

The Universal High-End Measuring Machine  
for Tool Manufacturers and Grinding Shops

**ZOLLER**  
expect great measures

titan





# We Stand for Smart Progress

## ECONOMICS

As a tool manufacturer or grinding shop, you have to deliver top quality. The high-precision, high-end measuring machine »titan« uses precise measurement data to provide you with unmistakable proof of the high manufacturing quality of your products – »titan«, the measuring machine for highest demands.

Prevent complaints and offer your customers perfect and documented quality. Every cutting tool is a specialist. Measuring it precisely and verifying its quality should be done by an expert. With ZOLLER »titan« you can measure over 100 parameters of your precision tools in 2D/3D up to the cutting edge preparation, contactlessly, fully automatically and impressively reliably. Every measured value provides you with the basis for improving the quality of your products.

State-of-the-art technology

Outstanding precision

Certified safety





# Tool Quality – Automatic and Precise

With »titan« you can keep pace with the constantly increasing demands on tolerances, delivery times and quality. Thanks to ZOLLER technologies, you and your customers can rely on the constant accuracy of your precision tools: »titan« makes process and quality assurance ingeniously simple.

ZOLLER »titan« enables simple, fast and profitable production processes: even highly complex measurements can be carried out fully automatically, independently of the operator and with an inspection report at the touch of a button. From random sample measurement to complete inspection, »titan« measures fully automatically and with  $\mu\text{m}$ -accuracy. With ZOLLER »titan« you get measuring technology at the highest level.



»titan«



ZOLLER – accredited calibration laboratory  
according to DIN EN ISO/IEC 17025:2018



Certified  
safety



Quality Management/Environmental Management  
according to ISO 9001, VDA 6.4 and ISO 14001



# We Stand for Passionated Precision

TECHNOLOGY

A »titan« is easy to handle and tough. The construction of the high-end measuring machine is designed for long measuring operations in multi-shift operation and shows its strengths particularly in air-conditioned surroundings:

Every »titan« is a promise – to our customers. Because a tool measuring machine only becomes outstanding when it makes its excellent precision available to everyone. ZOLLER »titan« achieves the best results thanks to high-end components, a unique axis concept and decoupled measuring technology as well as powerful software, extensive automatic functions and clever ergonomic elements. For example, the control unit »cockpit« can be individually adjusted to the operator's needs for user-friendly and comfortable working.

- Production at premium level
- Customer-oriented overall concept
- Maximal operating comfort



The drive concept stands for first-class precision. This is how we have made »titan« even better and more accurate – this is sensational and can be achieved thanks to the complex design of the axes and the hard stone.

**CHRISTIAN HANTKE**  
Part of the ZOLLER assembly team

Zoller\_Titan\_POE8820\_F39\_300.tif



# Perfection in Detail

## »titan« TÜV and UL/CSA Approved

Every »titan« measuring machine is certified according to international IEC/EN 61010-1 and cNRTLus standard.

Proven and certified safety.



**Incident light camera with multi-LED segment illumination and CNC swivelling device** – for the inspection and automatic measurement of tool geometries on the circumference, in the chip space and on the face. Simply enter the target parameters in the measuring program dialog and every measured variable is automatically measured and logged: rake angle, radial relief angle, flute contour, chamfer width and many other geometries. The high-performance LEDs, segmented into eight areas, are automatically controlled by the measuring system and ensure optimum illumination of the surface thanks to automatic intensity control – for high precision and repeatability. The sensor equipment is configurable.

**Transmitted light camera with multi-LED illumination** – with high-quality, low-distortion optics and telecentric transmitted light, enables the  $\mu\text{m}$ -precise measurement of cutting edge contours and step geometry in the silhouette with up to 5 Mpx. The camera has a high frame rate for fast focus and contour recording from the tool rotation. The multi-LED ring light ensures bright, high-contrast illumination of the cutting edge inspection in incident light.

**Space-saving and ergonomic sliding door** – reliably keeps out external influences such as dirt or extraneous light during measurement and can be optionally automated.

**High-precision spindle »tcs«** – guarantees  $\mu\text{m}$ -accurate holding and clamping of tools and fixtures. Adaptation to many tool holder systems is guaranteed by the universal adapter tool post changing system. The CNC drive with autofocus and precise angle measuring system offers automatic focusing of the tool cutting edge and recording of the cutting contour.

**Vibration decoupling** – the integrated, active vibration damping with automatic level control absorbs external vibration influences at the installation site.

**Separate electronics** – decouples electronic heat sources from the measuring process and enables optimum maintenance access.

**High-end design** – of hard stone for the linear axes up to the multi-sensor optics carrier.

**Software »pilot 4.0«** – is self-explanatory, clearly laid out and enables the operator to take reliable measurements. It offers a uniform user interface on all ZOLLER systems – right up to ZOLLER TMS Tool Management Solutions. The individual structure of the software allows customer-specific adaptations to be implemented quickly.

**Emergency stop control** – on the »cockpit« allows all motorized movements to be stopped simultaneously in order to further increase the high level of safety of the Uhing drives. The power supply to the electronic components is maintained, so there is no risk of data loss.

**Control unit »cockpit«** – offers the operator ergonomics and comfort through individual adjustment options. The »cockpit« can be adjusted in height and position and the 24" TFT color monitor can also be tilted.

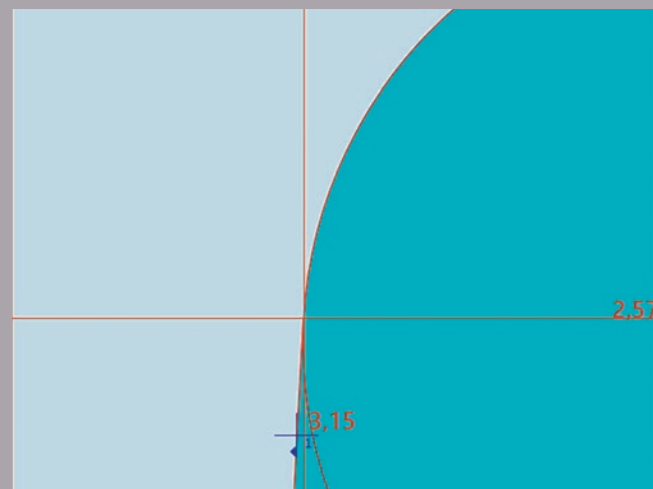
**Storage options** – for adapter tool posts and intermediate sleeves can be found in the integrated shelves: in the interior for intermediate sleeves and on the side for adapter tool posts. This means you always have your accessories to hand.



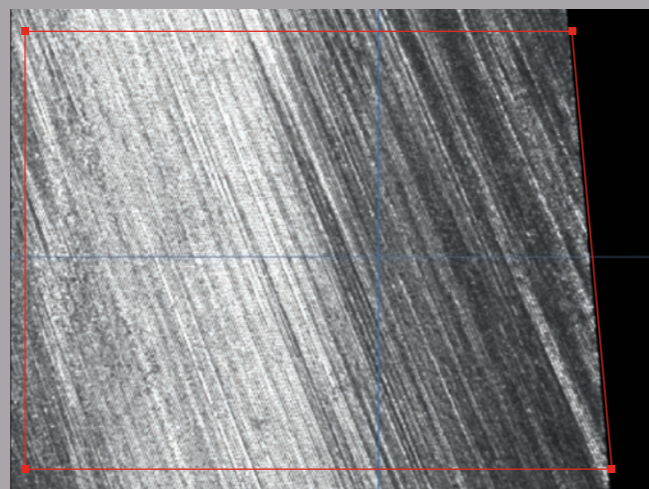


# High-Precision Optics for Tool Measurement Technology

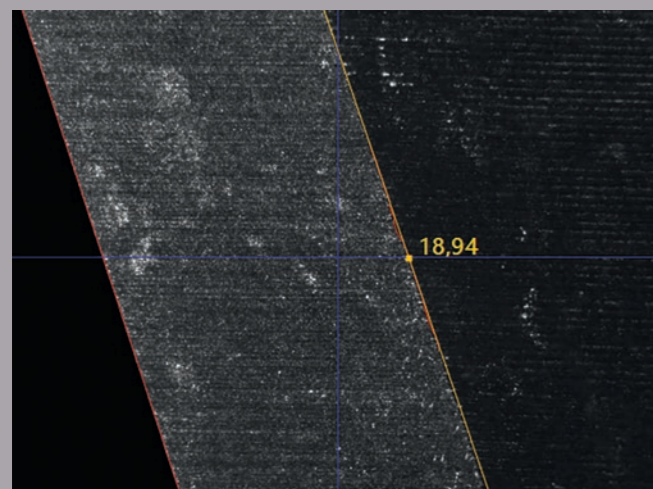
With »titan« you measure without contact in transmitted light and incident light – benefit from ZOLLER multi-sensor technology, optimally adapted to the special conditions of precision tools. The centered multi-LED ring lights ensure ideal illumination on every tool for inspections on the face, on the circumference and in the chip space. In addition, the measuring sensor »zep« measures the cutting edge preparation without contact. With ZOLLER »titan« you can measure almost anything on tools – precisely, fully automatically and without contact. No matter how complex the tool is.



