Simple, rapid, accurate

Toolmaster TM5

Tool Presetters

Quick tool changes result in measurable success

pwb SWISS

Design features of Toolmaster

Toolmaster 5 is the consequent application of intelligent mechanical engineering combined with high precision linear guides and state-of-the-art measuring electronics.

Measuring column and base are machined from multiple stress-relieved high tensile aluminium alloy.The measuring column runs on 4 recirculating ball guides.

Linear guides of the highest precision class and pre-loaded in both axes guarantee long lasting measuring accuracy even under tough workshop conditions. The high precision glass scales with 1 micron resolution are centrally located between the two linear guides.

Both measuring axes have motorised positioning for rapid traverse and fine feed. There is no contact with the measuring system. A specially designed feed unit enables positioning with micron accuracy for both optional measuring systems: projector or camera.

The menu prompted measuring electronics are operator friendly both for TM5-P and and TM5-EPRO and require no special training for your operating personnel. Measuring reliability is enhanced by the compensation functions for axis parallelism and axis linearity.

TM5-EPRO allows direct data transfer to a maximum of 5 different machine tool controls.

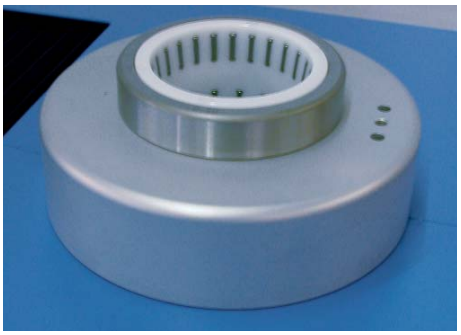
The modular design enables the TM 5 to be equipped according to your requirements:

Measuring system:	Projector or image processing with CMOS-camera
Design:	desk-top and stand-alone configuration
Spindle:	Taper needle bearing or KV spindle

Shown with soft-key pad for KV spindle

The new feed unit, specially designed for this device, enables the measuring column to be positioned to the measuring point by means of a joystick which is mounted in the optimum ergonomic location. Traversing speed is stepless.

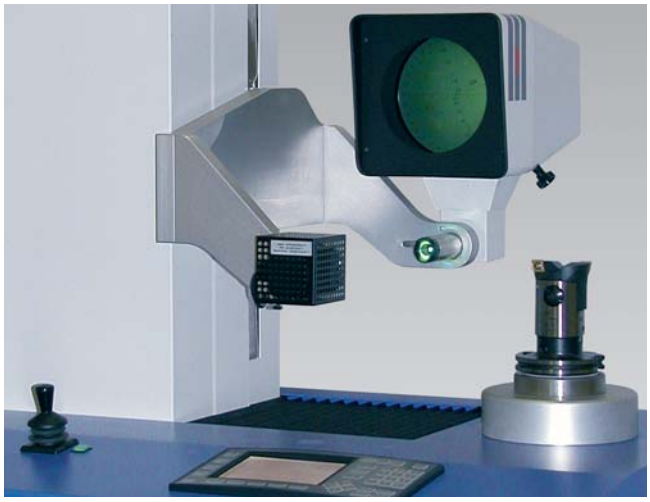
Thanks to the motorized positioning of the measuring axes, the operator does not need to touch the measuring system or use physical effort.



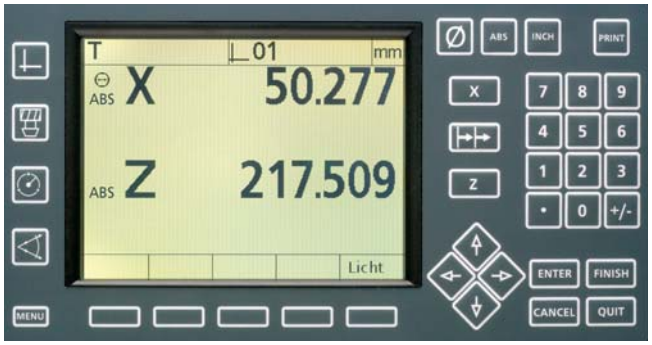
Patented Tool Spindle

- Plastic cage protects tool spindle from damage
- Runout accuracy within microns
- Alternatively ISO40 or ISO50 taper
- Prevents measuring errors if tool holders are not brand new (dirty or damaged)
- Long-lasting, reliable performance
- Adapters for all commercially available tool holders

