ZOLLER

expect great measures

The Must-Have for Professional
Tool Presetting and Measuring

smile



Success is a Question of Attitude

If you are looking to secure and expand your success, then »smile« is the solution. The advantage of these professional presetting and measuring devices lies in their simple, safe and ergonomic operation and in their versatility: With a comprehensive range of equipment options, »smile« offers solutions for every possible demand.

With »smile« you always benefit from fast, high-precision measurements and precisely set tools. This means more speed, less machine downtime and higher quality in your production. There are plenty of reasons to face the challenges of production with a »smile«.

»smile«



02 BENEFITS »smile«
08 QUALITY & ERGONOMICS
18 SOFTWARE
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36 SERVICE & DATA

Heroes of the Workshop

Pass every endurance test: With a base made of a light metal alloy specifically developed for measuring instruments and equipped with high-quality brand-name components, »smile« devices are extremely robust and long-lasting. From mid-sized companies to large-scale production – thanks to its various sizes, electronic and equipment options, »smile« is ideal for everyday use in every production environment – even right next to the CNC machine.



»smile 320«

Software »pilot« | 13"-Monitor



»smile 420«

Software »pilot« | 17"-Monitor



»smile 620«

Software »pilot« | 24"-Monitor

Technical Data: »smile«

Maximum Tool Length Z	Measuring Range, X Axis	Maximum Tool Diameter D	Maximum Snap Gauge Diameter D
350 (13.8 inch) / 420 (16.5 inch) / 600 (24.4 inch)* / 800 (31.5 inch)*[1] mm	160 mm (6.3 inch) / 210 mm (8.3 inch) / 310 mm (12.2 inch)*	320 mm (12.6 inch) / 420 mm (16.5 inch) / 620 mm (24.4 inch)*	0 / 70 mm (2.8 inch)[2] / 100 mm (3.9 inch)

* optional 1) Measuring range Z axis 800 mm (31.5 inch) is only possible in combination with the table system. 2) With the selection of the optic carrier standard with tool inspection.

Measurably More Profit

With »smile« you save time, reduce tooling costs and increase process reliability.
How does it work? It's simple: With preset tools, you reduce set-up time on the machine and increase productivity. With optimally set tools you achieve longer tool life, and with defined outer contours you avoid machine crashes. In addition, the digital transmission of the tool data guarantees secure, error-free data input.

Still not convinced? With the central z.One tool database and the ZOLLER TMS Tool Management Solutions, you ensure that your maximum savings potential is achieved. In doing so, the search for tools comes to an end, and the tools are in the right place at the right time. With this combination you save on average EUR 25,000 per year per machine*.

***Sample calculation:**
Machine investment costs of €200,000 | Machine hourly rate €75

€4,000	Savings on tool costs per year
+ €6,000	Productivity increase as a result of ZOLLER tool management
+ €15,000	Productivity increase as a result of ZOLLER presetting and measuring devices
= €25,000	**Profit per year per machine**

With ZOLLER »smile« you can achieve a saving of EUR 15,000 per machine, per year and shift (EUR 25,000 with ZOLLER TMS Plus).



Wilhelm Rau, Technician at ZOLLER

When it comes to quality, we’re well ahead of the game...

... because at ZOLLER, we really only use the best components.
I assemble “my” devices myself, calibrate them, check the electronics – and then, only when I'm 100% satisfied, does the machine get the seal of quality and my picture and name on it. I personally stand by the fact that the device is second to none. Our customers can be sure they’re getting the best. I’m proud of that.”

10 Quality Components
12 Ergonomic Work
14 ZOLLER SK 50 High-precision Spindle
16 ZOLLER »pcs« High-precision Spindle

Highest Quality for Long-lasting Precision

ZOLLER focuses consistently on quality: Thanks to high-quality brand-name components and careful assembly, you can rely on your ZOLLER device for a long service lifetime and lasting maximum precision.

Device tower – precisely aligned with the spindle for accurate measuring results.

Cable drag chains – for reliable functionality despite continuous load, as cables can not get caught, ripped free or kinked.



THK guides – smooth-running and precisely aligned – the ideal base for device tower and optics carrier. With THK guides, the tower and carrier are correctly aligned automatically.