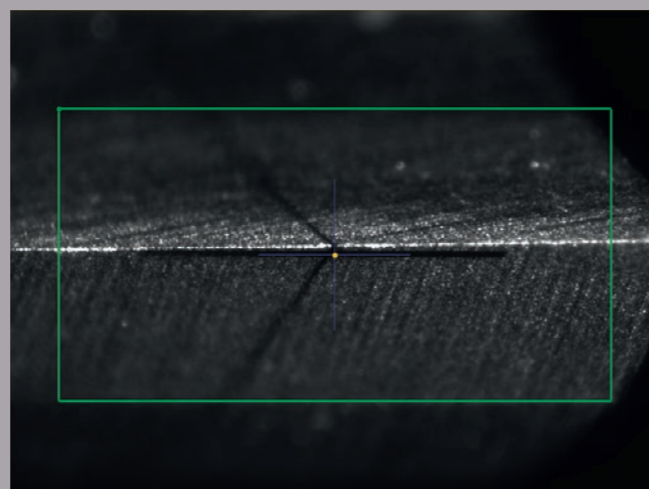
2D transmitted light measurement on the circumference



3D contour measurement in the chip space



2D incident light measurement on the circumference



Measurement of cutting edge preparation with »zep« sensor



Sensors configuration	
<b>Optics transmitted light</b>	
Transmitted light camera HR70, BF approx. 0.15 x 0.14"	●
Transmitted light camera 5 Mpx, BF approx. 0.21 x 0.19"	⊙
Transmitted light camera WF, BF approx. 0.61 x 0.55"	⊙

Sensors configuration	
<b>Optics incident light</b>	
Incident light camera HR70 Standard, BF approx. 0,04 x 0,03"	●
Incident light camera HR70 Micro, BF approx. 0.01 x 0.01"	⊙
»zep« sensor (Cutting edge preparation)	⊙
»zep-R« sensor (Cutting edge preparation/roughness)	⊙
»Z3dCam« sensor (Digitization)	⊙
<b>Tactile</b>	
Scanning probe	⊙

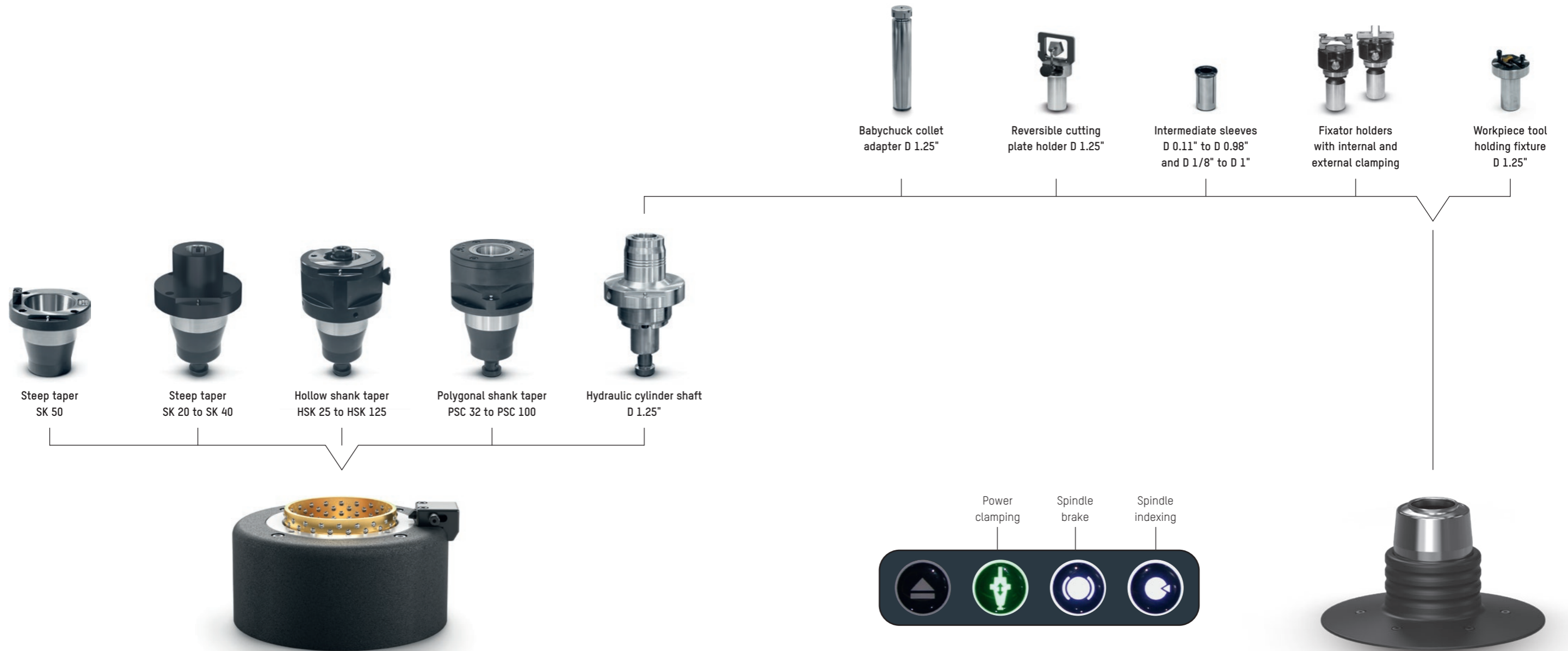
● Base model ⊙ optional



# High-Precision Spindle

## Advantages of the ZOLLER high-precision spindles

- Automatic user-independent clamping
- High radial/axial run-out accuracy
- Perfectly adjusted to your requirements



### High-precision spindle »tcs« – with power clamping and quick-change system

- Power-operated tool clamping – constant, independent of the user
- High axial and radial run-out accuracy – better than 2 µm
- Pneumatic spindle brake and indexing – for fixing the spindle in the desired position
- High changing accuracy of adapter tool posts – better than 1 µm
- Quick adapter tool post change – in less than 10 seconds
- Integrated calibration spheres on adapter tool posts – for simple, quick and precise determination of the spindle zero point

### High-precision spindle »ahd« – with automatic hydraulic clamping

- Power-operated tool clamping – constant, independent of the user
- Direct hydraulic clamping – reduction of interfaces
- High axial and radial run-out accuracy – better than 2 µm
- Pneumatic spindle brake and indexing – for fixing the spindle in the desired position



# »elephant 2.0« – Extremely Easy to Operate

The measuring program wizard »elephant 2.0« enables simple, user-independent measurement and parameterization of standard tools without entering the target data. Using the graphical selection dialog, the desired tool category can be selected and a specific measurement task can be activated. Typical parameters are available depending on the selected tool type.

## Advantages of ZOLLER »elephant 2.0«

- Execution of measurement sequences without special prior knowledge
- Simple selection dialog for defining tool categories
- Storage of measurement sequences in the database



The software »elephant 2.0« is based on innovative AI technology. Intelligent searches automatically determine the tool dimensions, including the number of cutting edges. The operator is graphically supported in positioning the cutting edge and measuring window. The tool measurement is then carried out fully automatically and the generated sequence can be saved for repeat measurements and supplemented as required, for example with tolerances.

**01.** Select **tool type**, e.g. end mill > end mill with corner radius

**02.** Select the desired **parameters**

**03.** Active **measurement** e.g. cutting contour corner radius

**04.** **Measurement results** (19 items, measured fully automatically and without data input/programming)

Measurement	Value	Unit	Ctrl	Unit
Radius	0.0000	mm		
Radius angle 1	120.000	°		
Radius angle 2	120.000	°		
Radius angle 3	120.000	°		
Radius angle 4	120.000	°		
Radius angle 5	120.000	°		
Radius angle 6	120.000	°		
Radius angle 7	120.000	°		
Radius angle 8	120.000	°		
Radius angle 9	120.000	°		
Radius angle 10	120.000	°		
Radius angle 11	120.000	°		
Radius angle 12	120.000	°		
Radius angle 13	120.000	°		
Radius angle 14	120.000	°		
Radius angle 15	120.000	°		
Radius angle 16	120.000	°		
Radius angle 17	120.000	°		
Radius angle 18	120.000	°		
Radius angle 19	120.000	°		



# Software »expert« – Intelligent, Simple, Ingenious

»expert« is the specialist for measurements on precision tools – based on the ZOLLER software »pilot 4.0«. The intelligent software generates the optimum measuring sequence from the selected parameters. Fully automatic, reproducible and with photorealistic parameter selection. The parameters to be measured can be selected easily, quickly and tool-specifically for the measuring program sequence using checkboxes. Simply select and confirm the parameters to be measured – and the measurement sequence starts.

Thanks to the high-resolution live image display, the navigation menu and the virtual ZOLLER joystick, the exact and unique definition of the parameters to be measured can be carried out reliably. The universal and operator-independent measuring program generator measures tools in transmitted and incident light, in the chip space, on the circumference and on the face geometry. »expert« enables fully automatic measurement sequences from random sampling to 100% inspection with minimum effort and complete transparency.

