ZOLLER
PRESETTING SOLUTIONS

Technical Description

The Entry-level Model for Professional Tool Presetting and Measuring

smileCompact

ZOLLER
expect great measures®

ZOLLER **»smileCompact«**

»smileCompact / pilot 1.0«

Quality & Production

Made in Germany

Highlights Brand-name Components:

Cable Track Elements

Heidenhain Measuring Systems

THK Guides

ZOLLER Membrane Keypad

ZOLLER One-hand Control Handle

Bosch/Festo Pneumatics

ZOLLER CCD Camera Systems

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Note: We reserve the right to make technical and optical changes to the product during ongoing product development. The machines shown may include options, accessories, supplemental components and control variations, which differ from the configuration of your product. Reproduction or dissemination of content to third parties is not permitted without the express consent of the author and manufacturer.

»smileCompact« Presetting and Measuring Machine - Basic Device

»smileCompact« is easy to operate and made exclusively of high-quality, brand-name components, offering everything you need to quickly preset and measure standard tools. This compact tabletop machine impresses with extremely simple operations and precise measuring results. The new design guarantees the user can work quickly and ergonomically. Robust, and equipped for the shop floor, the »smileCompact« can be placed directly in manufacturing. Standard parameters such as length, diameter, radius, angle, concentricity, and axial run-out can be measured in just seconds using the ZOLLER »pilot 1.0« touch screen operating technology.

»pilot 1.0« – The Foundation for Modern Tool Presetting and Measuring

The new »pilot 1.0« image processing technology provides all the functions necessary for quickly, precisely, and easily presetting and measuring standard tools. This includes "automatic cutting edge shape and measuring range recognition," »cris360°« "projector function and cutting edge inspection" to determine actual, effective measurement of tools, and a large, clear image of the tool cutting edge on a 13" panel PC.

»smileCompact« Highlights:

- Pneumatic slide clamping, quick axis adjustments, dynamic cross-hairs on the Z and X axis
- Bellows cover guides and measuring system in the X axis
- Brand name products like Bosch/Festo pneumatics, Heidenhain measuring systems, CCD camera systems, specialized optic from Jena, and THK guides
- ZOLLER one-hand control handle for bilinear and manual positioning of the optic carrier
- Torsion-free construction made of dimensionally stable design elements
- Precise measurments of tool parameters, to the µm
- »pilot« image processing technology for transmitted light measurments and cutting edge inspection
- Large camera field of view: 7.3 x 6.7 mm for transmitted light measurements
- High-contrast, bright cutting edge inspection with 22 x magnification of cutting tool edges

Image above shows »smileCompact« with »pilot 1.0« image processing camera

Designations	
1	Storage tray 1
2	Storage tray 2
3	Base table*
4	Machine base (X axis)
5	Membrane keypad (spindle brake; 4 x 90° spindle indexing; tool clamping)
6	SK 50 high-precision spindle (optionally with vacuum clamping)
7	Transmitted light camera with cutting edge inspection
8	ZOLLER one-hand control handle
9	Machine tower (Z axis)
10	Measuring device controller (panel PC) with 13" TFT monitor in vertical format
11	Monitor bracket including table electronics
12	Thermo-label printer*
13	Hex key storage
14	Adapter storage shelf in table

*optional

Technical Data

Series Weight: approx. 80 kg without Table	Z Axis	X Axis	Max. Tool Diameter D	Snap Gauge Diameter D
»smileCompact«	350 mm	160 mm	320 mm	0 mm

Precisions	
Display of Meter Axes	1 µm
Precision (Repeatability)	2 µm

»smileCompact« Axes
2 Linear Axes, Vertical (Z) and Horizontal Axis (X)

Axis Adjustment Using the »smileCompact«

Manual quick adjustment of the Z- and X-axes using one-hand control handle and electronic fine adjustment using dynamic cross-hairs.