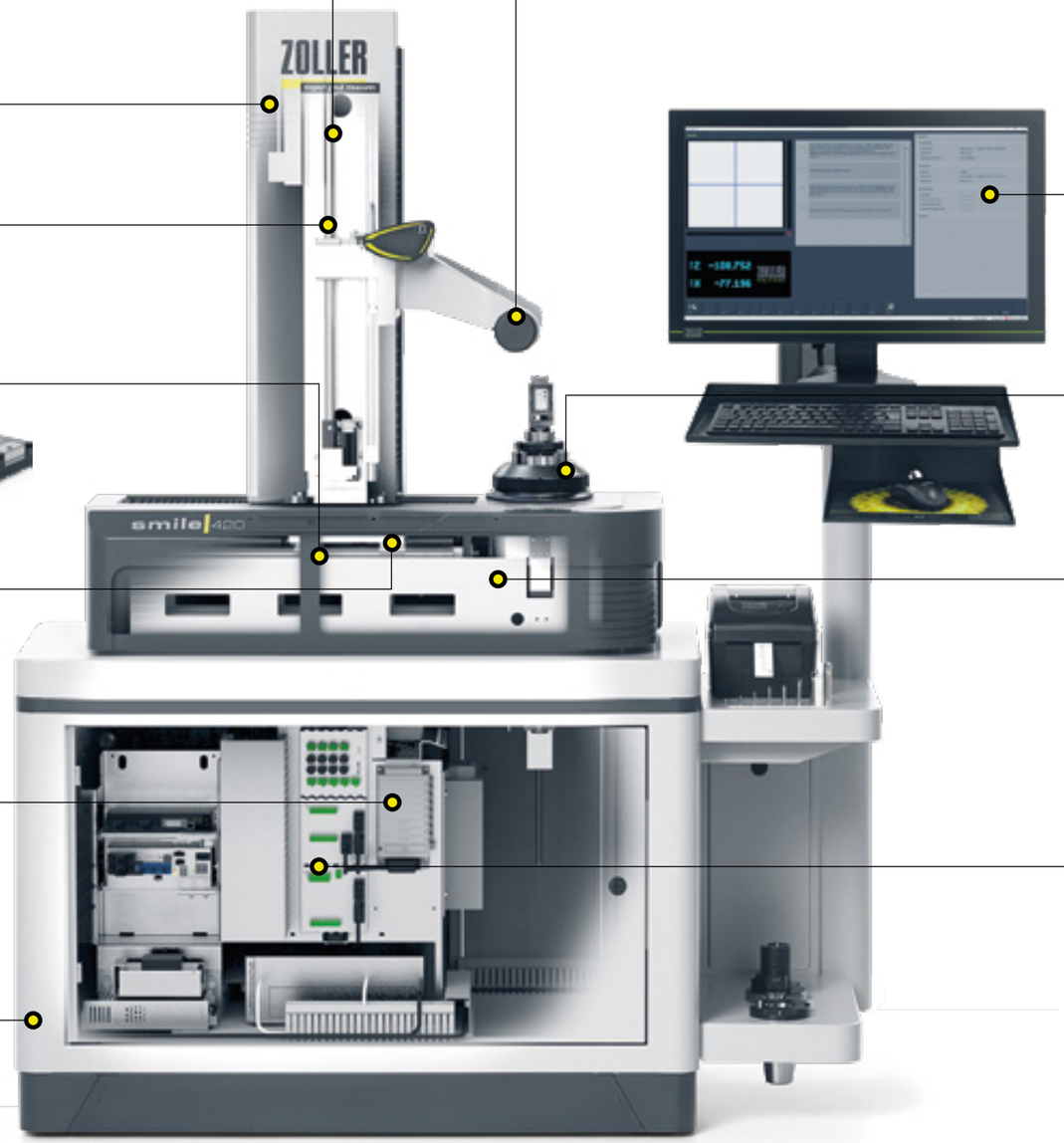
Heidenhain glass scales – enable reproducible and secure positioning in the µm range in the X and Z axes.



Bosch/Festo pneumatic elements – for the reliable operation of pneumatic functions, such as the power-tensioning functions on the spindle.



Stronger table – the base of the device: Here computers, pneumatic elements and electronics are housed, everything clean and with sufficient space laid out for good accessibility and optimal ventilation.



Uhing linear drives, clamping elements – the basis for correct measurements: The tower is both easy to move and to securely and accurately clamp and tension.

Optics with image processing camera – ideal for professional image processing. Captures images accurately and in high resolution – the perfect basis for additional processing of measurement data.



Panel PC with industry-compatible TFT monitor – with high computing power to analyze and evaluate the measured data. The monitor inspires confidence with a crystal clear display.

Spindle – incorporates (almost) any tool holder with a suitable adapter or attachment holder, without the need for major modifications.

Base body – made from a light metal alloy specially developed for measuring devices. Designed to accommodate the weight and forces of the device tower. It guarantees long-term stability and precision during measuring.

Electronics Z100 – specially developed in-house for fast and reliable device operation: Everything is rigorously coordinated and optimized to the relevant requirements.

Tested according to IEC 61010-1:2010

Maximum Ergonomics for Better Work

Making work simple is an emphasis with »smile«: Everything functions simply and safely. Individual adjustments and 180 degree accessibility guarantee comfortable working with short routes.

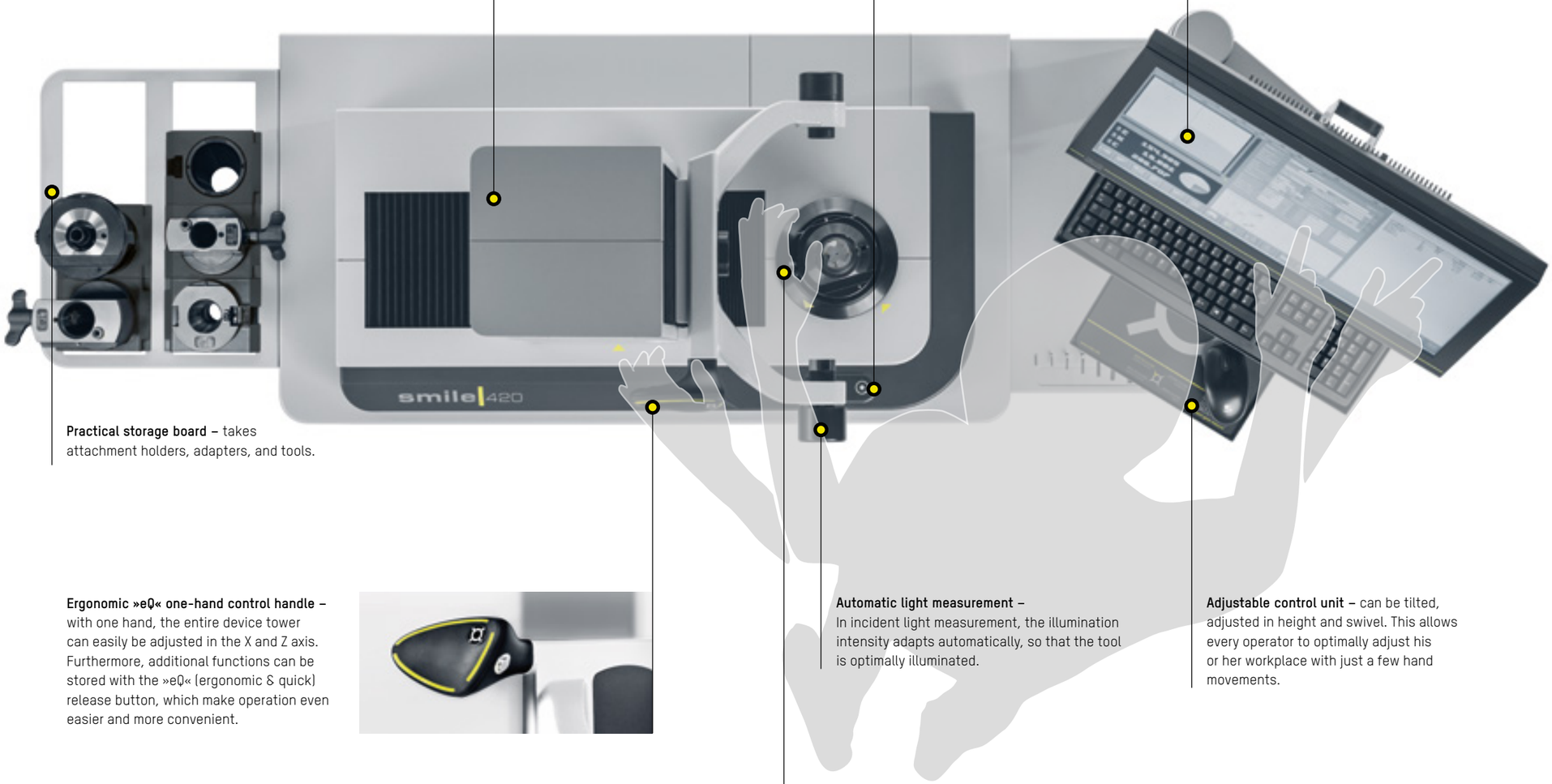
Smooth-running device tower – easy start-up – precisely tared without effort.