**Measuring program selection**

**Current camera image of the tool**

**Measuring window**

**Current position information of the CNC axes**

**2D measuring routine**

**Selection of measuring perspective, e.g. circumference, chip space and face**

**Photorealistic representation of the geometry to be measured on the tool for easy orientation**

**Selection of the parameters to be measured to define the nominal values and tolerances**

**Navigation display**

**Virtual joystick for aligning and positioning the sensors**

**Softkeys for tool clamping and control of the tool-holding spindle as well as manual axis clamping**

**Function buttons with self-explanatory icon**

Option	Nominal value	Tol.	Para.
<input checked="" type="checkbox"/> Focus	180°00'00"		
<input type="checkbox"/> Ref tooth search			
<input checked="" type="checkbox"/> Helix angle	40°00'00"		
<input checked="" type="checkbox"/> Protect.land angle	4°00'00"		
<input checked="" type="checkbox"/> Radial relief angle 1	16°00'00"		
<input checked="" type="checkbox"/> Radial relief angle 2	30°00'00"		
<input type="checkbox"/> Radial relief angle 3			
<input checked="" type="checkbox"/> Radial land width	0.1000		
<input checked="" type="checkbox"/> Radial land width 2	0.5000		
<input type="checkbox"/> Tooth width			
<input type="checkbox"/> Flute width			
<input type="checkbox"/> Tooth height			
<input type="checkbox"/> Tooth height 2			

**Z** 148.0189  
**X** -52.6050  
**C** 198.9856  
**Y** 72.9130  
**B** 0.0000  
**E** 0.0000

Membrane keypad: CLAMP, BRAKE, INDEX, STOP, STOP, STOP, DOOR  
 Joystick: Virtual joystick for aligning and positioning the sensors  
 Messages: [Icons]  
 Default settings: [Icons]  
 Advanced: [Icons]  
 Illumination: [Icons]  
 F1: [Checkmark], F2: [List], F3: [List], F4: [List], F5: [List], F6: [List], F7: [List], F8: [List], F9: [List], F10: [List], F11: [List], F12: [X], LiveWin, Help

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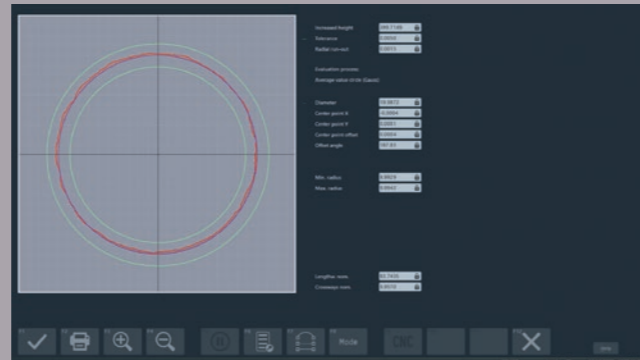
# Software Functions for Maximum Performance

## Further measuring programs at a glance:

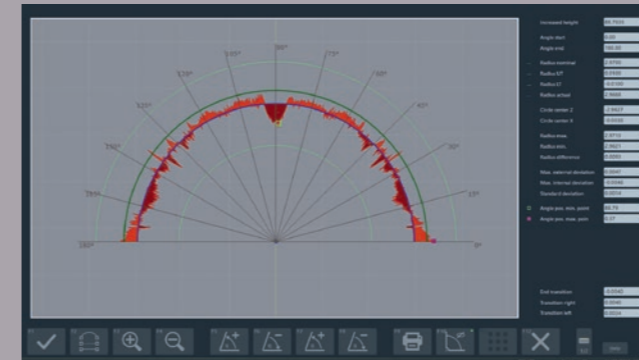
- »metis«-Interpreter
- PCD face and corner milling cutters
- Thread cutter (incident light)
- Thread cutter (transmitted light)
- PSC contour measurement
- Variable helix pitch
- Axial run-out
- Christmas tree cutter
- Concentricity thread
- Flank difference face
- HM deep hole drilling heads
- Skiving cutter
- Grinding wheels/packages
- Saw blades
- Cylindricity/taper
- Radius contour »contur« (sector)
- Radius contour end mills (sector)
- »apus«-Calculator
- Radius concentricity
- Roundness measurement

## Further software functions at a glance:

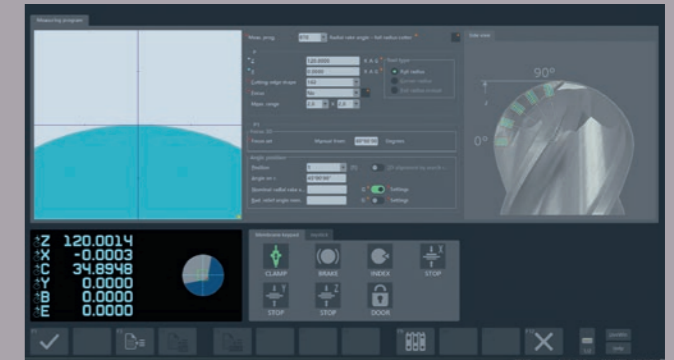
- Collective report
- Customer-specific test report
- File logging
- Concentricity and wobble compensation
- Cutter template package
- Drill template package
- Expert template KenTIP
- Cutting edge symmetry and angle
- Symmetry drill head
- Reference tooth via helix angle
- Chisel edge length-face-1MF
- Cut-out length-face
- Corner radius step tools
- Contour correction »coCon«
- Macro editor »lasso«
- »metis«-Generator
- Microsoft SQL server database interface



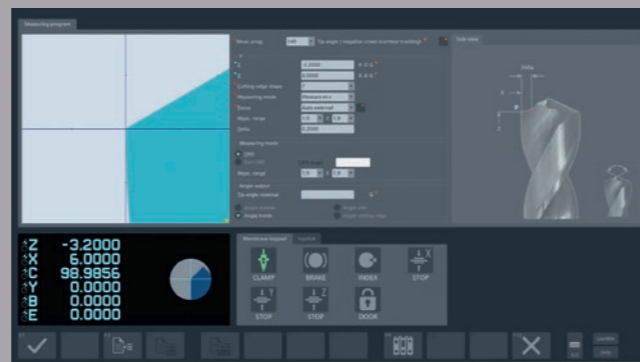
**Concentricity check 360°** – to automatically determine the radial run-out on circular surfaces (e.g. tool shank) and graphically evaluate the entire contour.



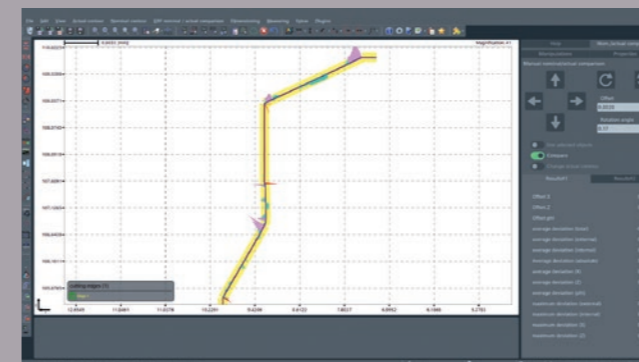
**Radius contour »contur« with graphic** – for automatic determination of concave and convex radii on the outer contour of tools including adjustable angle sectors with graphic evaluation.



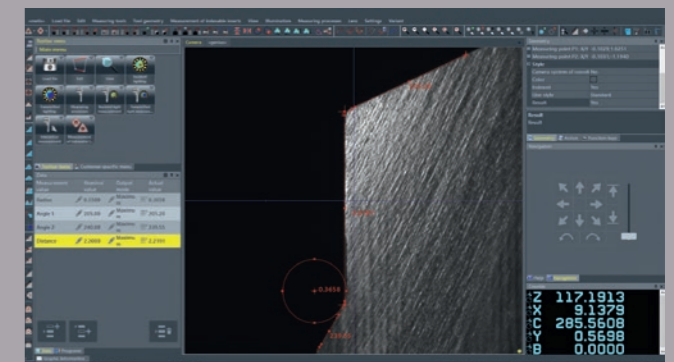
**Rake angle on radius cutters** – determines the rake angle in the radius segment at the specified angles. Suitable for die, corner and full radius cutters.



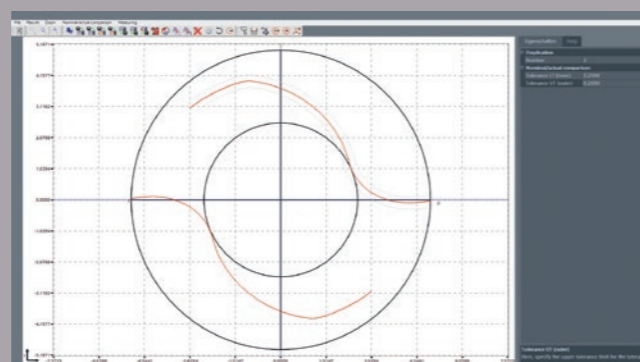
**Point angle with hollow grinding** – is determined on drilling tools and hollow-ground tool cutting edges from the starting point (outside diameter) to the tool tip or the defined end point by contour tracking.



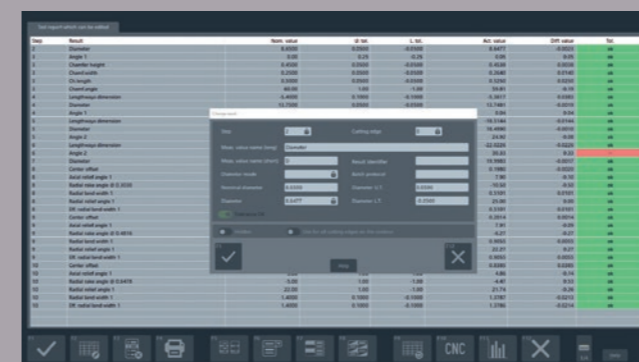
**Contour measurement »lasso«** – to scan any tool and workpiece contours and perform a nominal/actual comparison or dimensioning of the contour.



