The tool presetter and measuring machine for tools of any type

venturion
ZOLLER solutions – comprehensive optimization of your manufacturing operations to increase quality, efficiency and productivity. ZOLLER combines measuring machines, hardware, software and services to create individual system solutions that guarantee you a sustainable and competitive advantage.

The ZOLLER company is a worldwide expert and market leader in the field of metrology for tools and tool-based manufacturing organizations. ZOLLER has developed innovative tool presetter and measuring machines and measuring equipment as well as software for measuring, inspection and the management of metal cutting tools for over 70 years.

In close cooperation with our customers and partners, ZOLLER has developed practice-oriented and user-friendly leading edge technology at our facilities in Germany, a commitment now in its third generation of the family-run business. Certified according to DIN EN ISO 9001:2008 and DIN EN ISO 14001:2004 for quality and environmental management, we manufacture durable quality products which excel through highest precision and maximum efficiency.

Our worldwide subsidiaries and agents guarantee customer proximity and first class service in local markets. Our declared aspiration is for products with our name to fully satisfy your requirements and make a measurable contribution to your success.

Yours, the ZOLLER family
Alexander Zoller, Christoph Zoller, Eberhard Zoller
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The right tool at the right time and in the right place

Maximize your profit: With ZOLLER »venturion« you can measure tools quickly, easily and independently of the operator. Additionally, you can link it to all other stations in the manufacturing process, from the CAD/CAM, to the stock and purchasing right through to machines. In this way you optimize the tool circulation and achieve full machine capacity utilization. It is made possible by the central database which can be accessed by all departments at any time. This database ensures that the right tool is at the right time in the right place.

ZOLLER has the solution!

- Time-consuming tool search is a thing of the past
- No duplication of data and redundant data recording
- Tools are used optimally and the tool life is extended
- Reduction in tool and production costs
- Avoid input errors
- Noticeable reduction of tool costs
- Significant increase in productivity
- Enjoy increasing profit. Year after year.

With ZOLLER TMS Tool Management Solutions you can link all stations in the manufacturing process via one central database: CAD/CAM, stock, purchasing, machines and of course ZOLLER tool presetter and measuring machines.

Sample calculation:
- Hourly machine rate 75 € | Machine investment costs of 200,000 €
- Reduction of tool costs by 2% (of 200,000 €)
- Productivity increase of 5% (8 hours x 200 shifts x 75 € x 5% x 1 machine(s))
- Productivity increase with ZOLLER »venturion«
- Total annual savings per machine
- 4,000 €
- 6,000 €
- 15,000 €
- 25,000 €

With ZOLLER Tool Management Solutions you save at least 25,000 € per year!
ZOLLER »venturion« tool presetter and measuring machines impress with their unique ergonomics and highest flexibility. Whatever your requirements are: the »venturion« offers a configuration that is customized to your production processes. Just let us know your requirements and discover the modular premium class by ZOLLER.

Modular design for optimum adaptation to your individual production processes
Excellent price-performance ratio: You only pay for the equipment you really need
Trend-setting and award-winning design for the highest accuracy and ergonomically optimized workflows
Motivated employees and minor training requirements due to simple and user-friendly operation
The highest quality tools because the first workpiece is already dimensionally accurate
Consistently reduced manufacturing times due to measured, preset and inspected tools
Additional productivity increase due to ZOLLER TMS Tool Management Solutions with interfaces for nearly all common CAM systems

<table>
<thead>
<tr>
<th>Technical data</th>
<th>Length Z-axis</th>
<th>Diameter X-axis*</th>
<th>Diameter snap gauge*</th>
</tr>
</thead>
<tbody>
<tr>
<td>»venturion 450«</td>
<td>450 mm / 600 mm / 800 mm</td>
<td>400 mm / 600 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>»venturion 600«</td>
<td>600 mm / 800 mm / 1,000 mm</td>
<td>440 mm / 540 mm / 720 mm</td>
<td>200 mm / 100 mm</td>
</tr>
<tr>
<td>»venturion 800«</td>
<td>600 mm / 800 mm / 1,000 mm / 1,200 mm / 1,400 mm / 1,600 mm</td>
<td>1,000 mm / 1,200 mm</td>
<td>200 mm / 0 mm</td>
</tr>
</tbody>
</table>

*Measuring ranges may vary when selecting the corresponding options (e.g. DME, incident light camera, measuring probe, etc.).