Electrical Data	
Voltage	100 – 240 V ± 10 %
Frequency	50/60 Hz ± 2 %
Power	< 1 kVA
Circuit Breaker	T6A (slow blow)

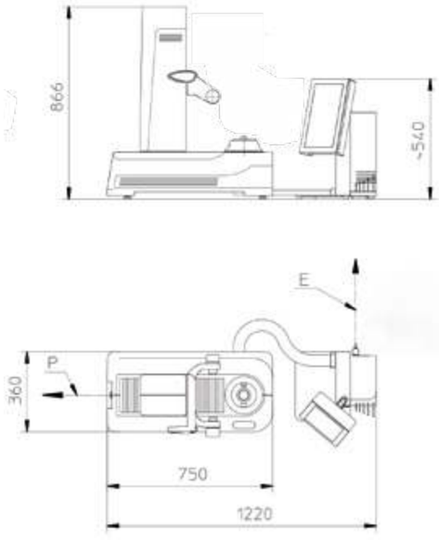
Pneumatic	
Compressed Air	6 – 8 bar
Condition	dry, lightly oiled

⚠ Types of Voltage			
Europe	230 V	**Japan**	100 – 200 V
USA	115 V	**GB**	240 V
China	230 V	**Switzerland**	230 V

Environment		
Humidity	Transportation and storage: 10 – 95% (not condensing)	Measuring mode: 80% (not condensing)
Noise Level	During normal operation the device reaches a noise level of < 45 dBA. When you activate the optionally available printer, this level can rise briefly to approximately 53 dBA according to DIN 45635.	

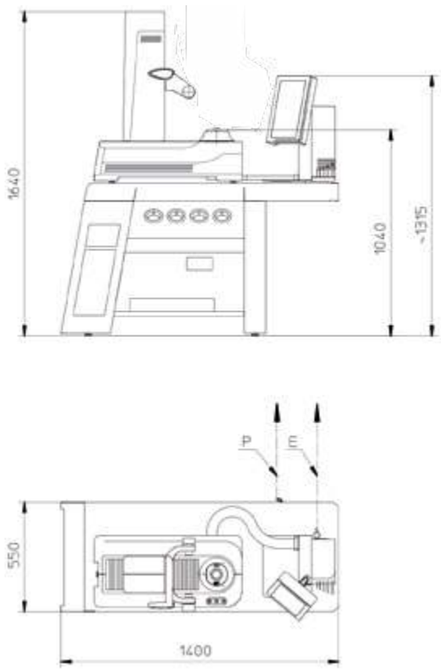
Installation Dimensions

»smileCompact« with Table Electronics



Weight approx. 800 N (without accessories and options)

»smileCompact« with Table



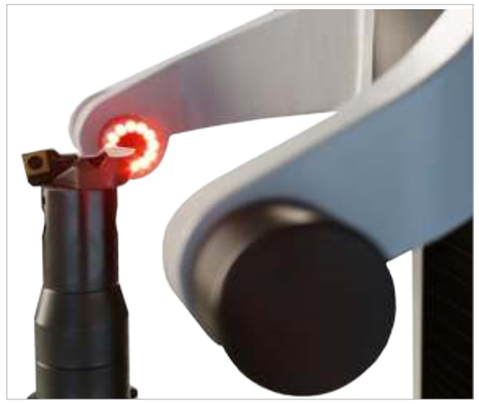
Weight approx. 1650 N (without accessories and options)

Note: *P air connection E electronic connection*

Optics

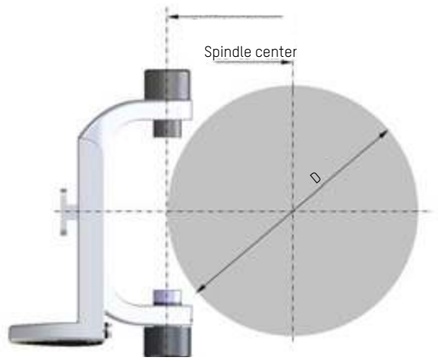
Optic Carrier

Optic Carrier	Transmitted Light Camera Including Cutting Edge Inspection
Camera Type	Transmitted light
View Field	7.3 x 6.7 mm
Working Distance	100 mm
Camera Chip Type	1/3" CCD monochrome
Cutting Edge Inspection Illuminator	12 red LEDs