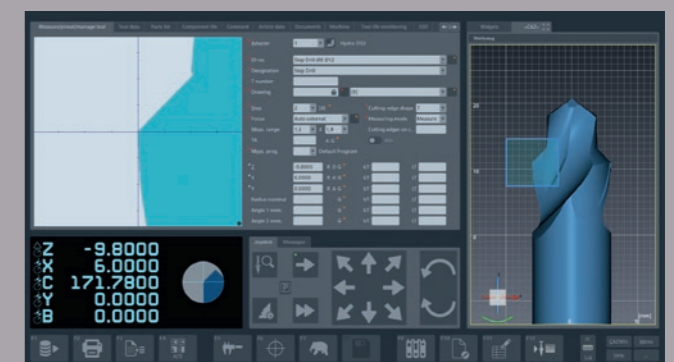
**Tool analysis »metis«** – measures and documents any contours, radii, angles, distances and defects (wear) in incident light.



**Flute/chip space scan** – automatically scans the flute/chip space contour without contact and displays it graphically.



**Editable inspection report »apus«** – to display all measurement results including designations, nominal values, tolerances and much more in tabular form and flexibly in the layout.

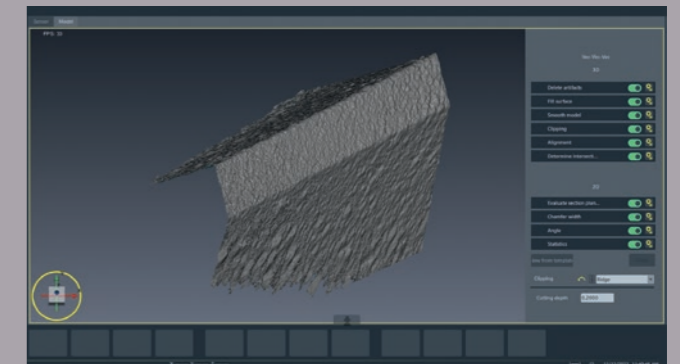
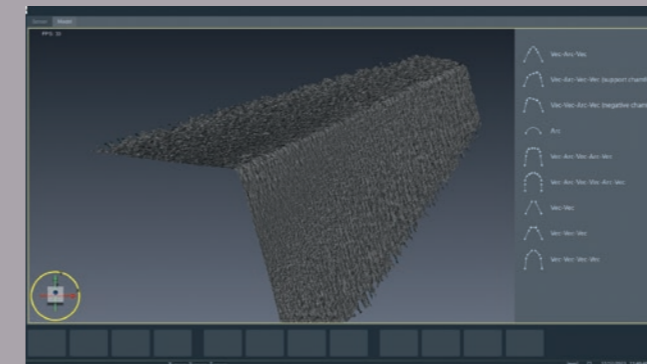
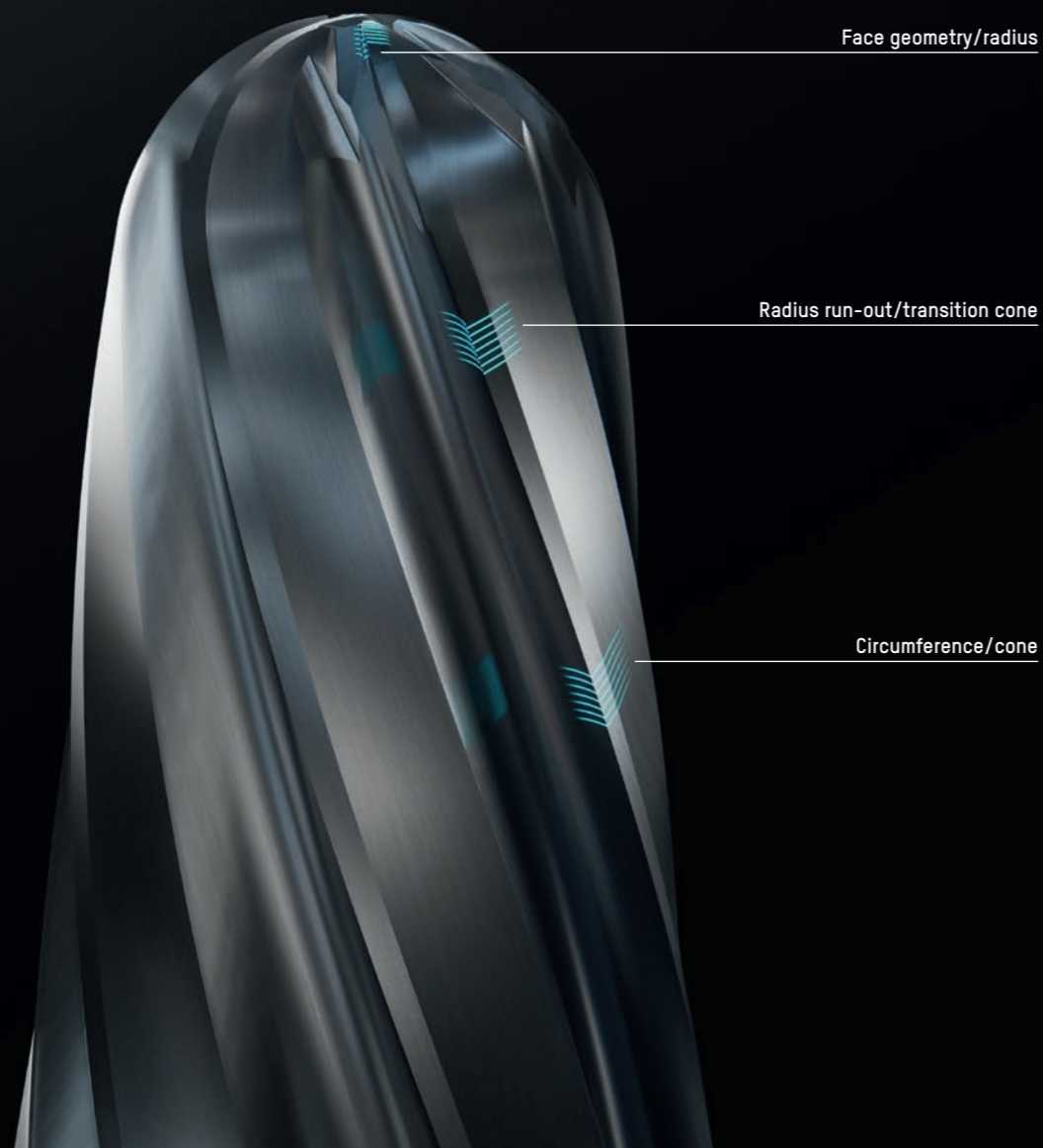


**ZOLLER »caz«** – the virtual measuring device for PC workstations for external creation of the inspection and measuring process including measuring programs, nominal values and tolerances using the 3D model of the tool before it is manufactured.

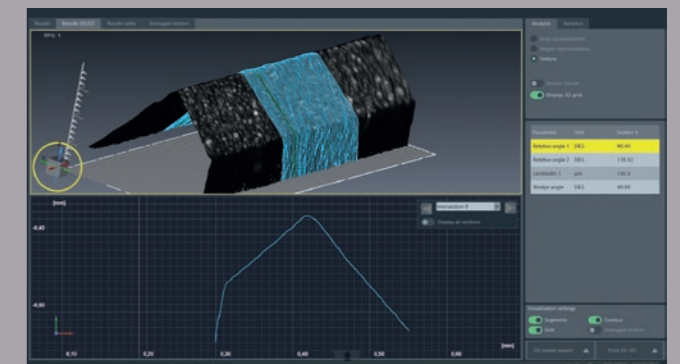
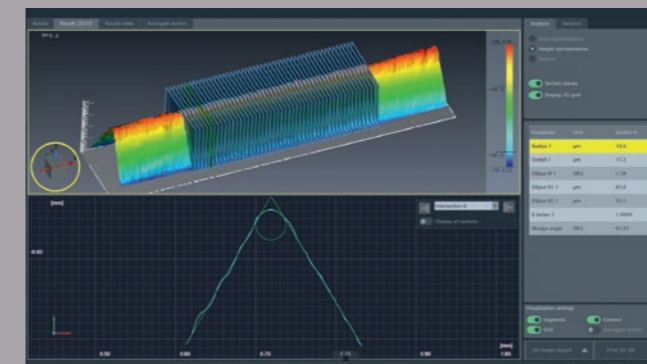


# Software »skp« – Individual, Safe, Precise

In order to achieve an optimum tool life as well as efficient and precise cutting performance of cutting tools, a defined preparation of the cutting edges is crucial. The control and optimization of the cutting edge preparation and its reliable and detailed documentation are playing an increasingly important role here. ZOLLER »titan« with the CNC-controlled swivelling measuring sensor »zep« and the software »skp« measures the most varied forms of cutting edge preparation quickly, contact-free and fully automatically.



**Cutting edge preparation** – three-dimensional representation of the cutting edge geometry recorded with the »zep« sensor for visual inspection. Templates for automatic evaluation are available for various shapes. Each template includes special algorithms whose parameters can be adapted individually and user-friendly.



**Cutting edge preparation** – automatic evaluation of the 3D contour and determination of all relevant measured values (per shape type) over a freely definable number of cutting planes. Cutting edge can be displayed in various modes (topographical, grayscale, texture).