1 If you select 540 or 720 mm as diameter for the X-axis, the diameter of the snap gauge is 100 mm.
2 If you select 1,200 mm as diameter for the X-axis, no snap gauge can be used.

Subject to technical modifications. The depicted machines may include options, accessories and control variants.
Operating technologies based on your requirements

Two ZOLLER image processing technologies available

Depending on your requirements, »venturion« is available with different operating technologies: »pilot 2 mT« with up-to-date touch-screen technology and individually configurable interface. And »pilot 3.0« for the highest demands in functions and flexibility.

»pilot 2 mT«

With its unique touch-screen operating technology, the new »pilot 2 mT« establishes a milestone in the development of user-friendly tool presetters and measuring machines. The state-of-the-art, self-explanatory touch function inspires with its intuitive use, which saves you the training expenditures. And the customizable settings for each user make the operation easier and quicker.

»pilot 3.0«

Beginning with setting, measuring and inspecting through to tool management, »pilot 3.0« covers the entire spectrum of tool measurement in your company. Thanks to the modular setup, you can book the required measuring functions according to your needs and, thus, adapt them optimally to the manufacturing process. Despite its comprehensive performance profile, »pilot 3.0« remains user-friendly. The self-explanatory user interface with its graphical menu buttons facilitates the orientation and the required functions can be selected quickly and easily. Using the touch-screen function even complex operating processes are performed without delays.

The modular solution for every challenge

The customizable version with touch-screen
Intuitive operation using touch-screen: »pilot 2 mT« focuses on the essential functions which are important for the tool presetter and measuring machine. The clear structure without pop-ups and submenus allows easy customizable use of the measuring machine control. It’s easy: just slide and select.

With »pilot 2 mT« ZOLLER once again sets standards in the advanced development of operator-friendly tool presetter and measuring machines. This familiar technology is self-explanatory and, thus, easy to grasp. This saves not only training expenses but makes the work considerably more convenient. The customized user interface enables the user to define priorities. Linking to a common ZOLLER database provides access to the centralized data for efficient tool management.

Quick and easy operation without high training expenditures, designed according to the HMI directive (Human-Machine Interaction)
Individual measuring procedures and user-specific menu navigation
Accurate setting, measuring, inspection and management of any kind of metal cutting tools
Data communication via machine links and interfaces to the third party systems

—

Tool selection and measurement by means of the slide function
The slide function is used to drop and drag contents using a finger.
Move from the image library to the automatic measurement within seconds.

Prioritizing interface design
The interface can be adjusted to meet the requirements of the user. Based on which function is most important to you, it can be prioritized and displayed larger. Cutting edge image, tool image or tool data are simply moved in the main area per touch-screen function and displayed larger. This setting is kept until you change it as required.

Measurement of multi-insert tools including graphic display of measured results
»pilot 2 mT« measures all cutting edges of the tools on the perimeter and displays the measured values of every cutting edge, if required, graphically or in form of a table, including the tolerance range and the option for a quick second measurement of individual cutting edges directly from the chart for automatic positioning over the optional autofocus.
Image processing »pilot 3.0«

Installed quickly and easily to meet any requirement

»pilot 3.0« fulfills all manufacturing needs and despite its comprehensive performance profile it is most importantly: user friendly. Discover the easy access to the world of tool measurement via the menu buttons of the start menu and gain a first impression of the performance potential of »pilot 3.0«.

The image processing technology »pilot 3.0« sets standards with a simple, clear and flexible user interface due to modular setup and a wide range of measurement programs. In combination with ZOLLER TMS Tool Management Solutions you can manage tools over their entire life cycle and optimize their manufacturing process directly on the tool presetter and measuring machine.

Automatic measuring mode

Automatic recognition of cutting edge shape and real-time measurement of the tool cutting edge.

