



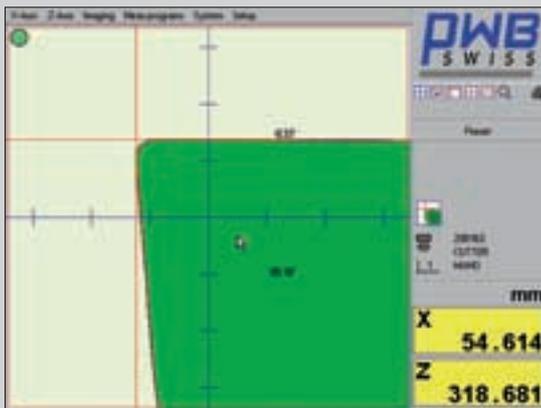
**TOOL MASTER/IMAGE PROCESSING**

## EPRO

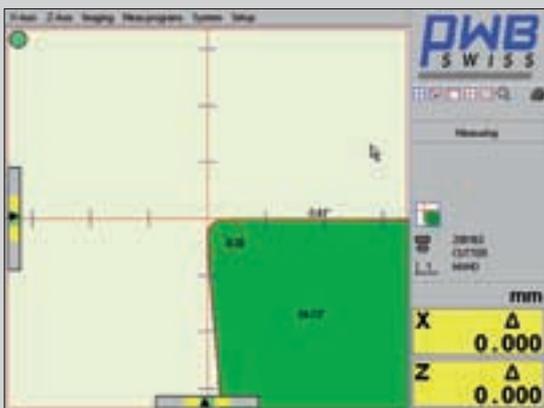
EPRO is the electronic measuring system of the future. It is the intelligent combination of a CMOS camera, a 10.4" TFT flat screen and a counting module. The EPRO is used to align and position profiles in X and Z-axes as well as for manual measuring. Operating it is greatly simplified through the use of the mouse. No operator training is required. The system possesses a high degree of built-in intelligence. It recommends by automatically identifying 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.

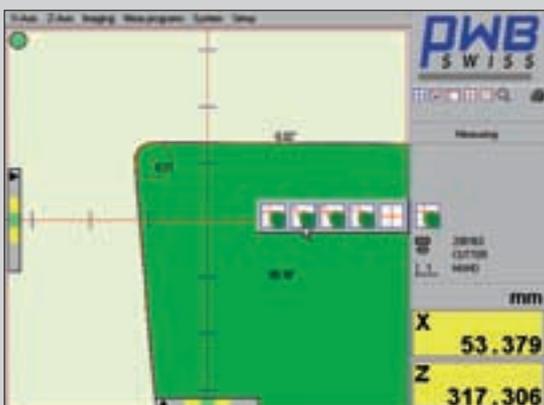
The EPRO-MAXIMUM function allows radii and angles on form tools to be measured by manually rotating the spindle.



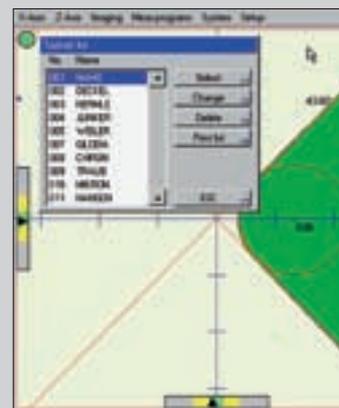
Measuring with floating reticle for quick and easy measurements. The tool to be measured is swivelled past the screen. The cutting edges are automatically identified and measured by the suitable method.



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



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





## Measuring system:

- Linear scales AcuRite 0,001 mm
- Memory for 99 tool-references
- Memory for 300 (optional 3000) tools, Ident-no.12 digits alphanumeric
- Internal tool management
- External tool management (optional, Ethernet)
- Absolute- difference- incremental- display mode
- Radius – diameter
- MM – INCH
- Hold function
- Parallel correction
- Password input

## Data output:

- Label and tool-list
- Data output suitable for NC (optional)

## Dialog:

- german/english/french/spanish/italian
- or: german/english/french/swedish/dutch

## Vision system:

### Measuring method:

Measuring method:

- Fixed and flying axis
- Maximum
- Measure centre

### Measuring mode:

- Automatic recognition of measuring mode by contour analysis
- Alternative manual set of measuring mode by mouseclick

### Measuring functions:

- Line/Angle/Radius
- Angle- and Radius nominal value with tolerance-circle
- Movable cross hair

### Display- and handling elements:

- Adjustment aid for both axis
- Analysis window variable, definition by mouseclick
- Toggle between colour and black/white
- Inverse tool
- Zoorn 40x
- Display-hardcopy by Ethernet for documentation the measuring result



Up to 99 adapters and 300 tools (option 3000) can be managed alpha-numerically.



EPRO includes frontal illumination for tip inspection. Visual inspection and measuring of the tool tips are performed in black/white. This enables tool edge checking for possible damage and measuring where required. Magnification 20x and 40x.

# TOOL MASTER/IMAGE PROCESSING

## TCAM

The tool presetter **TOOL MASTER 310** and **TOOL MASTER 250** are also available with a «Junior» version of the EPRO. These are starter models for electronic image processing. The screen is mounted on the measuring carriage – there is no need for a PC or other attachments. The compact design of this unit makes it especially suitable for use right beside the machine tool.

Counting module and key pad as well as CMOS camera are the same as on EPRO. Cutting edge and measurements are displayed on the 4.7" LCD screen (black/white).

Measuring with this unit is extremely simple – just swivel the tool and the process is complete.

Glass scales and measuring accuracy are the same as for EPRO.



### Image Processing

- Measuring with fixed and floating reticule
- Recognizes shape of cutting edge in all 4 quadrants and recommends a suitable measuring method
- Automatic measuring of cutting edge rake and relief angles as well as nose radius
- Measuring window can be reduced to required measuring profile, e.g. for gang tooling
- X- and Z-axis measurements displayed together on screen
- Zoomed measurement display



TOOL MASTER with image processing are equipped with the patented ISO 40 and 50 taper needle bearing sleeve and mechanical spindle clamp.

As an option a tool spindle with vacuum draw-in and pneumatic spindle clamp is available for TOOL MASTER 250 and TOOL MASTER 4.

Adapters can be supplied for all commercially available tool systems such as HSK/ISO/CAPTO/KM etc.

Versions	EPRO	TCAM
TOOL MASTER 310		<b>X</b>
TOOL MASTER 250	<b>X</b>	<b>X</b>
TOOL MASTER 4	<b>X</b>	

*We reserve the right to make technical improvements.*

Distribution:

**Leadership  
in precision**