Optic Carrier (Transmitted Light Camera with Cutting Edge Inspection Illuminator)	
Maximum Length in Z Direction	350 mm
Maximum Diameter (D) in X Direction	320 mm
Maximum Snap Gauge Diameter (d)	0 mm

Center transmitted light camera



Tool Holder Spindles

SK 50 High-precision Spindle[1]

The ZOLLER SK50[1] high-precision spindle, manufactured using light gap inspecting procedures in accordance with "it1," impresses with its concentricity of 0.002 mm, a pneumatic 4 x 90° indexing for picking up attachment holders in a positioned manner, and a spindle nose with integrated calibration spheres. All power-activated functions of the spindle are controlled using the membrane keypad. The function vacuum clamping device* can be added to the SK 50[1] high-precision spindle.

Spindle Function

Vacuum Clamping Device* for SK 50 High-precision Spindle[1]

The vacuum clamping device creates negative pressure between the SK 50[2] spindle base and the tool chuck for steep tapers, combining with the gravity of the tool to add additional hold. This vacuum clamping is activated using the ZOLLER membrane keypad.

Spindle brake button: spindle is braked in the current position.
Spindle indexing button: spindle can be locked in one of 4 x 90° possible positions.

[1] Steep taper 50

*optional

Electronics

»pilot 1.0« Measuring Device (Panel PC) in Vertical Format

- Operating system: Microsoft® Windows® 7 64-bit multilingual
- Permitted for ambient temperatures up to 50 °C
- Manufactured according to CE regulations (Europe) and FCC class B (USA)
- Fast and shock-resistant solid state disk (SSD)
- One-button data backup for each backup on a USB storage device
- Dimensions: approx. 30 x 18 cm (13" visible screen diagonal)
- Screen type: wide angle flat screen (16:9)
- Maximum viewing angle: 178° vertical / 175° horizontal
- Screen type and surface: hard coating (3H), anti-glare
- Optimal resolution: 1,920 x 1,080 pixels at 60 Hz
- Contrast ratio: 1000:1 (standard)
- Brightness: 350 cd/m² (standard)
- Response time: 5 ms
- Color support: 16.7 million colors
- Background lighting: LED
- Temperature during operation 0 to 50 °C (32 to 122 °F)
- Temperature when not operating, during storage and shipping: -20 to 60 °C (-4 to 140 °F)
- Humidity during operation: 10 to 80 % (not condensing)
- Humidity when not operating, during storage and shipping: 5 to 90 % (not condensing)
- Required voltage: 24 VDC max. 65 W

Industrial Board		
Unit	Designation	Type
Processor	Celeron J1900 2 GHz	min. 2 Cores, 2 Threads
Cache	2 MB	L2-Cache
Memory	4 GB	DDR3-RAM

Components		
Unit	Designation	Type
Solid State Disk	Min. 120 GB, mSATA	-
CPU Air Filter Monitor	Fanless, without contamination	passive
Housing Fan Electronics	0.18 m³/min (6.5 CFM)	2x SAN ACE 40 or similar

Interfaces	
Designation	Type
COM (RS232)	2x 9-pin D-Sub. Rod
USB	1x USB 3.0 and 6 x USB 2.0
Power Supply	24V DC max. 50 W

Control Unit

Table Electronics

The table electronics include the panel PC (TFT monitor), the electronic components, and a thermo-label printer, and are designed for use on a workbench. Due to their compact construction, the table electronics save space and are ergonomic.