User-friendly membrane keyboard – easy and safe to operate under workshop conditions, dust and dirt resistant and has a pleasant feel.



Easy to operate – the simple, graphical software interface guides the operator intuitively through the setting and measurement process.

Much runs automatically – the operator just has to press Start. And thanks to the practical help menu and detailed operating instructions in 18 languages, there are really no questions left – smooth processes are guaranteed.



Practical storage board – takes attachment holders, adapters, and tools.

Ergonomic »eQ« one-hand control handle – with one hand, the entire device tower can easily be adjusted in the X and Z axis. Furthermore, additional functions can be stored with the »eQ« (ergonomic & quick) release button, which make operation even easier and more convenient.

Automatic light measurement – In incident light measurement, the illumination intensity adapts automatically, so that the tool is optimally illuminated.

Practical hand wheel – for easy and safe positioning of the spindle and for exact focusing of the tool cutting edge.

Adjustable control unit – can be tilted, adjusted in height and swivel. This allows every operator to optimally adjust his or her workplace with just a few hand movements.

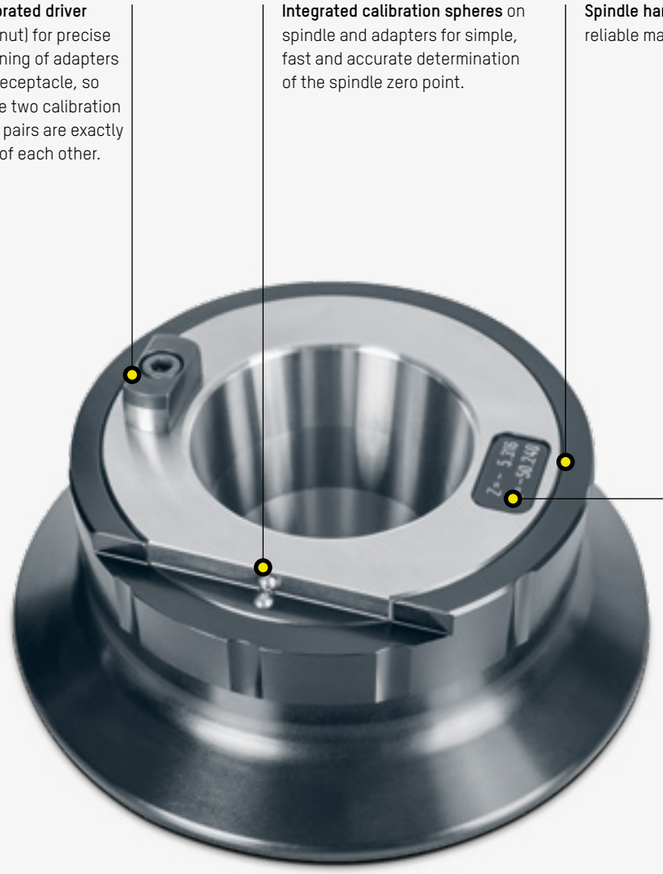
ZOLLER SK 50 High-precision Spindle

Spindle for holding SK 50 adapters: That is why almost any tool receiving system can be easily and conveniently inserted into the spindle, without any conversion measures.

Incorporated driver
(= slot nut) for precise positioning of adapters in the receptacle, so that the two calibration sphere pairs are exactly on top of each other.

Integrated calibration spheres on spindle and adapters for simple, fast and accurate determination of the spindle zero point.

Spindle hand wheel for convenient and reliable manual adjustment of the C axis.



Zero-point sign – specifies the coordinates in the X and Z directions from the calibration spheres to the spindle center.

Further highlights from the ZOLLER SK 50 high-precision spindle:

- **Spindle brake** for pneumatic positioning of the spindle over the entire 360°, for example to adjust the tool.
- **Spindle indexing** for the defined fixing of the tool position in 4 × 90 ° in order, for example, to set turning tools.
- **Fast adapter change** in a maximum of 10 seconds.
- **High axial and radial runout accuracy** of < 2 µm.

Options: If required, the ZOLLER SK 50 high-precision spindle can be expanded to include auto-focus, rotary sensor (ROD) and vacuum clamp.



