

## SPECIAL FUNCTIONS-DIGITIZING

### Surface scanning

The function *digitizing* is an essential tool for copying workpieces, provided that a sensor or measuring pin is integrated. This sensor or pin moves from upwards on to the workpiece. By contact a switching mechanism or level change at signal **key 1221** is activated.

The screenshot shows the 'Digitizing' window with the following elements:

- Title Bar:** Digitizing
- Area and settings:**
  - X Y**
    - Left lower limit: +\_10.00 +\_10.00 mmr [Teach]
    - Right upper limit: +\_830.00 +\_590.00 mmr [Teach]
    - Grid distance: +\_1.00 +\_1.00 mmr
  - Z**
    - Original Z height: +\_48.00 mmr
    - Withdrawal distance Z (relative to last point): +\_1.00 mmr
    - Speed: +\_2.00 mm/s
  - ☒ two ways
  - Measured pc: 0 / 2704086
  - [? icon]
- Coordinates:** X 0.000 Y 0.000 Z 0.000
- Buttons:** Start, Stop, [Home], [Left], [Right], [Up], [Down], Exit
- Load/save digitized data:**
  - Load data from digi file [Load]
  - Save data to digi file [Save]
  - Save data to NC file (G code) [Save]
- Options:** Create tool paths, ☒ crossed, ☒ two ways

Special function digitizing

### Elements in the window

This window is variously subdivided. In the top area all entries concerning the stipulation of measuring area and measuring method have to be made. The area below is required for processing and saving the data after measurement :

<b>Bottom left corner Top right corner</b>	Defines a rectangle in absolute machine coordinates where surface measurement takes place. Both corners can manually be moved without any efforts.
<b>Measuring distance</b>	Defines the distance between two sequential distance series of rows for both axes.
<b>Base line Z-height</b>	Defines first Z height where measurement starts at the left-hand bottom.
<b>Withdrawal Z-height</b>	Defines the distance required by the Z height Z-height to move upwards after measurement in order to freewheel for next measurement.
<b>Measuring positions X/Y</b>	Displays during measurement the complete positions x/y number of moved positions and those which have already been measured.
<b>LED</b>	<p>As test display it indicates status of measuring sensor. Function control can manually be carried out without any problems.</p> <p>The LED has to flash black and changes to red color when pressing.</p>
<b>Forward / Backward</b>	Determines direction of measurement, i. e. bidirectional or uni-directional. Machines with backlash compensation should be measured uni-directional .
<b>Start / Stop</b>	Starts or stops measuring process.

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Digitizing of a sample

*Surface  
measuring  
within defined  
limits*

The measuring process starts at the bottom left-hand corner of the measuring area by measuring the sample line by line in the defined distance. Measuring is always made along the X-axis and approaches slowly the end position in the upper right-hand corner. The current axes positions are displayed online in the position area.

After measuring the data can be re-processed by various functions. Prior to any additional processing it is recommended to save the current data as measured value file. This allows reloading after faulty operation. Saving and loading of the measured value file is simply made by activating the corresponding buttons and the selection of the desired file name.

For revising the measured values following function keys are available :



Produces a negative of the digitized sample, i.e. a shape is transformed out of an original or the other way round.



The sample is copied, mirrored at the right edge and dovetailed.



The sample is copied, mirrored at the left edge and dovetailed.



The sample is copied, mirrored at the top edge and dovetailed.



The sample is copied, mirrored at the bottom edge and dovetailed.

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**For partial digitizing it is a good idea to copy, mirror and join especially symmetric pieces.**

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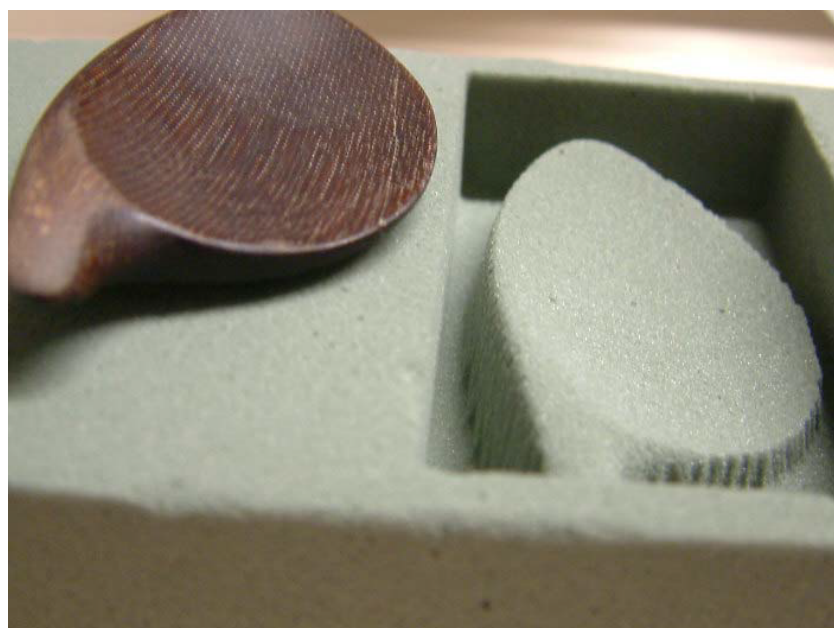
Saving the measuring data as working CNC program is made by the last step. Herewith the data output is susceptible by two additional options.

**Crosswise**

Induces **WinPC-NC** to begin milling the data along the X-axis. Secondly milling takes place along the Y-axis. By means of crosswise smoothing the surface becomes a clean finish.

**Forward/Backward**

Defines milling direction, i. e. bi-directional or uni-directional. Uni-directional milling is recommended with machines with backlash.



Digitized sample and duplicated piece

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