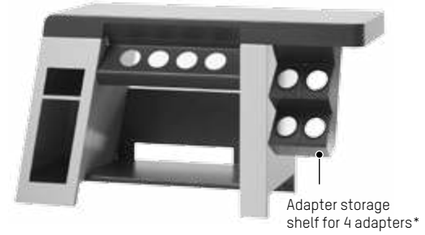
Accessories

Base Table*

The table has a robust and compact design optimized for placement on the shop floor providing a stable area for the presetting and measuring machine. In addition, the table offers a space-saving storage option for four adapters, table electronics, thermo-label printer*, accessories*, and further optional storage consoles (see image to the right of adapter storage shelf).

Option:

- Adapter storage shelves for 2 or 4 adapters


Adapter storage shelf for 4 adapters*

Thermo-label Printer*

The thermo-label printer prints labels with a width of 25 to 108 mm (printing length 75 mm and print density 8 dots/mm). Based on customer requests, various parameters such as ID, T, inventory, and adapter number, designation, Z, X, radius, angle, concentricity, and axial run-out measurements and/or QR, line dot matrix, or bar codes can be printed. A mains voltage of 100 to 240V AC is required.

*optional

UPS System*

The UPS unit for uninterruptible power supply serves to ensure the power supply to the presetting and measuring machine in case of power grid outages. Mains voltages of 220 to 230 V AC (Europe) or 110 V to 127 V AC (USA) are available.

Standing Aid*

The standing aid consists of a steel construction which is stable enough for manufacturing applications. Its ergonomic design guarantees an easy and comfortable working position at the presetting and measuring machine. A specialized gas spring cover protects it from dust and dirt. The PU foam seat is 320 mm wide and can be adjusted to a height from 680 to 920 mm.

Cleaning Putty*

Cleaning putty is used to quickly clean cutting tool edges before measuring without leaving a residue.

*optional

Protective Cover*

The protective cover protects the presetting and measuring machine from foreign influences such as dust, dirt, lubricant, oil, and more.

Adapter / Tool Trolley

The adapter / tool trolley is used to safely store attachment holders, adapters, and tools. It consists of the following components:

1. Transport unit (1 piece)
2. Tool cradle (3 piece)
3. Frame girder pair (3 piece)
4. Shelf with ribbed rubber surface (1 piece)
5. Adjustable base with girder (1 piece)

Options:

- Plastic inserts for SK 30 to SK 50 adapters
- Plastic inserts for VDI 30 to VDI 60 adapters
- Plastic inserts for D1 3/4mm; D2 mm and D2 1/4 mm
- Plastic inserts for a variety of attachment holders like SK, HSK, VDI, KM, and others.
- Wood inserts D32.5 mm and D42 mm

*optional

Tool Holding Fixtures

Adapter* for the SK 50[1)] High-precision Spindle and SK 50 with Vacuum Clamping System

Adapter
Steep taper
SK 25 to SK 60
(without tool clamping)

Adapter
Hollow shank taper*
HSK 25 to HSK 63
(manual tool clamping)

Capto* adapter
C 3 to C 10
(manual tool clamping)

VDI* adapter
VDI 16 to VDI 80
(manual tool clamping)

Adapter
KM*
KM 32 to KM 63
(manual tool clamping)

Hydro expansion
clamping adapter
D32 mm*
(manual tool clamping)

SK 50 High-Precision Spindle[1)]

Note: The base of the high-precision spindle with SK 50[1)] interface, integrated calibration spheres, and hand wheel is suited for SK 50[1)] tools and all adapters with SK 50[1)] interfaces. You will find details on further technical parameters such as loss of measuring range, collar height, item numbers, and much more are available in the respective datasheets attached to your offer. Further adapter types and special sizes can be requested individually from ZOLLER.