SK 10 to SK 60 steep taper



Coromant-Capto from C3 to C8



HSK 25 to HSK 125 hollow taper shank



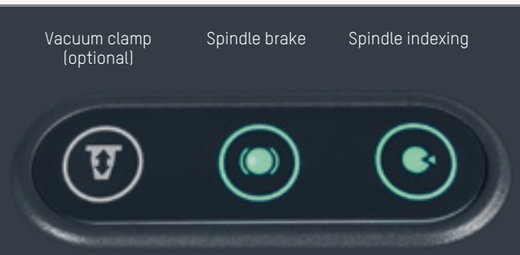
Kennametal



VDI cylinder shaft VDI 16 to VDI 60



Hydro expansion



Membrane keypad for control of pneumatic functions

ZOLLER »pcs« High-precision Spindle (Power-clamping System)

The ball bearing cage in the spindle takes any attachment holder clearance-free and without conversion measures. When the appropriate tool holder is inserted, the tools are clamped via the clamping bolts in a power-activated, user-independent manner.

Spindle hand wheel for convenient and reliable manual adjustment of the C axis.

Ball bearing cage for clearance-free and wear-and-tear-free mounting of attachment holders.

Locking cap for exact positioning of the attachment holder.



Further highlights of the ZOLLER »pcs« high-precision spindle:

- **Power-activated tool clamp –** consistent independent of the individual user.
- **Spindle brake** for pneumatic positioning the spindle over the entire 360°, for example to set the tool.
- **Spindle indexing** for defined fixing of the tool position in 4 × 90°, for example, in order to set turning tools.
- **Attachment holder with integrated calibration spheres** for simple, fast and exact determining of the spindle zero point.
- **Fast attachment holder changeover in a maximum of 10 seconds.**
- **High changeover accuracy** of attachment holders better than 1 µm.
- **High axial and radial runout accuracy –** better than 2 µm as a result of clamped attachment holders.

Option: Can be expanded to auto-focus, rotary encoder (ROD) and length adjustment system if required.



SK 25 to SK 50 steep taper



Coromant-Capto from C3 to C6



HSK 25 to HSK 63 hollow taper shank



Kennametal



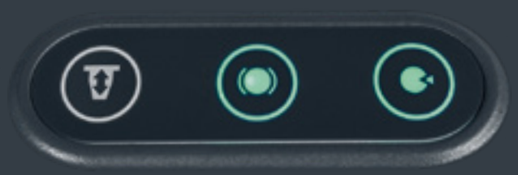
VDI 16 to VDI 60 cylinder shaft



Hydro expansion

Power-clamping Spindle brake Spindle indexing

Membrane keypad for tool clamping





Johann Hofmann, Head of ValueFacturing® at Maschinenfabrik Reinhausen GmbH
and digitalization expert on ZOLLER's »pilot« measuring machine software

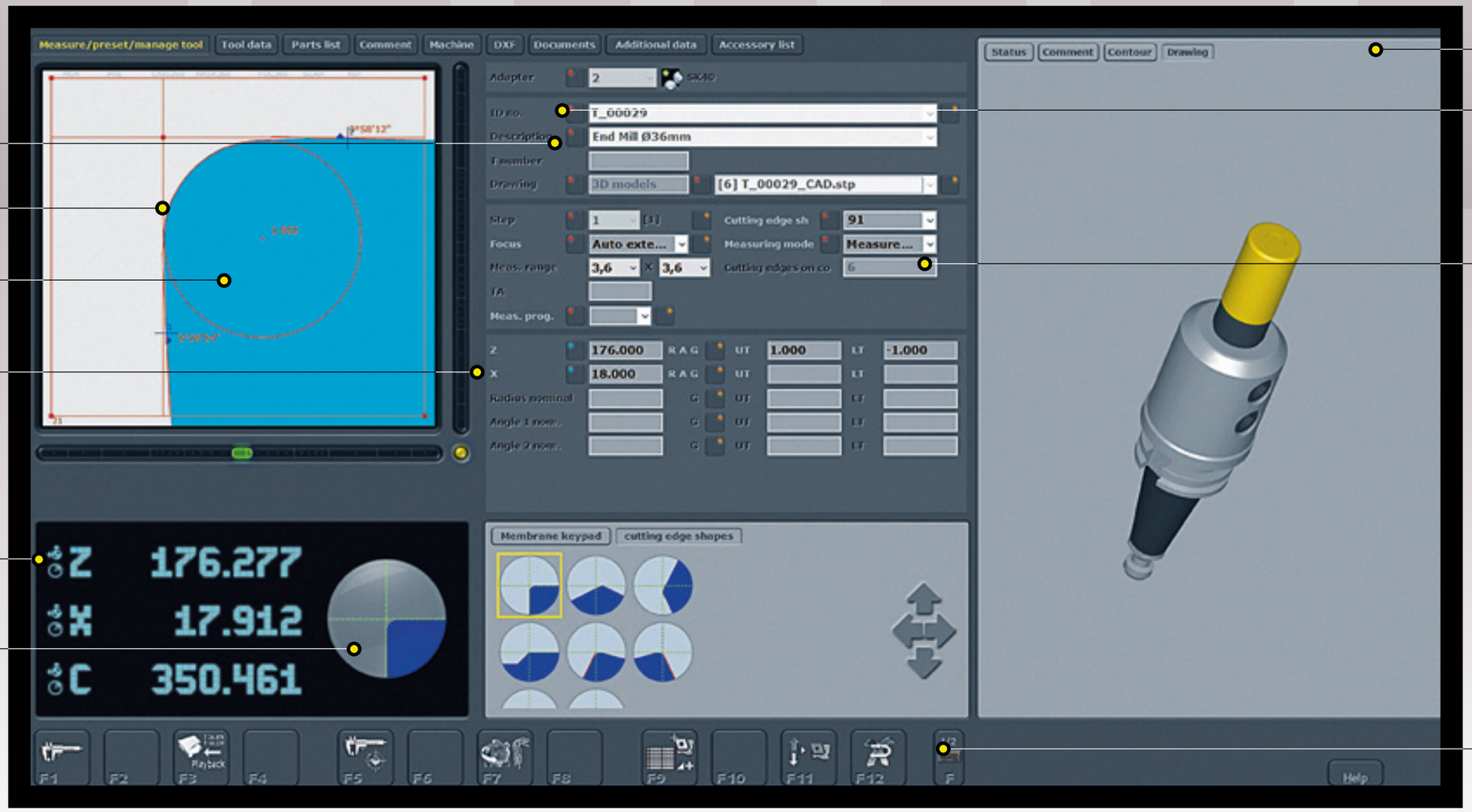
The ZOLLER software is easy to use, open for the future, all round superior.