Measurement, setting and management module

Measurement menu display including management of the tool data in the measurement, setting and management module.

Control-adequate data output

Software function for control-specific data output of the measured tool data onto the USB flash drive, to the serial interface (online) or via network directly to the CNC machine.

Display of measured results

Display of measured results including automatic tolerance check and virtual membrane keyboard.

Measurement of grinding wheels

Photo-realistic input dialog including documentation and reports. Library of grinding wheels according to FEPA standard.

Documentation and test reports / statistics

The reports can be saved and printed out for cast-iron documentation, verification certificates and traceability.

For manual and CNC-driven tool presetters and measuring machines
For small as well as large production requirements
For convenient and fast presetting, measuring, inspection and management of cutting tools of all types
For data transfer via machine links and interfaces to the third-party systems
Modular setup for maximum flexibility
Use the software function extensions in »pilot 3.0« to make your ZOLLER tool presetter and measuring machine a tool measuring machine!
Additional image processing applications

»pilot 3.0«

Measurement and presetting
Experience new operating convenience

»pilot 3.0« sets standards in operating comfort: simply select the tool type from the image catalog of standard tools, confirm the measuring or presetting task and the measurement procedure is started. The outcome is a detailed overview of the measurement results — obtained easily without extensive training or prior knowledge.

Manufacturing
Editing order-related tool lists

Tool lists/setting sheets for each tool machine are stored in the machine management system of each tool machine. The »pilot 3.0« controller stores your tool programs in the same way as your “workpiece programs” are filed in your programming system. This means savings in time for repeat processes and staying the proverbial step ahead of the competition.

Inspection
Trust is good, control is better

The dimmable LED lighting ensures brilliant display and inspection of cutting edges. Tools can be inspected and measured under transmitted or incident light using the »metis« tool analysis system. The software function »lasso« allows you to scan the form tools and compare them automatically to the nominal values. Inspection reports can be generated easily for representative documentation or proof purposes.

Management
Gain time and control through better organization

With »pilot 3.0« you can use additional software packages via the TMS Tool Management Solutions to give you complete overall management of your operating equipment. Nothing is left to chance, you manufacture efficiently and secure jobs.

The »elephant« technology allows you to measure standard tools automatically, without training expense and prior knowledge. There is no easier way to set and measure your tools!
ZOLLER components for the highest reliability

»venturion« device base

With each »venturion« you benefit from the highest accuracy and reliability: machines are based on a compact, specially alloyed and thermally optimized design, which is also extremely robust and workshop compatible. This base is supplemented by components which rank among the best in the world. They contribute to the high quality of »venturion« machine base as you know it from ZOLLER tool presetter and measuring machines.

1. **Tool holding fixtures**
   ZOLLER supplies suitable tool holding fixtures for all tools worldwide (steep tapers, hollow shank tapers, Capto, Kennametal, VDI and others).
   a. Tool post steep taper SK 10 to SK 60
   b. Tool post hollow shank taper HSK 25 to HSK 160
   c. Tool post Capto C3 to C10
   d. Tool post Kennametal KM 32 to KM 100
   e. Tool post VDI 16 to VDI 60
   f. Tool post hydraulic expansion D32 for reduction sleeves D3 to D25 mm

ZOLLER »ace« spindle
With a universal clamping element for steep taper SK and power clamping for HSK, Capto, Kennametal, VDI and many more.

2. **Uhing linear drive nuts**
   For linear, μm-precise, safe, accurate and maintenance-free CNC-driven or manual axis adjustment.

3. **Maintenance unit**
   For safe preparation of compressed air supply directly at the tool presetter and measuring machine.

4. **THK recirculating linear ball bearing guides**
   Incredibly simple slide adjustment without slip-stick effect. Employs a total of 5 guides with two track carriages each for geometric precision, stability and longevity.

5. **Bosch/Festo pneumatics**
   Leading pneumatics for reliability and safety of all power-operated functions.

6. **Heidenhain measuring system**
   The measuring systems allow ultra-precise position determination in the linear and rotary axes.

7. **CCD camera and special LED ZOLLER optics from Jena**
   Cameras with coated lenses and durable LED cold-light sources for standard cutting edge inspection under incident light.