TM5-P Projector



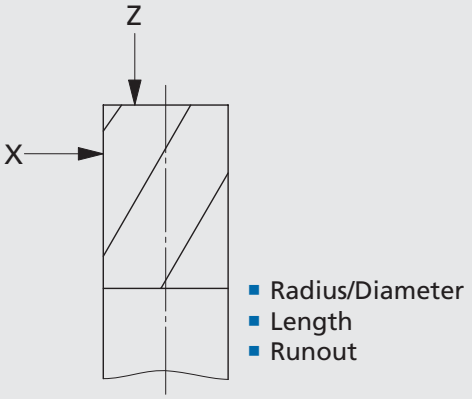
- Projector «swiss made» providing high contrast, minimum distortion and even illumination for non-tiring and error-free measuring
- Diameter 150 mm
- Magnification 20x (optional 50x)
- Fixed and rotatable reticule with fine, strong-contrast measuring lines
- Extended life of halogene illumination thanks to automatic shutdown
- Ideal for additionally establishing radii and angles



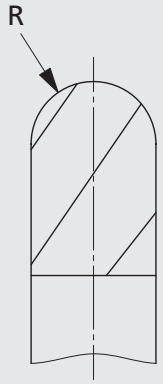
Measuring Electronics TC 100

Compact intelligence

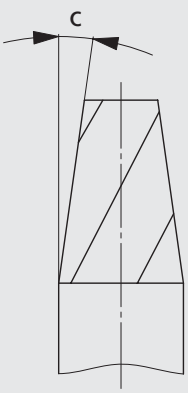
- Glass scales AcuRite (Heidenhain), resolution 0.001 mm
- 6" LCD display
- Extremely simple operation
- Dirt resistant soft key pad
- Dialogue in English/German/French/Italian/Spanish
- 99 reference point memory for different adapters and machine zero points
- Designation and counting direction freely selectable for each reference point
- Tool library for 500 tools
- Absolute, difference and incremental measurements
- Hold function
- R/D switchable
- Circle measuring 3-100 points by reticule
- Angle measuring 2-100 points per line
- Axis parallelism compensation – corrects guide alignment
- Linear and section compensation
- Formats for label and tool list printing
- Serial interface RS 232 for PC and other applications
- Parallel interface Centronics for printer
- Simple set-up program
- Password protection



- Radius/Diameter
- Length
- Runout



- Radius



- Angle

TM5-EPRO Image Processing

EPRO is the electronic measuring system for the future. It is the intelligent combination of a CMOS camera, a 10.4“ TFT flat screen and a dirt/wear resistant soft key pad.
The EPRO is used to align and position profile outlines in X and Z axes as well as for manual measuring. Operating it is greatly simplified through the use of the mouse. No operator training is required.
The system possesses a high degree of built-in intelligence. It recommends – by automatically identifiying the cutting edges – the suitable measuring method and displays without further key actuation the edge coordinates on the screen.

Edge angle, position and radius are automatically displayed.

The measuring program MAXIMUM allows the working contour of radii and angles on form tools to be measured by manually rotating the spindle.

Ethernet interface for program updating and documenting measuring results in DNC mode.

As an option, measuring data ouputs for 5 different machine control types are possible through RS232 or Ethernet interface.

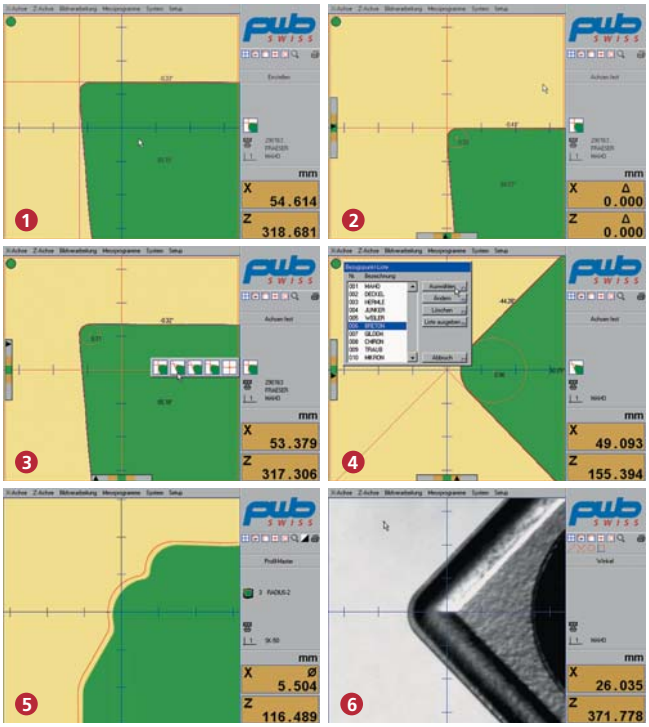


Image Processing

1. MAXIMUM measuring function with floating reticule for quick and easy measurements. The tool to be measured is swivelled past the viewing field of the camera.
   The cutting edges are automatically identified and measured by the suitable method. (Determination of largest dimension).