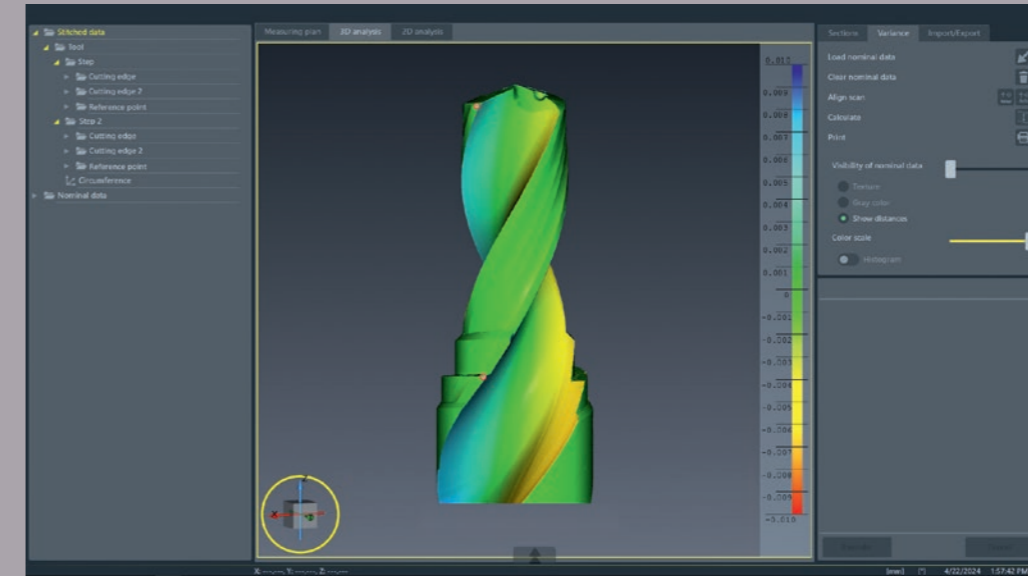
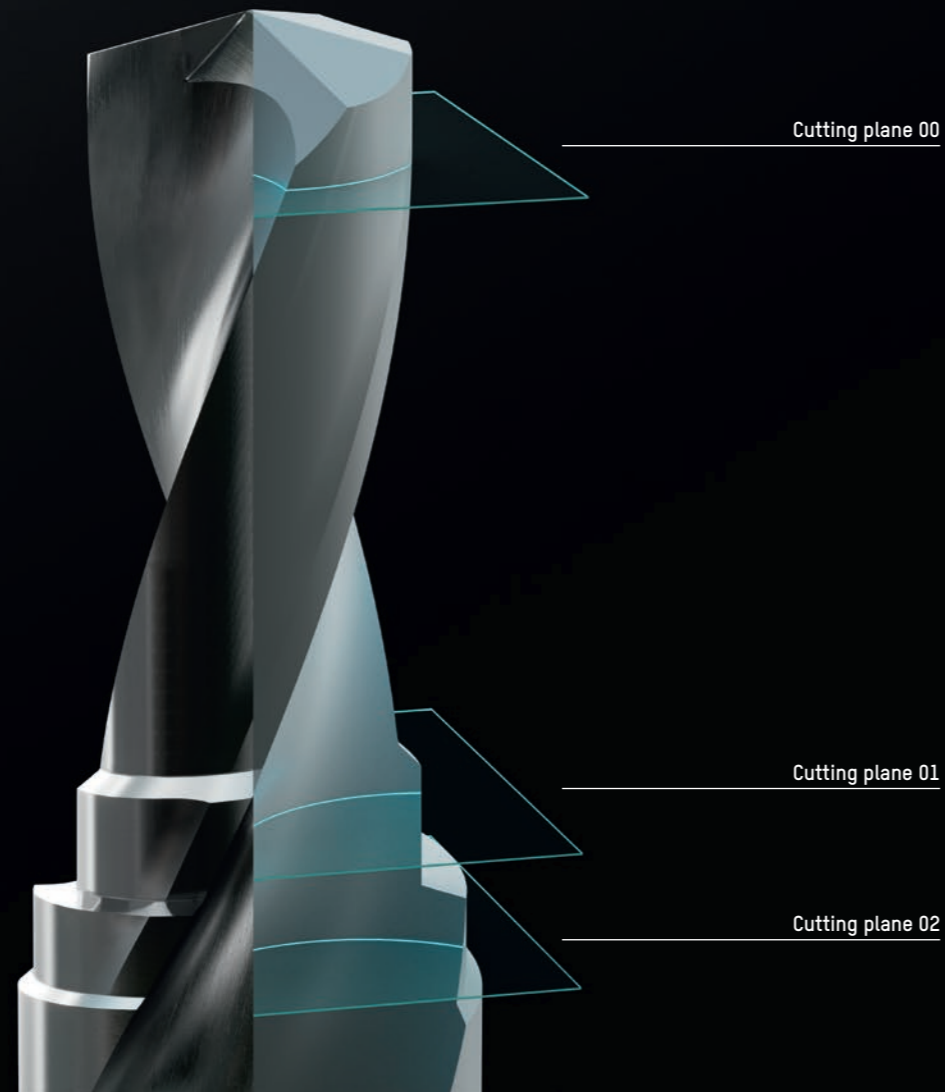


**Cutting edge preparation** – graphical display of the results across all cutting planes and detailed display of the selected cutting plane.

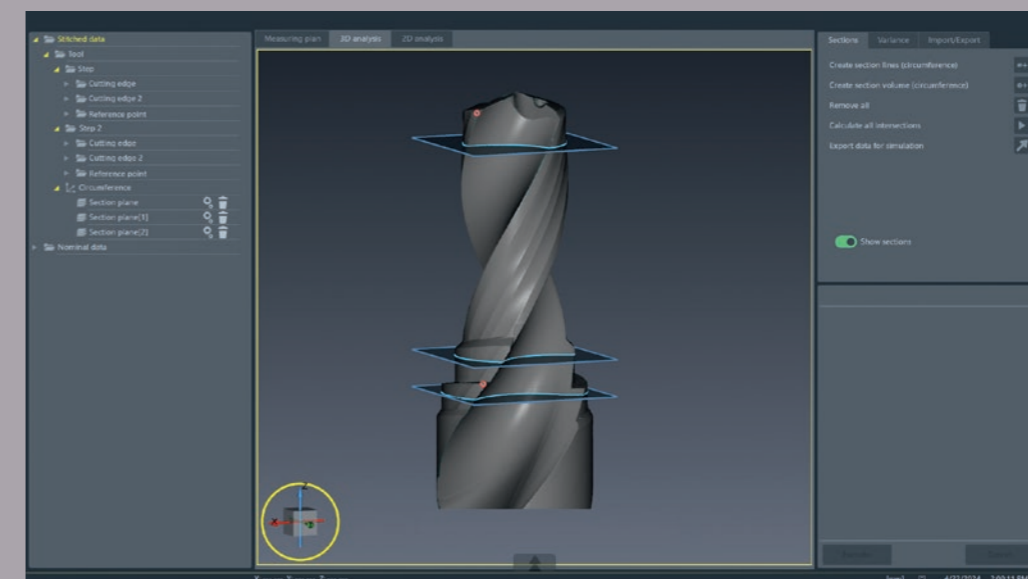


# »titan« Becomes a Groundbreaking 3D Pioneer

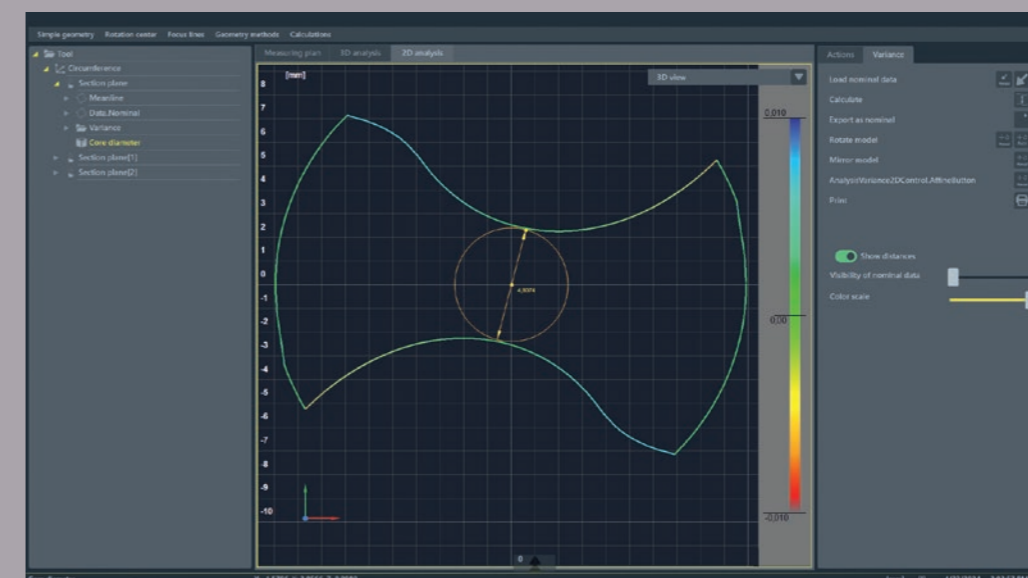
On the way to 3D digitization: Your ZOLLER »titan« becomes a ZOLLER »3dCheck« with the optional 3D sensor »Z3dCam«. 3D digitization of precision tools is getting increasingly important in the manufacturing process, particularly in the areas of reverse engineering, quality assurance and R&D – right through to tool inspection. With »3dCheck«, the perfect inspection machine for fast, process-oriented and fully automatic digitization of tool geometries, you can measure contactlessly – without damaging the tools. Time-saving real-time image transmission, the convenient and intuitive ZOLLER software »pilot 4.0« and the option of exporting 3D measurement data in standardized format to the customer's own CAD system for further processing are the hallmarks of the ZOLLER »3dCheck« system.