The use of brand products enhances quality
Top quality ensures long service life and low tool costs
Declining tool costs signify enhanced earnings
Bigger revenues protect jobs

consistently high accuracy
minimum maintenance
long service life
Consistently user-friendly

›ventus®« ergonomics

Compact, consistent and high tech – this summarizes the benefits of the award-winning ZOLLER designs of the modular first class ›ventus®«. A multitude of smart, ergonomically sophisticated and intelligently designed detailed solutions that provide a convenient and consistent work environment for the operator. Start your discovery tour. Want to give it a try? Simply call us and we will be happy to schedule a presentation.

1. Adjustable control unit
   With roller foot for flexible positioning around the spindle and tool and for height adjustment while working in a sitting position. Sufficient room for a monitor, keyboard, mouse and other small components including a label and list printer – right where they are needed.

2. One-hand control handle
   For quick and simultaneous slide adjustment in Z and X direction.

3. Multifunctional operation
   Along with the keyboard and mouse, the touch-screen can also be used to perform and confirm functions – ergonomically and fast.

4. Pull-out controllers
   For optimum accessibility during service and maintenance operations, the computer, electronic system and pneumatics are mounted in a pull-out manner.

5. 180-degree accessibility for high-precision spindle
   The tool can be preset, measured and inspected from any side. Enough leg room is available for work in the sitting position (›ventus 600« and ›ventus 800«).

6. Workshop-compatible membrane keyboard
   For fast and convenient operation of all power-operated functions of the tool holding fixture spindle.

7. »cockpit«
   Here is good storage space for monitor, keyboard, mouse, labels and list printer, accessories and a great deal more. Depending on available space and work situation, as well as local conditions, everything can be positioned flexibly.
Maximum flexibility

The modular system

The modular setup of the »venturion« tool presetter and measuring machines provides the ability to assemble individual tool presetter and measuring machines customized to your production processes. Simply choose from the diverse modules and integrate the customized »venturion« perfectly into the process chain.

The basic version offers all the basic measurement and presetting functions for your tools; it delivers fast, accurate measurement results and is operator independent and efficient from day one. Every »venturion« provides benefits such as photo realistic input dialogs, automatic cutting edge recognition, automatic zero point monitoring and proof of the measuring machine capability by default. Additionally, you can add modules which are relevant for you. Would you like to inspect purchased tools before use? Upgrade your »venturion« with the „Tool inspection“ module. Would you like to preset reamers? Select the „Tailstock and measuring probe“ module. You would not only like to measure but also shrink? Then »redomatic« is perfect for you. Just tell us what you need, and together we will design the perfect »venturion« for your production process.

— Accurate multi-spindle processing with the »redomatic« module
— Quick and accurate clamping of Schunk TRIBOS tools with the TRIBOS module
— Optionally tactile measurement of micro adjusted cutting inserts with the sensor module
— Unsupported on one side clamping of long tools between points with the tailstock module. Available for lengths up to 1300 mm.
— Longer service life of tools with the module center height measurement and tool inspection
— Solid documentation of tool quality for any type of tool using the tool inspection module

ZOLLER
PRESETTING SOLUTIONS
For longer service life of tools

Center height measurement module

A perfectly set center height increases the tool service life and reduces tool costs. At the same time you reduce the setup time, avoid rejects and improve the quality of your workpieces.

With the center height measurement (CHM) module, the center height camera is firmly integrated into the base of the optic carrier. For CNC execution it is automatically set to the working distance (focus distance) for the transmitted light axis. Even for complex cutting geometries, the special optics and lighting with multi-LED segments generates a high-contrast image of the tool cutting edge which can be measured intuitively and preset with the “inScreen” software function.

For absolute accuracy and sound documentation

Tool inspection module

Having control over produced, reground or purchased tools gives you the benefit of improves quality by complying with the finest tolerances. Rejects and machine downtimes are reduced, current requirements for process reliability during machining are met.

By using the tool inspection module, tool geometries of any type can be measured under transmitted and incident light and inspected with a 50 fold cutting edge magnification. Fast, accurate, universal and efficient. Due to the automatic output of test reports, all measured results are provided with solid documentation allowing you to successfully respond to customer complaints.