In terms of function, scope and connectivity, »pilot« is the superior software on the market. Along with ValueFacturing®, the ideal condition for digital production, »pilot« keeps all options open for the future while remaining simple and intuitive to use. Through the integration of »pilot« in ValueFacturing® we create maximum performance in our digital high-performance production.

20 **»pilot« at a Glance**
22 **Photo-realistic Input Dialog »fored«**
24 **Fully Automatic Measuring with »elephant«**

»pilot« – Always on the Road to Success

»pilot« is the extensive and comprehensive software solution for all ZOLLER presetting and measuring machines: The intuitive graphical user prompting guides the user quickly and safely to the precise measuring result. This makes »pilot« so easy to use that even complex measuring tasks are successful from day one. At the same time, the software offers such an extensive range of functionality that there is a solution for every demand. It is no coincidence that »pilot« is considered to be the unrivaled benchmark for tool presetting, measuring and inspecting worldwide.



Tool designation for individual identification

Dynamic crosshair

Live image of the tool

Setpoints with tolerance specification

Current position specification of the axes

Automatic cutting edge shape recognition

Tool-specific information

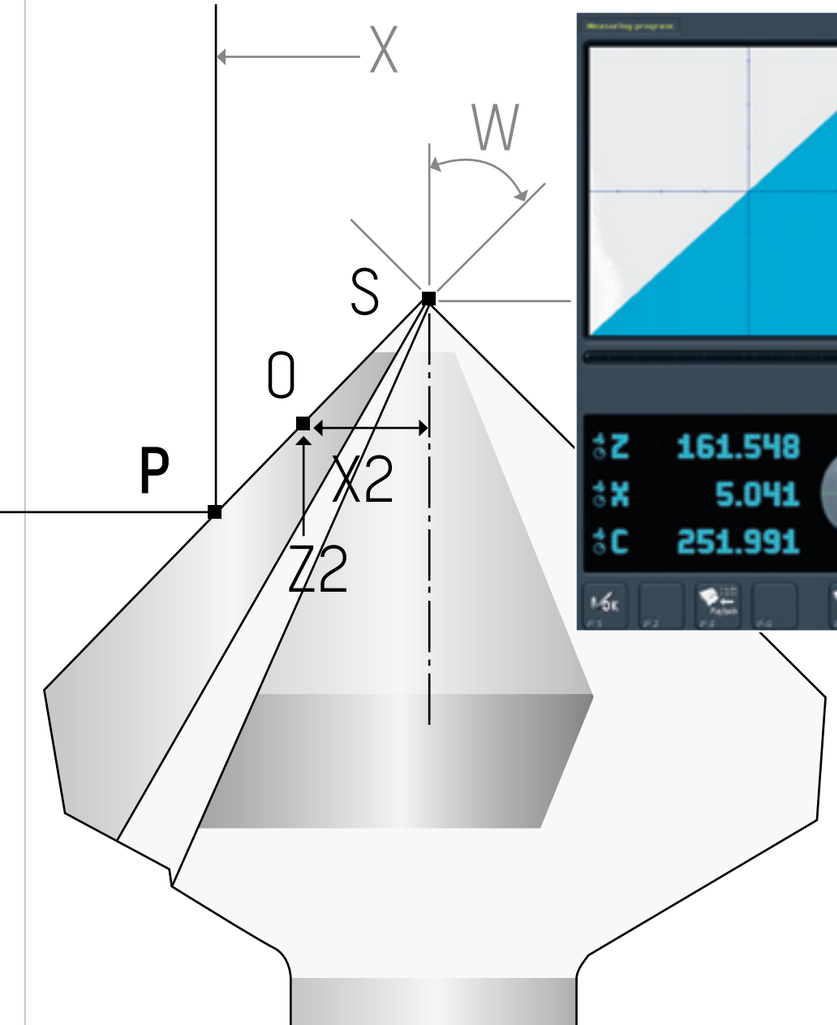
Textually and graphically stored adapter management

