of the tool and the spindle. The range of functions is constantly being expanded. The technology cycles "3D ToolControl" and "SpindleControl" are currently available for LC-VISION.

3D TOOLCONTROL

3D ToolControl gives you a comprehensive picture of the current condition of your new and used tools and thus increases the precision and productivity of your manufacturing processes.

- DIGILOG measurement of complex tool geometries
- Evaluation of the entire tool geometry for automatic correction of the tool table
- Visualisation of the form deviation on the control screen
- Covers functions of image-processing systems

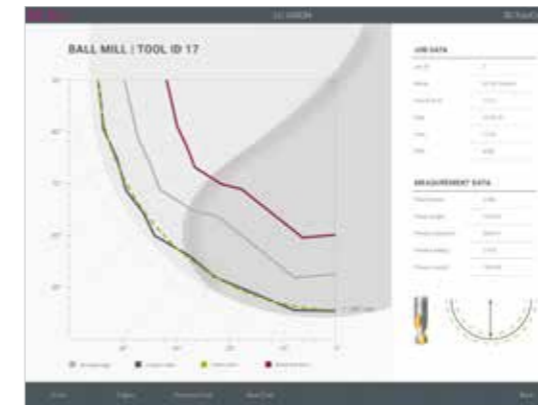
FUNCTIONS

1. 3D measurement

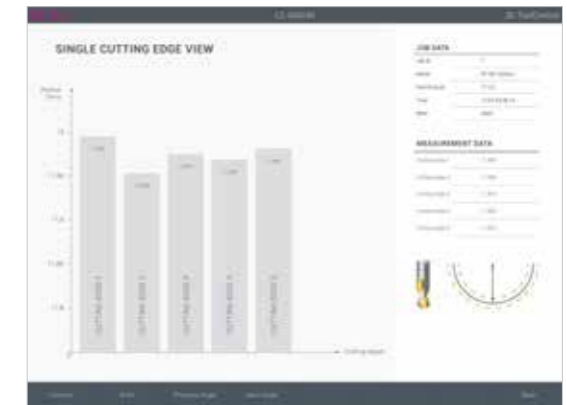
- Fast measurement of tools based on predefined jobs
- Basic measurement for visualisation and analysis functions

2. Visualisation

- Visualisation of measured values such as length, radius, corner radius and the entire tool contour
- Wear analysis: Comparison between initial and current measurement at various cutting angles
- Graphical display of the measured values of individual cutting edges
- Run-out evaluation for the tool and individual cutting edges



Visualisation in LC-VISION



Single cutting edge analysis

3. Compensation

- Comparison between initial and current measurement at several cutting angles
- Updating and compensation of wear values
- Possibility to classify and, if necessary, lock worn tools
- Various analysis methods for determining an application-specific compensation strategy: Best-fit (correction L), Circle fit 3 axes (correction R), Circle fit 5 axes (correction L + R)
- Increased tool life, surface quality and workpiece quality



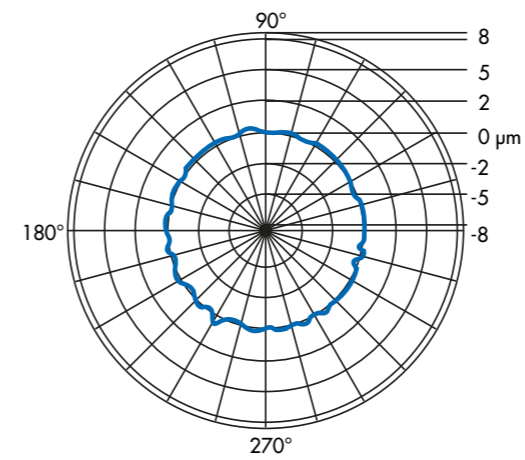
Comparison between initial and current measurement