Additional images and diagrams illustrate the functionality and setup of the center height measurement module and the tool inspection module.
Highest accuracy for multi-spindle processing

Heat-shrinking module

Combined with an inductive shrink fitting system, «venturion» guarantees the highest accuracy of tools even with heat-shrink clamping technology which is predestined for high speeds and feeds. Significant time savings can be achieved during presetting and heat-shrinking. Protect your chucks and support your operators with smart automated processes and reliable operator guidance.

Combined with an inductive heat-shrink system, «venturion» becomes an integrated «redomatic» presetting, measuring and heat-shrink system. The patented, automatic length stop system «asza» guarantees the shrink-clamping of tools to the nominal dimension within a tolerance of ± 10 μm.

The heat-shrink guidance system «s.l.s.» and the also patented fume extraction* are important constituent elements of the overall process. System-relevant parameters such as the heat-shrinking length, tool clamping and the availability of the coolant transfer tube* are monitored automatically to ensure reliable and precise shrinking. The user is guided through the procedure by graphical and visual operating instructions in a process-reliable manner.

*Option

»redomatic«: induction shrink fitting system with automatic length stop system «asza»
heat-shrink guidance system «s.l.s.» and fume extraction.

For highest accuracy during presetting of TRIBOS tools by Schunk

TRIBOS module

With the TRIBOS module, the universally applicable «venturion» can be used for presetting, clamping and measuring of Schunk TRIBOS expansion chucks. In addition to the universal application for metal cutting tools of any type, this is a very successful combination for the users of Schunk TRIBOS technology.

The Schunk TRIBOS polygonal clamping technology is combined with the automatic length stop system «asza» for precise setting of the nominal dimension. The TRIBOS clamping unit moves along a linear unit and is guided automatically to the tool holding fixture; after the clamping/releasing process has been completed, it is then moved back to the initial position automatically. The TRIBOS pressure control and the search run for the alignment of the Schunk clamp areas are also performed automatically. Safe handling protects the chuck from damage due to high pressure and increases the ergonomics for the user.

*Option

»tribos«: Schunk TRIBOS clamping system with automatic length stop system «asza».
Clamping of long reamers and presetting of fine drilling tools

Tailstock and measuring probe module

The module for fully automatic measurement of reamers and precision boring tools with the superlative ZOLLER “pilot 3.0” image processing technology and the optional electronic measuring probe. Better, faster and simpler – simply do not exist!

Extend your “venturion” with the tailstock unit for tool holding between the points and/or the electronic measuring probe for tactile measurement. Now you can measure all machining tools including reamers fully automatically according to the oversize principle – fast, with a high level of repeatability, extremely easily and independently of the operator. The tailstock has the ZOLLER single-handed grip to enable the tail center to be positioned conveniently.

“reamCheck”: tailstock unit, electronic measuring probe and measuring programs, as well as setting of tools using the snap gauge principle, oversize principle and/or tools without guide pads.

Measuring program selection

Extensive range of measuring programs in “pilot 3.0” with photorealistic input dialog for simple operation and reliable nominal dimension specification.

Tactile presetting of the tool cutting edges

The analog dial gauge allows effortless and micron-precision tactile presetting of the tool cutting edges on face milling cutters in “pilot 3.0”.

Photo-realistic measuring programs for reamers

For measurement and presetting of most diverse reamers with μm precision, using the snap gauge principle, oversize principle without guide pads.

Tactile CNC-driven measurement

Radial presetting of the cutting edges on the perimeter with regard to the guide pads with double probe for simultaneous presetting of two measuring points (taper).

Measuring probe “mono” in horizontal position, for example for presetting reamers according to the oversize principle.

“duo” measuring probe in the horizontal position, for example for simultaneous presetting and measurement of diameters and tapering according to the oversize principle.

Fast and CNC-driven run-out or concentricity measurement on milling heads or CAP milling cutters.
Manual axis adjustment
The axes X and Z can be moved quickly and manually using the ZOLLER one-hand control handle.