2. Measuring with fixed reticule for high precision measurements. The cutting edge to be measured is positioned to the electronic reticule using the infinite fine adjustment supported by the graphic adjusting aid for each axis.

3. Manual selection of desired measuring method, e.g. line-line to determine intersection coordinates by mouse click.

4. Up to 99 adapters and 1000 tools can be managed alpha-numerically.

5. PROFILEMASTER for storing contour lines for comparative measuring.

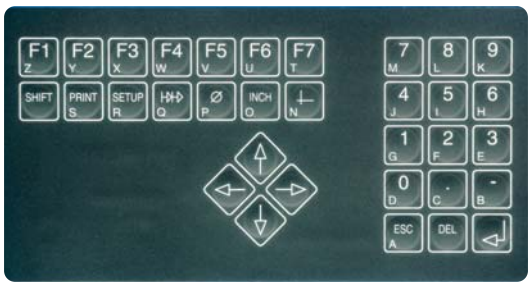
6. EPRO includes frontal illumination as standard. The 20X respectively 40X magnification permits visual inspection of the tool tips for wear or cracks. The mouse cursor is used to move around the screen.

Measuring methods:
- Fixed and floating axis
- Maximum (radius end mills)
- Center point

Measuring mode:
- Automatic recognition of measuring mode by contour analysis
- Alternative manual selection of measuring method by mouse click

Measuring functions:
- Line/Angle/Radius
- Angle and radius nominal value with tolerance circle
- Movable reticule

Display and operating elements:
- Adjustment aid for both axes
- Variable analysis window, definition by mouse click
- Switchable colour or black/white (tip inspection) display
- Inverse tool
- Zoom 20X or 40X
- Display hardcopy by Ethernet for documentation of measuring result

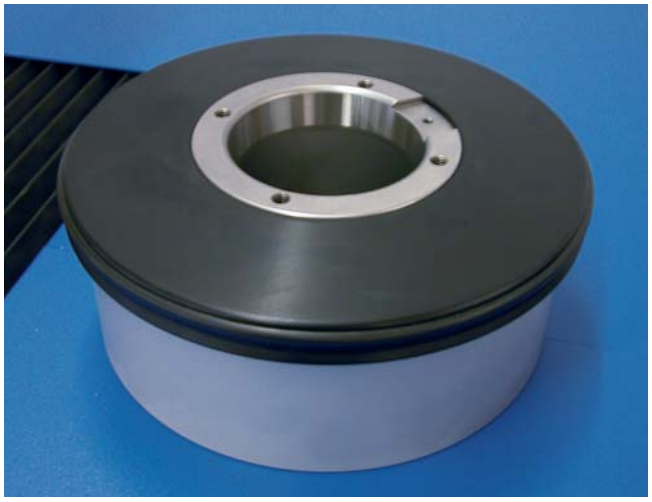


- Glass scales AcuRite, resolution 0.001 mm
- 99 reference point memory
- Tool library for 1000 tools, 12 digit alpha-numeric
- Internal tool management
- Optional external tool management (Ethernet)
- Absolute, difference and incremental measurements
- R/D switchable
- Switchable metric- inch measuring
- Hold function
- Compensation of axes parallelism
- Password protection

Measurement output:
- Labels and tool lists
- Optional NC compatible data output

Dialogue languages:
- English/German/French/Spanish/ Italian/Swedish/Dutch

Spindle KV (Option)



Tool adapter available for ISO 40 or ISO 50

Pneumatically actuated clamping insert for HSK-tools

Precision tool adaptor with vacuum pull-in

- Tool adaptor with vacuum pull-in
- High runout accuracy through pre-loaded precision balls
- Tools can be rotated and clamped in any position. This facilitates the presetting of fine boring head tool tips.
- Soft-key pad operation of all pneumatic functions (see page 2)

Accessories:
- Pneumatic clamping insert for HSK-tools
- 4 x 90° indexing for turning tools with VDI shaft
- All ISO 40 and 50 standard reduction sleeves can be used

TM5 with Cabinet

All TM5 models are available for desk-top and in the stand-alone configuration, shown here with side extensions for EPRO image processing.