[1)] Steep taper 50

*optional

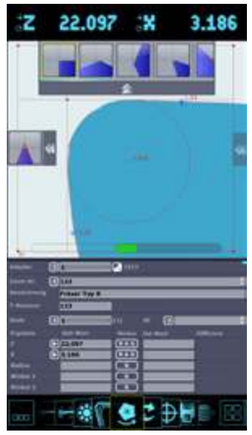
Software

»pilot 1.0« Standard Functions

»pilot 1.0« image processing technology offers all the functions necessary for quickly, precisely, and easily presetting and measuring standard tools. This includes "automatic cutting edge shape and measuring range recognition," »cris360°« "projector function and cutting edge inspection" to determine actual, effective measurments of tools, and a large, clear image of the tool cutting edge on a 13" TFT monitor (panel PC) in vertical format.

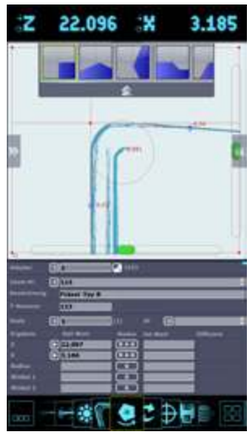
»pilot 1.0« Standard Functions:

- Multi-functional measuring work station (measure and preset)
- Touchscreen operation
- Analog, color focus display
- Switch between mm / inch
- Display precision 0.001 mm
- Dynamic memory management for at least 999 adapter zero points and 3,000 tools
- Zero point monitoring to avoid machine crashes
- Automatic cutting edge shape and measuring range recognition
- Dynamic cross-hair pointer for automatic measurements
- Real-time measuring and graphic user interface
- Standard measuring program for Z and X dimensions, radius, and two angles
- Projector function with manual cross-hairs
- Independently select the meter settings, radius, diameter, absolute, differential, chain values (incremental), and meter stop for all axes
- Automatic tolerance monitoring for measured values
- Software function measuring concentricity and axial run-out for multi blade tools (»focus360°«)
- Tool level administration
- Cutting edge inspection with dimmable lighting for 22x zoom on the cutting edge in incident light, (visual quality control)
- »cris360°« (circular-response-image-sampling) software function for determining and measuring the tool contour
- Measuring result data output on thermo-labels (thermo-label printer*) and inspection protocols (list printer*)
- Help system for input fields and functions



Automatic cutting edge shape and measuring range recognition

Cutting edge inspection with dimmable light on the camera



»cris360°« (circular response image sampling) software function for measuring the maximum tool contour

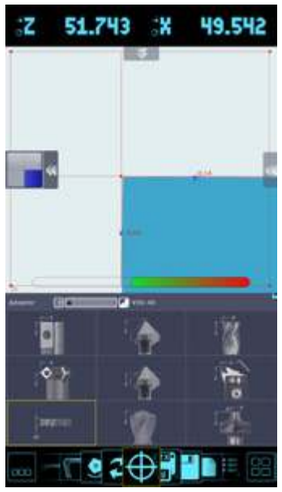
»elephant« Technology

The »elephant« measuring program assistant allows you to easily measure standard tools without entering target data. Graphic selection dialog boxes can be used to select the desired tool categories and activate a concrete measuring task. Various measuring modes and parameters are available for selection. The operator receives graphic support in positioning the cutting edge / measuring point when measuring with the »elephant« measuring program assistant.

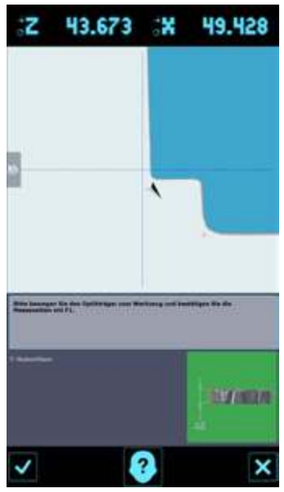
The parameters to be measured are displayed graphically for tool measuring without requiring any special training for the operator. Measuring results are then printed out on a thermo-label.