Manual micro adjustment
Hand wheels for additional manual micro adjustment of the Z- and X-axis specifically for the tool inspection module.

CNC control unit
For an operator-independent, CNC-driven axis drive of the Z-, X- and C-axis and, thus, for fully automatic measuring cycles.

»pilot 2 m7«
The intuitive, state-of-the-art touch-screen technology impresses not only with intuitive handling but also with customizable settings.

»pilot 3.0«
The controller for high and complex manufacturing demands. »pilot 3.0« can be expanded due to its modular design and it always remains extremely user-friendly in spite of the comprehensive performance profile.

Measuring methods
Cutting edge inspection (standard)
For accurate inspection of wear and cutting edge chipping under incident light with 40-fold magnification of the tool cutting edge. For multi-insert cutting tools, inspection can be performed fully automatically using the »aec« software function.

Snap gauge (standard)
Diameter measurement according to the snap gauge principle for frictional and countersinking tools.

Center height measuring device (option)
For measurement of the center height of turning tools or for intended setting above or below the center height for optimum chip removal results.

Swiveling tool inspection (option)
For axial and radial inspection and testing of the contours for radii, angles, distances as well as of wear and much more under incident light, with 50-fold magnification of the tool cutting edge.

Measuring probe (option)
For fast and tactile measurement of concentricity and run-out of or for presetting of covered tool cutting edges.

CNC swiveling device (option)
For optimum measurement of helical tools.
All options for individual adaptation

Accessories and options

**Spindle options and accessories**

- **High-precision spindle SK 50/ vacuum clamping**
  - High-precision spindle SK 50,
  - Concentricity 0.002 mm,
  - Vacuum clamping device:
    - Spindle brake
    - 4 x 90° locking device

- **Universal high-precision spindle**
  - Concentricity 0.002 mm, power operated tool clamping,
  - Quick-change device for tool posts and clamping elements,
  - Tool post changing accuracy 0.001 mm

- **ace® high-precision spindle**
  - Concentricity 0.002 mm, quick-change device for tool posts, universal, power operated tool clamping for steep taper/ANSI/CAT/MAS-BT/HSK/Capto/KM and many more

- **Autofocus**
  - Automatic focusing of the tool cutting edge by means of the CNC control unit of the spindle (C-axis)
  - For operator-independent cutting edge focusing and automatic measurement of multi-insert cutting tools

- **Third axis with rotational encoder**
  - Fully automatic positioning of the spindle to the nominal angle and/or evaluation of the C-axis for measuring e.g. helical angle, pitch or wobble compensation

- **»asza« adjusting device**
  - CNC-driven adjusting device to set the length of tools by means of the stop pin or using rotation of the adjustment screw

**Data transfer options**

- **Data communication via „Network”**
  - Data transfer from »venturion« directly to the CNC machine, quick and easy at the push of a button

- **Tool identification »MSLZ«**
  - For manual reading/writing of the tool ID chip at the tool by means of the handheld reader

- **Write station »MSLE«**
  - For manual reading and setting of the RFID chips in the cap-head bolt or at the driving slot. For free mounting at the »venturion« or separately on a workbench

- **Automatic tool identification**
  - For automatic reading/writing of the tool ID chip in the driving slot on the tool

- **Tool identification »MSLZ«**
  - For manual reading/writing of the tool ID chip at the tool by means of the handheld reader

- **»ZidCode« with labels**
  - New tool identification by Balluff and ZOLLER: Free of errors and quick through simple printing of the data on the label and scanning of a dot matrix at the machine
Storage tray adapter and utensil tray
Storage trays for adapters, tool posts and utilities, variable mounting, available in one-, two- or three-row versions.

Adapter trolley
For storage of adapters or tool posts in close proximity to the tool presetter and measuring machine as well as safe transport.

USB camera
For creation of tool images, which can be saved directly in the database and assigned to the tool.

List printer
For printing out the measurement results, graphical images, for example cutting indentations or tables. Format: DIN A4

Thermal label printer
For printing out of the measured results or dot matrix code on adhesive paper or thermal labels.