**Topographical 3D nominal/actual comparison** – with color labeling and weighting of the geometric deviations over the entire tool surface. This enables faster and targeted intervention in the manufacturing process.



**3D analysis** – of the scanned tool contour with the option of defined cutting planes for continuing detailed 2D analysis. The 3D measurement data can be saved in the standard .stl format into the customer-specific CAD system for further processing.



**2D analysis** – shows the defined cutting plane as a 2D contour and enables the nominal/actual comparison with color labeling and weighting of deviations. For further analysis, additional measurements can be carried out on the 2D contour.



# Options/Accessories

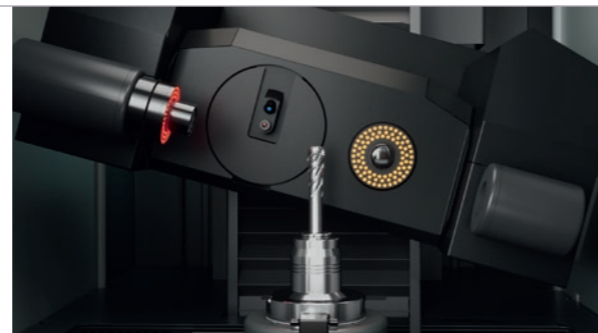
## Automatic sliding door

Before starting the measuring process, the sliding door of the measuring machine can be conveniently and easily closed pneumatically via the software and opened again once the measuring process is complete.



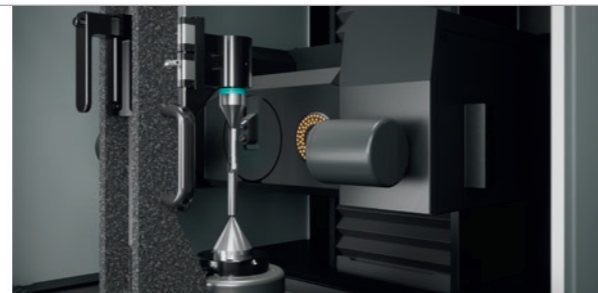
## »orthoScan«

The swivelling multi-sensor optics carrier »orthoScan« always finds the perfect viewing angle on the tool. This means that the cutting edge geometries of tools with a pitch, such as taps or hob cutters, can be measured without distortion.



## Tailstock counter point

With a clamping range of 300 mm for holding tools between points and for measuring exclusively using the snap gauge principle. The tailstock is removable and equipped with high-precision Hirth serration as an interchangeable interface.



## Scanning probe

For electronic tactile measurement of, for example, the thread relief on taps. Available with probe inserts from D 0.3 mm to D 2 mm.



## Measuring and inspection tools

For periodic on-site inspection of the measuring machine and to verify the accuracy of transmitted and incident light measurements, ZOLLER offers appropriate measuring and inspection tools for your measuring machine, such as test mandrels, diameter and angle test gauges.



## Safety package

Important operating elements are located on the front of the measuring machine. This means you always have unrestricted access to the emergency stop switch, the reset button, the membrane keypad and the button for starting measurement processes.



## Manual RFID read/write station »mslz«

For manual writing/reading of the code carrier on the tool holder using a handheld reader.



## UPS system

The UPS system for uninterruptible power supply ensures that your computer is shut down properly in the case of a power failure to prevent data loss. Mains voltages of 230 V~ (Europe) or 120 V~ (USA) are available.





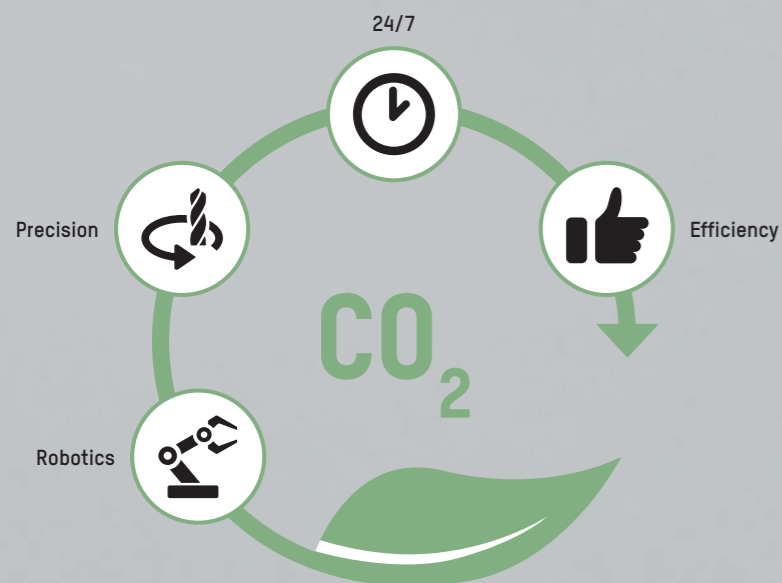
# Intelligent 24/7 Presence

ZOLLER »roboSet 2« – automates your »titan«. Cleans, loads, labels and organizes your tools completely without manpower.

After loading the pallets with tools, the automatic intermediate sleeve change starts. In the upstream tool cleaning »roboClean« the tools are cleaned in an ultrasonic bath before they are clamped and measured in the ZOLLER »titan«.

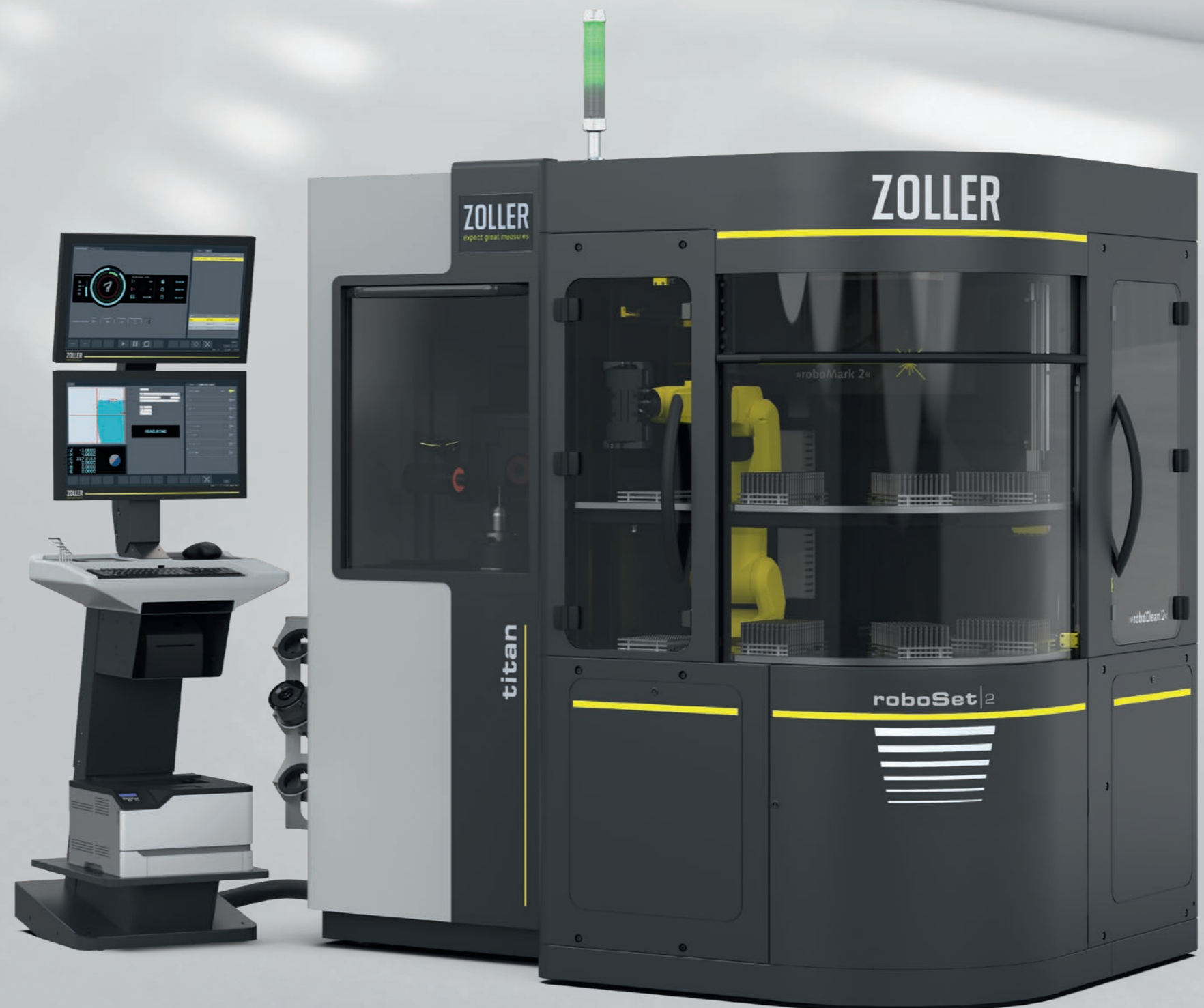
All measurements are fully documented. After measurement, the tools are marked with ZOLLER »roboMark« – a laser flexibly marks the shank of the tool within milliseconds with values and other data individually determined during the measuring process.