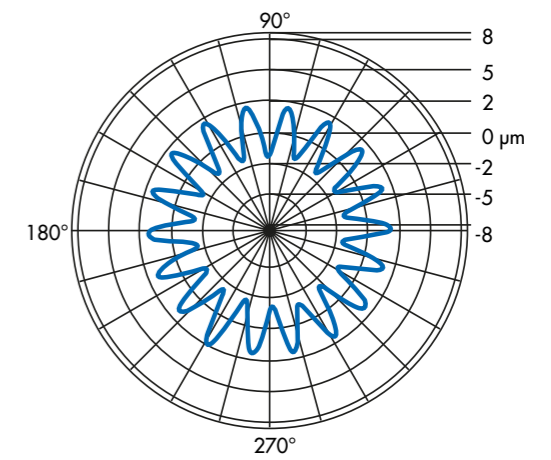
SPINDLECONTROL

SpindleControl gives you a comprehensive picture of the current condition of your machine spindle. The extensive functions of the technology cycle are available for the machine integrated version (ISC) as well as for the portable version (PSC).

- Spindle analysis for preventive maintenance
- Vibration analysis
- Testing at various speeds
- Freely definable warning and tolerance limits
- Logging and statistical evaluation



Run-out characteristic of a good spindle

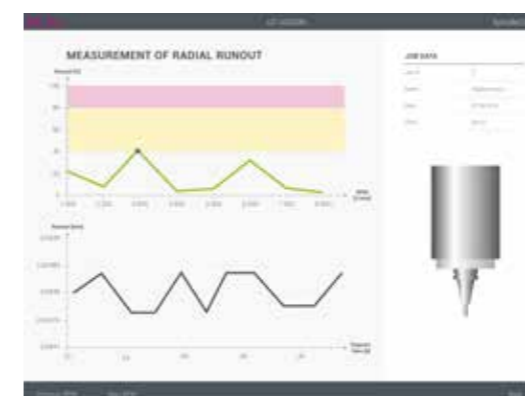


Run-out characteristic of a spindle with bearing damage

FUNCTIONS

1. Run-out analysis

- Speed-dependent measurement and visualisation of the radial and axial run-out behaviour
- Detection of spindle growth caused by speed regulations or a tool change
- Definition of warning and tolerance limits



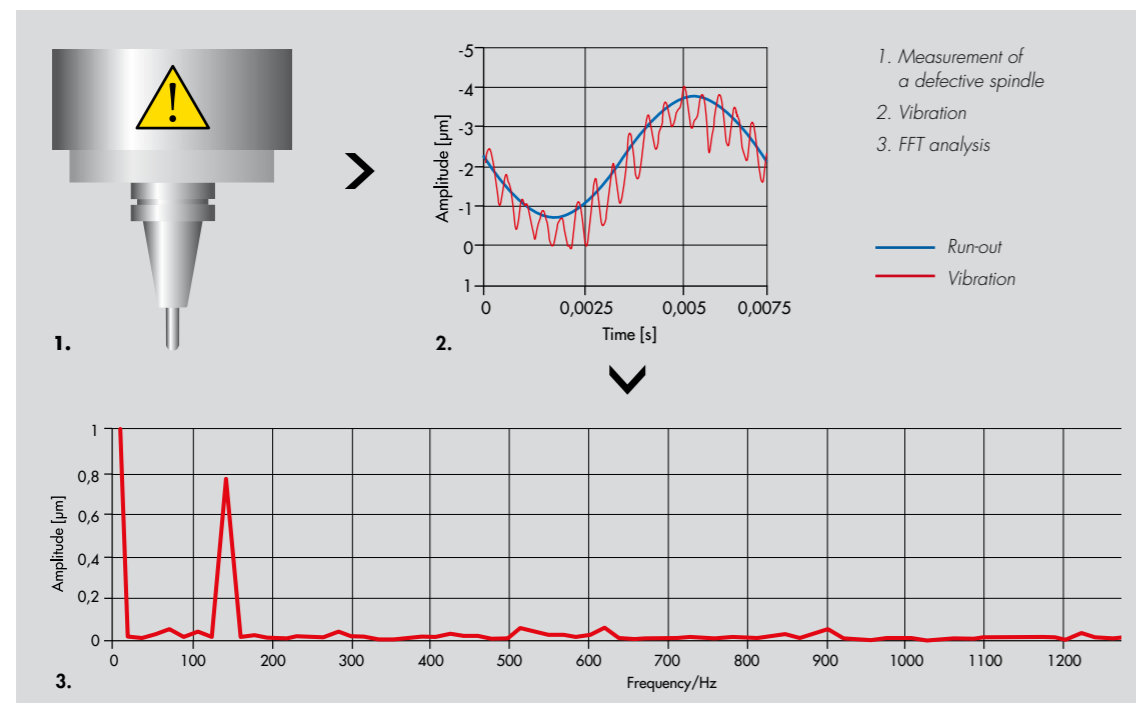
2. Vibration analysis

- Vibration measurement and analysis at various speeds based on frequency data
- Display of important spindle parameters calculated by specific methods
 - Peak-to-Peak
 - Acceleration & velocity of change based on ISO/TR 17243-3