Labels
Label printing of different parameters for example dot matrix code, measured results and many more.

17" TFT color display »satellit«
The 17" TFT display in the industrial design (without touch-screen) serves for ergonomically optimized and additional display of the cutting edge image directly behind the spindle specifically for presetting procedures.

ZOLLER »venturion 800«
The largest model of the »venturion« series is capable of measuring tools with a length of up to 1,600 mm and a diameter of 1,200 mm.
**ZOLLER »venturion« at a glance**

**Technical data**

<table>
<thead>
<tr>
<th>Device version</th>
<th>»venturion 450«</th>
<th>»venturion 600«</th>
<th>»venturion 800«</th>
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<tr>
<td>Length Z-axis</td>
<td>450/500/600 mm</td>
<td>600/650/1,000 mm</td>
<td>600/650/1,000/1,200 mm</td>
</tr>
<tr>
<td>Diamet X-axis</td>
<td>400/450/500 mm</td>
<td>440/540/720 mm</td>
<td>200/100 mm</td>
</tr>
<tr>
<td>Diameter snap gauge</td>
<td>600/800/1,000 mm</td>
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**Axis operation**
- Manual
- Electronic fine adjustment (dynamic crosshairs)
- Manual infinite micro adjustment
- CNC control unit X- and Z-axis

**Accuracy**
- Repeatability ± 2 μm ± 2 μm ± 2 μm
- Display accuracy ± 1 μm ± 1 μm ± 1 μm

**Tool holding fixture spindle**
- High-precision spindle SK 50/vacuum clamping
- Universal spindle/power-operated
- Spindle brake
- Spindle locking device ø x 180°
- Autofocus (rotary axis)
- Concentricity 2 μm 2 μm 2 μm

**Center height measuring device**
- Center height camera
- Tool inspection
- Swiveling incident-light camera
- Tool readjustment Z-axis

**Tool identification✨RFID chip**
- Manual tool identification »MSLZ«
- Manual read/write station »MSLE«
- Automatic tool identification

**Electronic system**
- (cockpit) » monitor »pilot 2.0« /touch operation
- (cockpit) » monitor »pilot 3.0« /operation by means of keyboard and touch-screen
- Cutting edge inspection / magnification /50 /150
- Network connection RJ45
- Data/output with format optimizer/ output format library
- Measuring programs - standard
- Measuring programs - optional
- Integration ZOLLER TMS Tool Management Solutions

**Accessories**
- Storage tray 1 row/2 rows/3 rows
- Adapter folley
- Adapter/tool post for SK/HEX/VDI and many more, Sit-stand
- Maintenance unit
- Thermal label printer
- List printer 08A4

1 up to Z 1200 mm
2 possible in combination with »pilot 3.0«

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**ZOLLER service, an overview:**

ZOLLER offers you unique support and service – worldwide. This starts with preventive maintenance for a long service life, precision and reliability. It is complemented by quality certificates, calibration services and targeted training measures to ensure that your hardware and software are always current. Extremely well trained and equipped ZOLLER service employees are available to install and service the measuring machines.

**Business Solutions – from A–Z**

Supplying quality at ZOLLER also means being there for you after the sale. With personal advice and with high quality maintenance models for your ZOLLER tool presetter and measuring machines. The ZOLLER Service Team with its specially ZOLLER-trained technicians is always at your call. For low downtimes and first class service.

**Service**

- Training and courses on numerous application fields
- Full service maintenance in contract
- ISO 9000 check with calibration certificate
- Measuring machine capability test
- Machine calibrations
- Proof of accident prevention regulations
- Software updates and hardware upgrades
- Modification and retrofitting of mechanical, optical and electronic components

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The competent ZOLLER hotline offers you support in all questions pertaining to applications and services. A call is all it takes.
ZOLLER solutions – comprehensive optimization of your manufacturing operations. ZOLLER combines hardware, software and services into individual system solutions to improve quality, efficiency and productivity. Customers of ZOLLER will benefit from our knowledge as a market leader in the field of tool measurement technology. As a family-run business, ZOLLER guarantees to provide a sustainable and competitive advantage thereby making a measurable contribution to your success.