User-independent Measuring and Analysis in Just 4 Steps

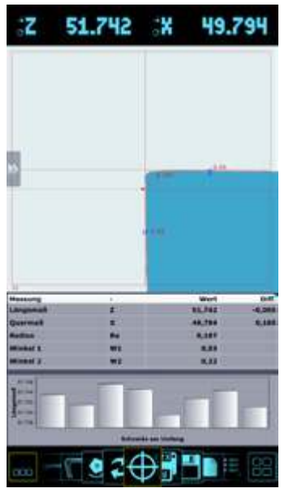
Step 1: Select favorite tools from the image catalog.



Step 2: Quickly select images of tools from your favorites list (current example: measuring a side milling cutter)



Step 3: Precise, user-independent target dimension positioning using the »compass« navigation system



Step 4: Table-based and graphic analysis of measured values

Measuring and Inspecting Equipment

Mandrel Gauge*

The mandrel gauge is used to align and check the straightness and parallelism between the tool holder and the traveling axes. The concentricity of the tool holder is also checked. The shaft depends on the type of tool holding fixture or high-precision spindle. The mandrel gauge is delivered securely packaged in a wooden box, along with a calibration certificate with information on national standards.

Design	Length	Diameter
SK 50[1)]	300 mm	50 mm
HSK 63[2)]	300 mm	40 mm

[1)] Steep taper 50

[2)] Hollow shank taper 63

*optional

Packaging

Cardboard Packaging*

Standard transport packaging in cardboard box, including wrapping in an anticorrosive cover.

Packaging Information:

Device Version	Approx. Dimensions	Gross Weight[1]	Net Weight[2]
»smileCompact« Tabletop Unit	980x690x1520 mm	ca. 130 kg	ca. 80 kg
»smileCompact« Table	1760x900x1950 mm	ca. 215 kg	ca. 165 kg

Note: Accessories or options will change the gross weight.

[1] Gross weight corresponds to the weight of the presetting and measuring machine, with packaging material

[2] Net weight corresponds to only the weight of the presetting and measuring machine.

Wooden Packaging*

Transport packaging consisting of shock-resistant wood panels, including wrapping in an anticorrosive cover.

Packaging Information:

Device Version	Approx. Dimensions	Gross Weight[1]	Net Weight[2]
»smileCompact« Tabletop Unit	980x690x1520 mm	ca. 180 kg	ca. 80 kg
»smileCompact« Table	1760x900x1950 mm	ca. 265 kg	ca. 165 kg

Note: Accessories or options will change the gross weight.

[1] Gross weight corresponds to the weight of the presetting and measuring machine with packaging material.

[2] Net weight corresponds to only the weight of the presetting and measuring machine.

Seaworthy Packaging*

Cardboard/wooden packaging designed for overseas transport including careful wrapping in an anti-corrosive cover (vacuum).

*optional

Commissioning and Training

Commissioning*

Professional commissioning or final acceptance will be carried out by a qualified ZOLLER service technician (8h/day).

Training*

Professional training will be carried out by a qualified ZOLLER service technician (8h/day).

Factory Acceptance / Preliminary Acceptance*

Factory acceptance / preliminary acceptance is carried out by a ZOLLER service technician together with the customer at ZOLLER in Pleidelsheim (8h/day).

*optional

ZOLLER **solutions**

PRESETTING SOLUTIONS
Presetting & measuring

SOFTWARE SOLUTIONS
Managing tools

INSPECTION SOLUTIONS
Inspection & measuring

BUSINESS SOLUTIONS
from A-Z

ZOLLER solutions are synonymous with comprehensive optimization of your manufacturing operations. ZOLLER combines hardware, software and services in individual system solutions to improve quality, efficiency and productivity. As a ZOLLER customer you benefit not only from our know-how as market leader in the field of tool measuring technology, but equally from our claim as a family-run business, guaranteeing you sustainable competitive advantages and thus making a measurable contribution to your success.

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