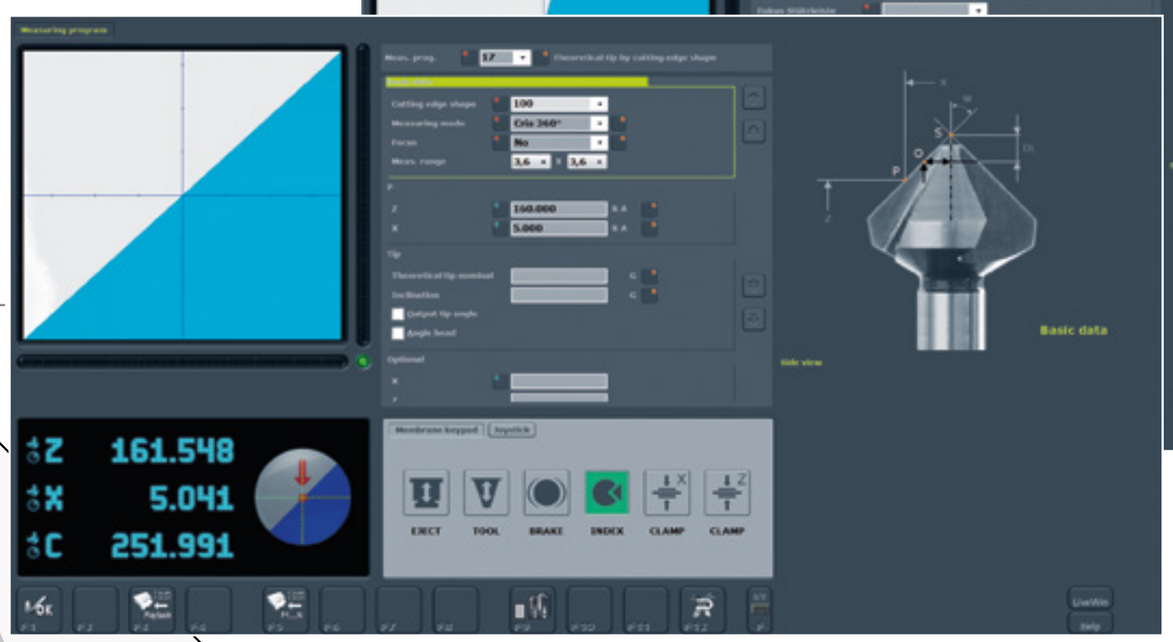
Different measurement modes for different tool contours

Function buttons with self-explanatory icons

Measuring Program Selection at a Glance – with »fored«

Unrivaled in its simplicity: The photo-realistic input dialog »fored« makes it easy to select the desired measurement, without prior knowledge. The optical user prompting precisely specifies all parameters that are necessary for the correct measurement procedure. This will guide the operator safely through the input.

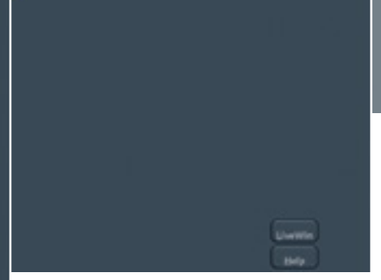




Measuring program 17:
To determine the theoretical tip over cutting edge shape.



Measuring program 1:
For the measurement of single-blade reamers with support strip in snap gauge principle.



Measuring program 137:
For fully automatic determination of the radius contour.

1,2,3, Finished – That's How Intuitive Measuring is with »elephant«

With »elephant« really every employee can measure standard tools – without previous training. All that needs to be done is to select the tool and the measuring task – the measuring takes place fully automatically. It couldn't be simpler.



01



Insert and clamp the tool, and start **»elephant«** - via the main menu or the lower menu bar.

02



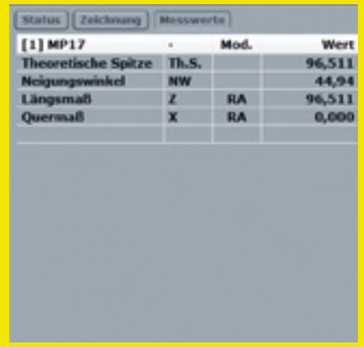
Select tool category based on the graphical representation.

03



Select measurement task and measurement mode based on the determining parameters. The measurement starts without any programming effort.

✓



Measurement results are displayed and archived on the screen. The output follows on the label, as control-oriented data output or in the editable »apus« test protocol.



Christoph Zoller, Managing Director at ZOLLER

At ZOLLER there’s more in it for you

With ZOLLER you get more out of your production. We combine hardware, software, and service for optimally coordinated individual system solutions for your tools. Whether you produce large series or small quantities, whether you use standard or special tools – with us you get everything for your customized solution from a single supplier. We call it: ZOLLER Solutions.

28 Fully Automatic Measuring: Autofocus & CNC

30 Data Transmission: Software Package Data Transmission & RFID

32 Tool Management: Smart Cabinets & TMS Tool Management Solutions

34 Tool Inspection: »smileCheck« & Software Package Tool Inspection

Manufacture Economically from Lot Size 1 – with Autofocus and CNC

Measuring at the touch of a button: With a »smile«, and with CNC axes and autofocus, every tool can be measured fully automatically. As a result, the measurement results are reproducible and independent of the operator: The tool is simply inserted, then the start button in »pilot« is pressed and the tools are automatically measured.

The Result: Measuring processes are accelerated, measuring results are reproducible, and the accuracy is so high that your first part is a good part, every time. That means: Lot size 1 without scrap and without sample parts. This is process reliability in its purest form and real efficiency.



CNC control of the Z, X and C axis* for automatic movement of the axes and exact positioning.

Autofocus* to automatically focus the cutting edge for accurate measuring results.

* optional

Data Transmission – Reliable, Easy, Fast

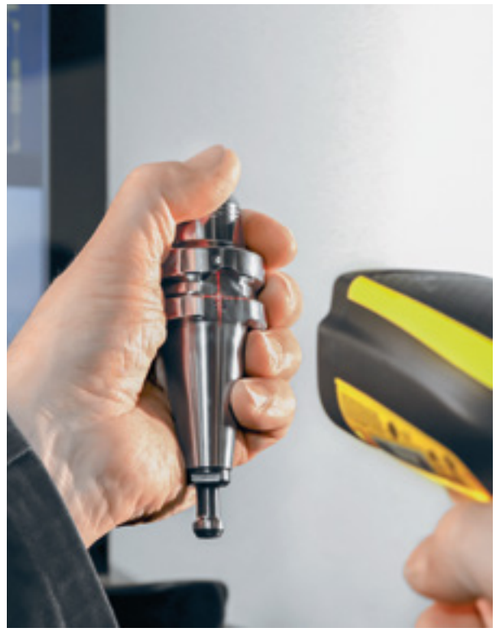
Tool data is the basis of all production processes in modern production – from the CAD / CAM system, through setting and measuring, to the production of the workpiece. ZOLLER provides numerous interfaces both to CAM systems and to processing machines from a wide variety of manufacturers. In this way the data transmission and the communication of the different systems work together simply and reliably.