Example: Frequency analysis of a spindle

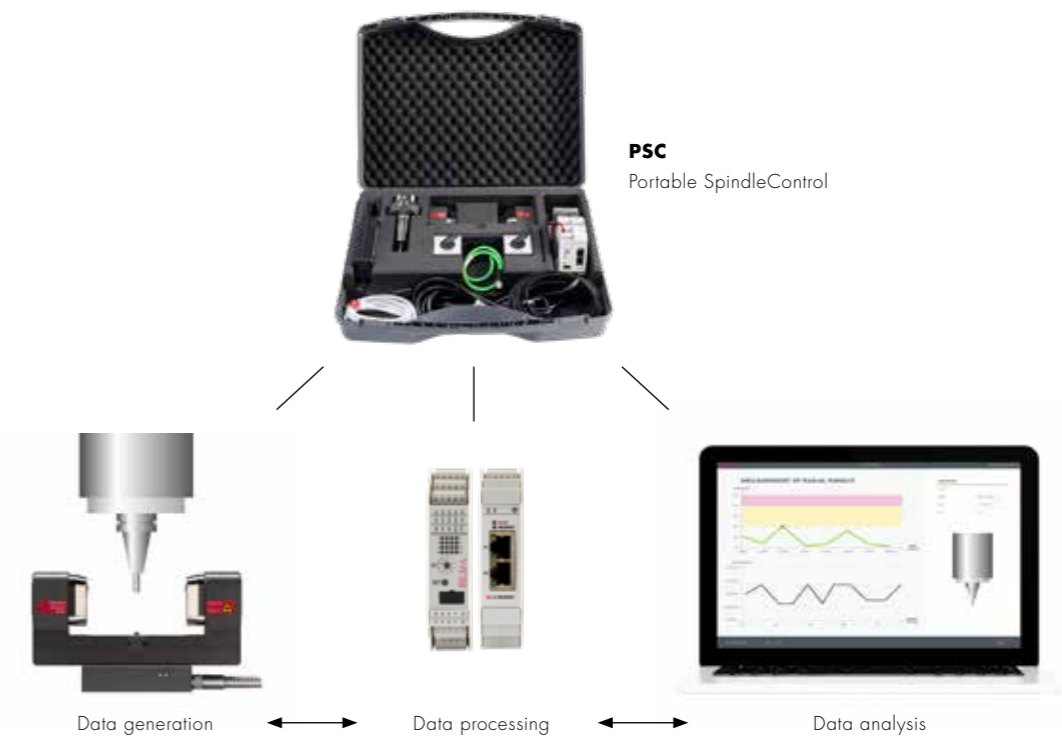
- Evaluation of the spindle bearing condition by fast Fourier transformation (FFT) of the measured signal
- Unique identification of defects in spindle bearings
- Based on the evaluation of the vibration, tool-independent conclusions can be drawn about the achievable surface quality



04 PSC – PORTABLE SPINDLECONTROL

THE PORTABLE SOLUTION FOR SPINDLE MONITORING

Portable spindle control is a compact, portable system for flexible testing and monitoring of motor spindles in machine tools. With the included items, LC50-DIGILOG, SpindleControl Software, and necessary accessories, you can enjoy all the functions of SpindleControl without any direct connections to the machine tool control.



PROCEDURE

1. Mount the laser measuring system on the machine table using the provided magnets
2. Startup the SpindleControl Software on an external PC
3. The generated data is transferred via ribbon cable, to the interface for analysis, even with closed door
4. Visualization, analysis and processing of the data on the PC

Perfect for ...

- Machine service calls
- Spindle maintenance and repair services
- Shop floor maintenance departments

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