**This is how ZOLLER sustainability works:** With the »roboSet 2« you manufacture in a climate-conscious way and maximize the overall efficiency of your processes. Let modular robot precision work for you: Automated technology – state-of-the-art, flexible, 24/7.



## Advantages of ZOLLER »roboSet 2«

- Automatic measurement and inspection, 24/7
- High loading capacity
- Flexible pallet management system





# »roboSet 2« Functionality

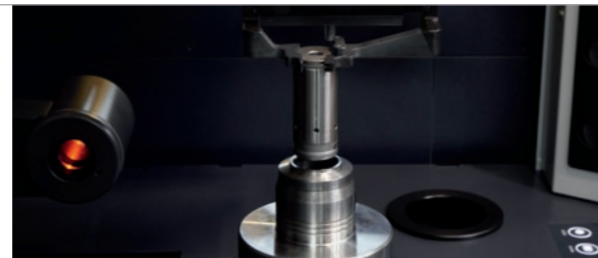
## Robot

The robot integrated in the »roboSet 2« makes it possible to guarantee a high tool throughput 24/7 without an operator. The robot performs even complex and lengthy measuring tasks independently – maximum process reliability and measuring accuracy are always guaranteed. The integrated force/torque sensor also offers you the option of reliably inserting shank tools into tight fits such as intermediate sleeves.



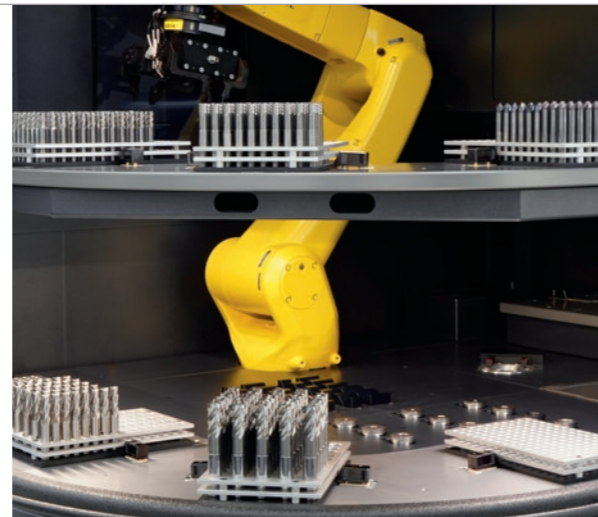
## Automatic intermediate sleeve change

The intermediate sleeves are changed fully automatically. This makes it possible to measure and document different tool types within a pallet management system and even within a pallet.



## Pallet management

Before the Automation Solution »roboSet 2« can start its work process, only the loading of the tools via the pallet management has to be defined by an operator in the software »pilot 4.0«. Thanks to the multi-pallet system (eight pallets as standard, nine as an option), large quantities can be processed and documented fully automatically. Overall, well-organized pallet management makes a significant contribution to process optimization, provides flexibility to handle different batch sizes and helps to move goods more efficiently and sustainably.



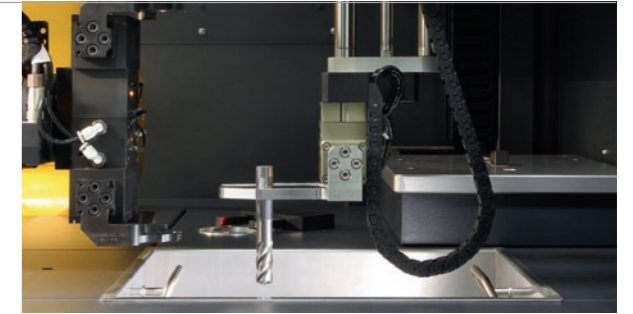
## Camera for process monitoring

Thanks to an integrated camera, which is available as an option, any irregularities that occur can be rectified more quickly and specifically by ZOLLER service personnel.



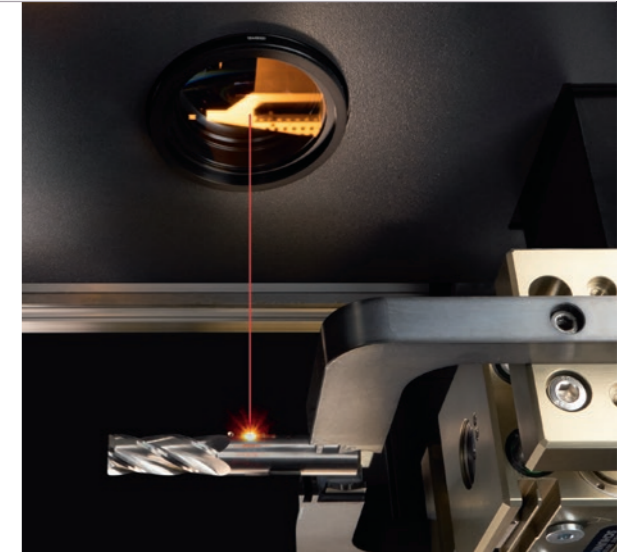
## »roboClean«

In the upstream tool cutting edge cleaning »roboClean« the cutting edges of pre-cleaned shank tools are cleaned fully automatically in an ultrasonic bath and dust is removed. Air nozzles then make sure that the shank tools are dried. This ensures precise measurement results.



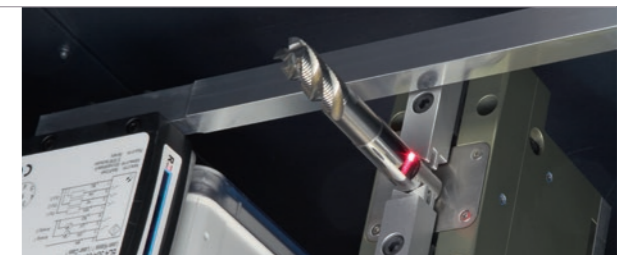
## »roboMark«

The ZOLLER laser marking system »roboMark« is used to mark tools that have been measured within tolerance, either on the circumference or the end of the shank. The marking itself is individual and offers many different setting options. QR or DataMatrix codes can also be applied without additional effort and enable traceability of the respective tool via the link to the tool database.



## Weldon detection

Within the »roboSet 2« automatic and contactless weldon detection takes place. The tool is aligned accordingly so that it can be safely picked up by the robot and labeled with »roboMark« at the appropriate position.



## QR code recognition

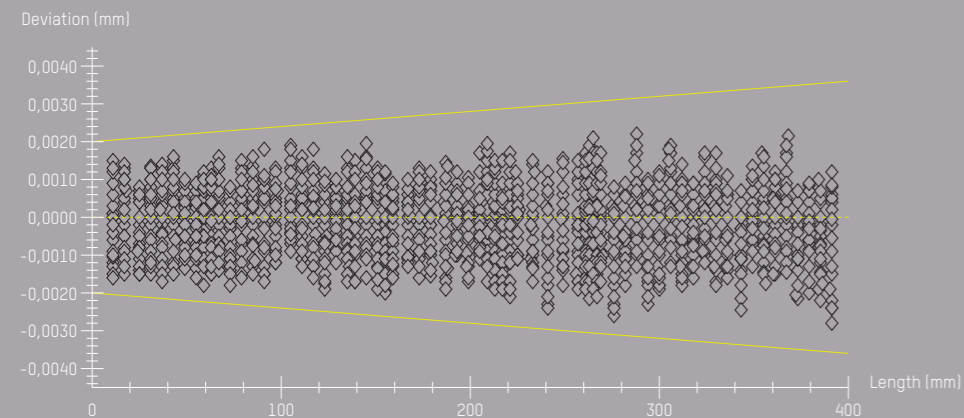
During automatic tool recognition, QR codes, Data Matrix codes, etc. are read via an integrated scanner. Thanks to the interface to ZOLLER TMS Tool Management Solutions, all information on the scanned tools is accessible and links to external workstations (e.g. to the regrinding counter) can also be implemented.



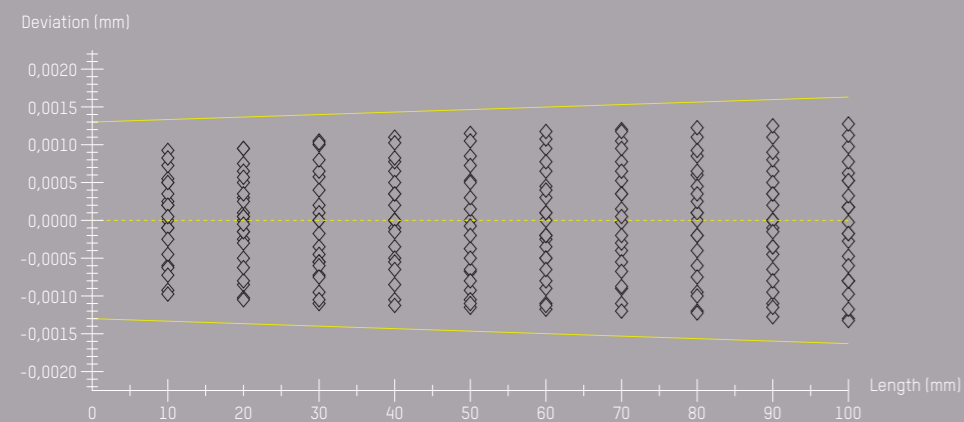


# Two-Dimensional Guaranteed Quality

The demands in quality management are constantly increasing. Therefore, you must be able to rely on the constant measuring deviations of your machines. In ZOLLER measuring machines, high-precision calibration standards made of Borofloatglas® are used to determine the length measurement deviations based on the DIN EN ISO 10360 standard. In accordance with this standard, at least three measuring sequences (25,326 relationships) are carried out. With this procedure, the accuracy of the ZOLLER measuring machines is documented in two dimensions and can be traced at any time.