Possibilities for Data Transmission

Everything for easy tool data transmission

- **»zidCode« for »pilot« –** for quick and easy transmission of tool data without a network connection. The data is transmitted with a QR code and read in directly by scanning on the machine.
- **Label printing standard layout –** easy means of data output, 10 different layout variants are available including company names.
- **Control-specific processing** of the actual data for transmission to the CNC machine – via USB stick, network, DNC and / or serial interface.
- **»apus« test reports** for the documentation and output of measured values, incl. editing function for changing, deleting and hiding tolerances, nominal values and designations.
- **Transmission via network and DataMatrix code** on the tool holder* – the actual tool data recorded by »smile« is stored in the central database z.One. As soon as the tool is detected on the CNC machine, the data is sent from the database or via the host computer system to the machine control.



* only possible with available machine-side conditions

RFID Technology

Absolutely secure and optimal for companies with modern machinery – tool identification and data transmission with RFID technology

- Each tool holder is equipped with an RFID chip. The actual data is then saved and can be read in at the machine.
- The RFID chip is described with a tool identification unit on the presetting and measuring machine using the data and other information prepared for control purposes and automatically read by the machine tool.
- Available in three versions: 1. automatic, 2. manual, 3. as a hand-held device.



Tool Management – Better Organization for Greater Efficiency

With ZOLLER TMS Tool Management Solutions and Smart Cabinets you have your tools and the related data under control, thereby increasing the efficiency of your processes. The data from the central z.One tool database can be used as early as the work preparation phase in order to simulate production processes with the CAM system and to generate setup sheets. In order to find the tools, components, and supplies you need right way, your clearly defined storage location is displayed three-dimensionally in storage location management. With the »quickPick« storage module, articles can be quickly picked up and deducted.

Good to know: So you can really benefit along the whole line, alongside the ZOLLER Smart Cabinets you can easily integrate your existing cabinet and lift systems from other manufacturers into the TMS Tool Management Solutions and continue to use them.



Tooling sheet







»twister«
In the spiral output cabinet, small parts can be optimally stored and separately dispensed.



»keeper«
The tool cabinets with vertical extensions for the storage of complete tools and tool holders.



»toolOrganizer«
The intelligent cabinet for tools and tool components.



The central z.One tool database guarantees the uniform tool database right up to the machine.

Tool Inspection – Comprehensive Control in Transmitted and Reflected Light

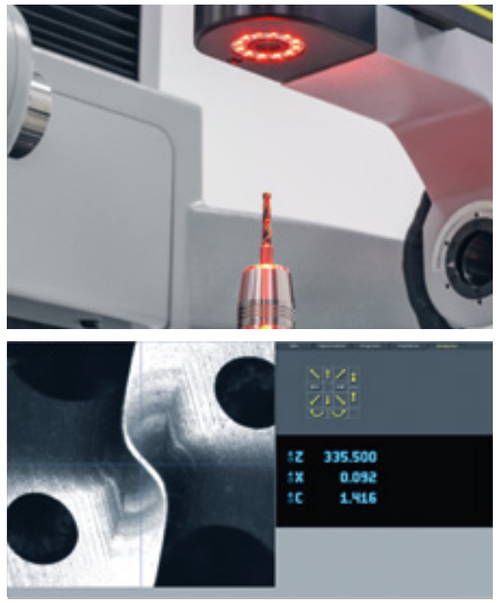
Equipped with an additional incident light camera, »smile« can also be used for tool inspection. In combination with the right software package, extensive tool analysis can be carried out easily and quickly in the transmitted and incident light.



Presetting, measuring, and inspection machine »smileCheck« with swiveable incident light camera

The »smileCheck« Presetting, Measuring, and Inspection Machine

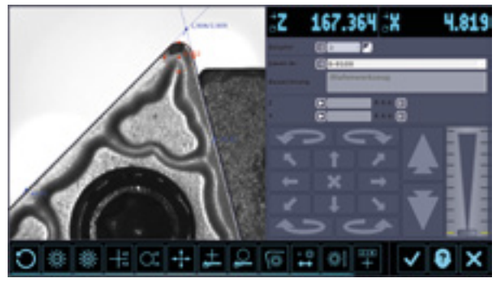
The swiveable incident light camera can be used to record additional tool parameters, geometry data, and cutting contours, both radially and axially. The LED ring light with adjustable light intensity optimally illuminates the tool so that the tool contours are precisely displayed.



The face of the tool is displayed and measured in the »metis« tool analysis software.

Cutting Edge Inspection

Cutting edge inspection can be used to check wear on the cutting edge of the tool. The movable crosshairs, the dimmable incident light and the freely placeable radius make analysis particularly easy. For complete documentation, images can be saved and printed during cutting edge inspection.



Cutting tool inspection in »pilot 1.0« software

Center Height Measuring

For turning tools, the radial position of the tool cutting edge (center height) is the essential parameter for exact turned part production. The center height can be determined on a vertical measuring device with the aid of the horizontally aligned center height measuring camera.



Center height measuring camera on the optics carrier with LED ring light



Alexander Zoller, Managing Director at ZOLLER

We make sure that it works!

With ZOLLER you get excellent products. That's something you can rely on. But that's not all. We also offer you unique manufacturing know-how over the entire life cycle of your ZOLLER products – around the globe. You receive the perfect solution for your individual requirements. We ensure that your ZOLLER products are seamlessly integrated in your production, regardless of which systems and machines you work with. In other words: With ZOLLER you're making chips, guaranteed.