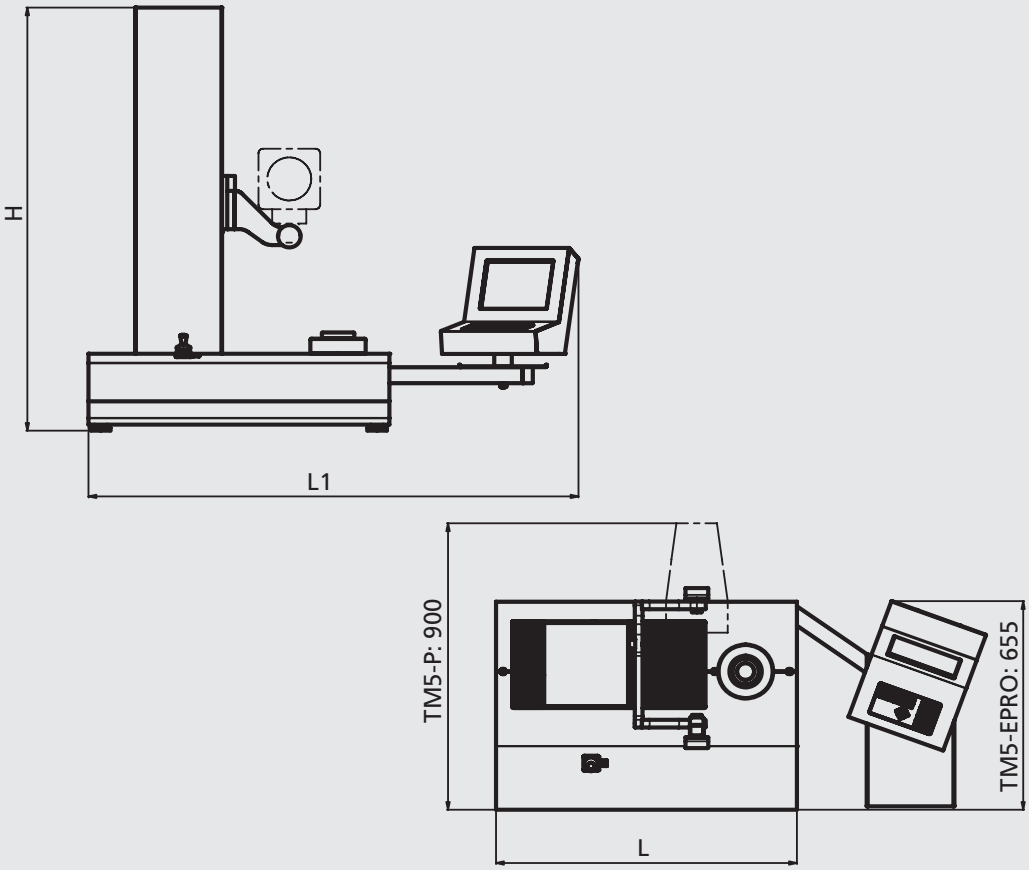
3 drawers and one cabinet door provide sufficient storage space for master mandrel, adaptor sleeves and miscellaneous tooling for tool presetting.

Dimensions: TM5-P: 930 x 750 x 880 mm (WxDxH)
TM5-EPRO: 1470 x 750 x 880 mm (WxDxH)
Weight: 150 kg

Technical Data

Designation	Measuring range		L	L1	T	Weight
	X-Axis (Ø)	Z-Axis (L)				kg
Toolmaster 5/460	-50 - 400	600	925	1510	1330	180
Toolmaster 5/490	-50 - 400	900	925	1510	1630	200
Toolmaster 5/660	-50 - 600	600	1025	1610	1330	200
Toolmaster 5/690	-50 - 600	900	1025	1610	1630	220
Tool adapter available for ISO 40 or ISO 50						
All dimensions in mm						

Dimensions



Power Supply

Electrics:	90-264 V AC / 50-60 cycles
Compressed air:	6 bar, pre-filtered

Extent of Supply

- Basic unit, ready for operation
- Tool spindle ISO40 or ISO50
- Connecting cable
- Operator's manual
- Test certificate
- Guarantee certificate
- Dust cover
- One-way packaging

Accessories

All tool spindles, master mandrels and adapters are made of rust-resistant, vacuum hardened steel.

1 Master mandrel/wooden case

Master mandrels are for zero calibration and electronic error compensation of the guides (parallelism).
Zero calibration is possible at any desired working height.

2 Adapter

Adapters are available for ISO/HSK/VDI and other tool systems.

3 Printer

- Needle printer for labels and tool lists
- Parallel printer cable 3 m
- Roll holder
- Labels 60 x 20 mm (2000/roll)

4 WINPRESET

External PC software for evaluation and storage of measuring data from the presetter. Data transfer direct to machine tool, tool management system or DNC.

We reserve the right to make technical improvements.

Other Products

Toolmaster

- with pneumatic clamping
- with motorized adjustment
- with frontal illumination measuring functions
- with double camera systems
- special executions

Toolboy

Ergonomic tool assembly without reclamping – prevents tool and spindle damage

Touchsetter

Easy determination of machine spindle reference point

Contact

pwb SWISS
www.pwb-swiss.com

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