**Two-dimensional** – based on DIN EN ISO 10360,  $E_{xy} = 2.0 \mu\text{m} + (L/250 \text{ mm}) \mu\text{m}$



**One-dimensional** – according to VDI/VDE 2617,  $E_x = 1.3 \mu\text{m} + (L/300 \text{ mm}) \mu\text{m}$





# Process Optimization – Precisely Networked

ZOLLER has developed world-leading networking options and interfaces for tool data. Thanks to intelligent networking processes, the µm-precise measurement data from the ZOLLER measuring machine »titan« unleash their full potential. The tool grinding program is created from the CAD/CAM data of a new tool at the programming station and the grinding process is simulated. The program is sent to the grinding machine and to the ZOLLER measuring machine. ZOLLER generates a fully automatic measuring sequence for you, you do not need any programming knowledge. The measuring machine then determines the deviations between the nominal and actual data for the first ground tool and transfers the adjustments to the grinding machine. Series production begins with the second tool. ZOLLER generates a fully automatic measuring sequence for you, you do not need any programming knowledge. The measuring machine then determines the deviations between the nominal and actual data for the first ground tool and transfers the adjustments to the grinding machine. Series production begins with the second tool.

The basis for smooth processes are the ZOLLER interfaces, which open up completely new savings potential and productivity increases.

ZOLLER measuring machines communicate with the following control systems:



As well as other specific interfaces

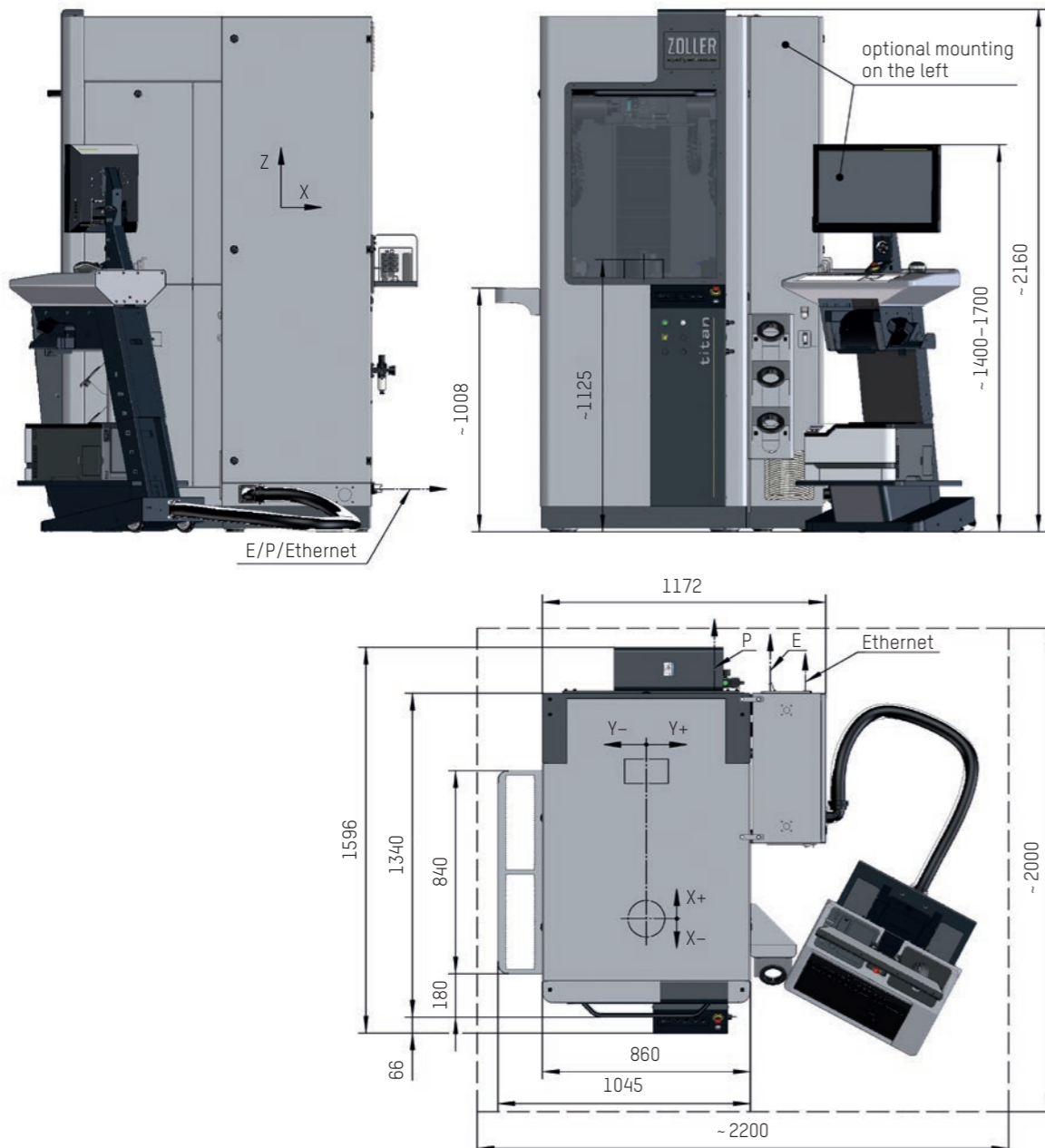


- 1 Definition of the tool/programming/data transfer
- 2 Creation of the measuring sequence in »caz« or on the measuring machine
- 3 Grinding of the first tool and transfer to the measuring machine
- 4 Tool measurement and transfer of the correction values
- 5 Series production with random sampling or 100% inspection
- 6 Delivery with inspection report

# Installation Dimensions and Technical Data

Technical data »titan«

Maximum tool length Z	Maximum tool diameter D	Maximum snap gauge diameter d	Number of axes	Weight
600 mm	230/100 mm	100/75 mm	5-7	~ 1400 kg



Application	
<b>2D parameters Incident light</b>	
Diameter standard 2-100 mm	●
Micro tools 0.1-10 mm	⊙
<b>3D parameters incident light</b>	
Partial	●
Surface-related	●
<b>Measuring tasks</b>	
Cutting edge preparation	⊙
Roughness	⊙
Threading tools	⊙
Sensors configuration	
<b>Optics transmitted light</b>	
Transmitted light camera HR70, BF approx. 0.15 x 0.14"	●
Transmitted light camera 5 Mpx, BF approx. 0.21 x 0.19"	⊙
Transmitted light camera WF, BF approx. 0.61 x 0.55"	⊙
<b>Optics incident light</b>	
Incident light camera HR70 Standard, BF approx. 0.04 x 0.03"	●
Incident light camera HR70 Micro, BF approx. 0.01 x 0.01"	⊙
»zep« sensor (Cutting edge preparation)	⊙
»zep-R« sensor (Cutting edge preparation/roughness)	⊙
»Z3dCam« sensor (Digitization)	⊙
<b>Tactile</b>	
Scanning probe	⊙

Measuring machine configuration	
<b>Spindle</b>	
High-precision spindle »tcs«	●
High-precision spindle »ahd«	⊙
Hollow encoder	●
<b>Linear drive</b>	
Positive locking ball screw	●
X-, Y-axis in cross table design	●
<b>Optics drive</b>	
Swivel axis incident light	●
Swivel axis incident light & transmitted light	⊙
<b>Vibration damping</b>	
Integrated, active with level control	●
Leveling element on machine feet	●
<b>Material</b>	
Hard stone	●
<b>Accuracy</b>	
$E_{xy} = 2.0 \mu\text{m} + (L/250 \text{ mm}) \mu\text{m}$	●
$E_x = 1.3 \mu\text{m} + (L/300 \text{ mm}) \mu\text{m}$	●

Note: P Air connection, ø 6 E Electrical connection Installation dimensions in mm

● Base model  
⊙ optional



# Pioneering Efficiency for your Grinding Shop

The highest efficiency potential lies outside the grinding machine: ZOLLER Solutions stand for your future – we make you more successful. Because if you manufacture faster and more efficiently, you work more economically in order to be able to invest in the future. If economic progress is your goal, then ZOLLER is your partner.





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Your Advantage  
**ZOLLER presence**  
Global. Close. Personal.

ZOLLER quality is “made in Germany” – and there for you, anywhere in the world.

Our company has its own locations and branches at 85 sites in 62 countries, guaranteeing we are close to customers and can provide first-class, personal customer service in local markets.

- Parent company
- Headquarters
- Branch office
- Representative

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# ZOLLER Solutions

More speed, higher quality, safe processes – with ZOLLER, you increase the efficiency of your production. ZOLLER offers you outstandingly precise devices for adjusting, measuring and testing cutting tools, software, interfaces, cloud services and solutions for the automation of tool processes. You can combine all of this to create your individual system solution – on your way to the smart factory.

Presetting & Measuring

Tool Management

Inspection & Measuring

Automation

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Everything for your Success.  
Everything with ZOLLER Solutions.

**ZOLLER**  
expect great measures

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