38 ZOLLER Service & ZOLLER Solutions
40 Technical Data
42 ZOLLER Worldwide

ZOLLER Service

Your goal is maximum efficiency for your production. Our goal is to support you with well-designed system solutions. We also offer you a comprehensive service to achieve this. Whether in personal consultation on-site, or when developing perfectly tailored solutions for your individual requirements. If you choose ZOLLER, you not only get excellent products, you also get unique production know-how on your side. And of course, competent contact partners to answer questions at any time – over the entire life cycle of the ZOLLER products. Make use of the ZOLLER know-how to optimize your production processes.



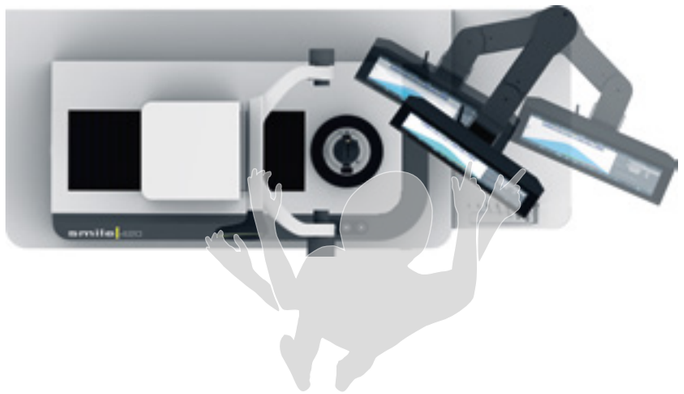
Alexander Zoller | Christoph Zoller

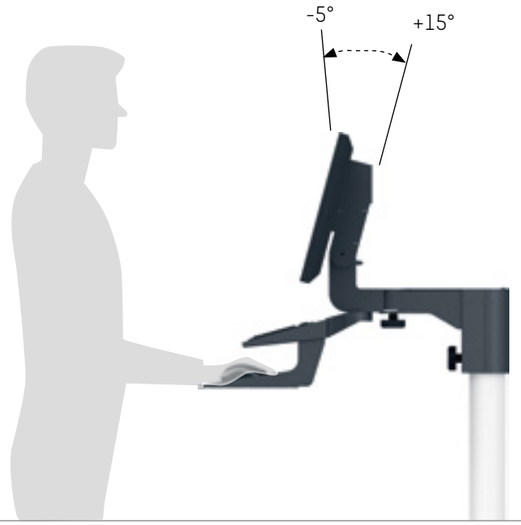
ZOLLER Solutions

With us, you get more than excellent products. You get individual system solutions connected with your tools. To do this, we combine hardware, software and services. Everything from a single supplier. Everything for your success. We call it: ZOLLER Solutions.

Integrated Control Unit

For health-conscious and comfortable working, the integrated control unit can be customized according to the needs of different operators: Height, swivel and tilt angles can be flexibly adjusted.



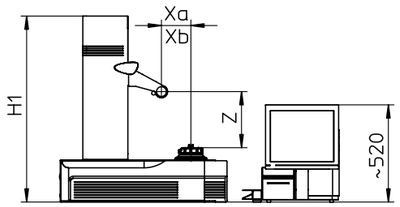


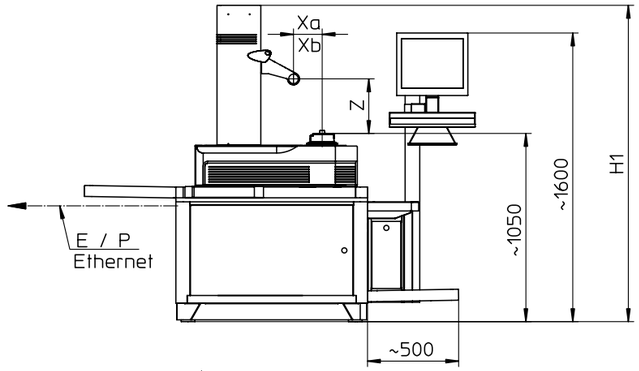


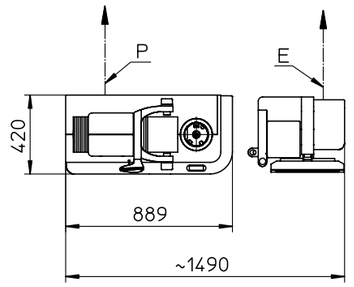
Installation Dimensions with Monitor Bracket

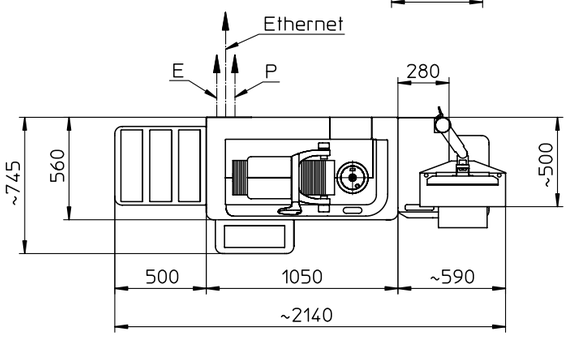
Dimensions »smile 320« Table Version		
Z (mm)	**Xa (mm)**	**H1 (mm)**
350 (13.8 inch)	160 (6.3 inch)	~870 (34.3 inch)

Dimensions »smile 420 / 620« Table Versions			
Z (mm)	**Xa (mm)**	**Xb (mm)**	**H1 (mm)**
420 (16.5 inch)	210 (8.3 inch)	310 (12.2 inch)	~1050 (41.3 inch)
600 (23.6 inch)	210 (8.3 inch)	310 (12.2 inch)	~1250 (49.2 inch)
800 (31.5 inch)	210 (8.3 inch)	310 (12.2 inch)	~1450 (57.1 inch)









Note: P air connection E electronic connection

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

Everything from a Single Source.
Everything for your Success.
Everything with ZOLLER Solutions.

We reserve the right to make technical changes. The depicted machines may include options, accessories, and control variants. BRSMI.06-EN 02/2024. Concept & Design: www.absicht.ag

ZOLLER
expect great measures

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