



# Instructions Sorotec Macro

## to expand EdingCNC

## Installation

After installing and setting up the EdingCNC, the machine functions can be expanded by using our macro.

Before you start with these settings, the included ZIP file must be unpacked and the macro.cnc file along with the dialog images must be copied to the root directory of EdingCNC. By default, EdingCNC is installed in the following directory: C:\Programs\CNC[x.xx]. Copy the macro.cnc file directly to this directory.

The images from the dialogPictures folder should also be copied to the installation folder of the same name.

If the macro.cnc file has been copied correctly, it will be displayed as loaded in the program window on the right after starting the EdingCNC program.

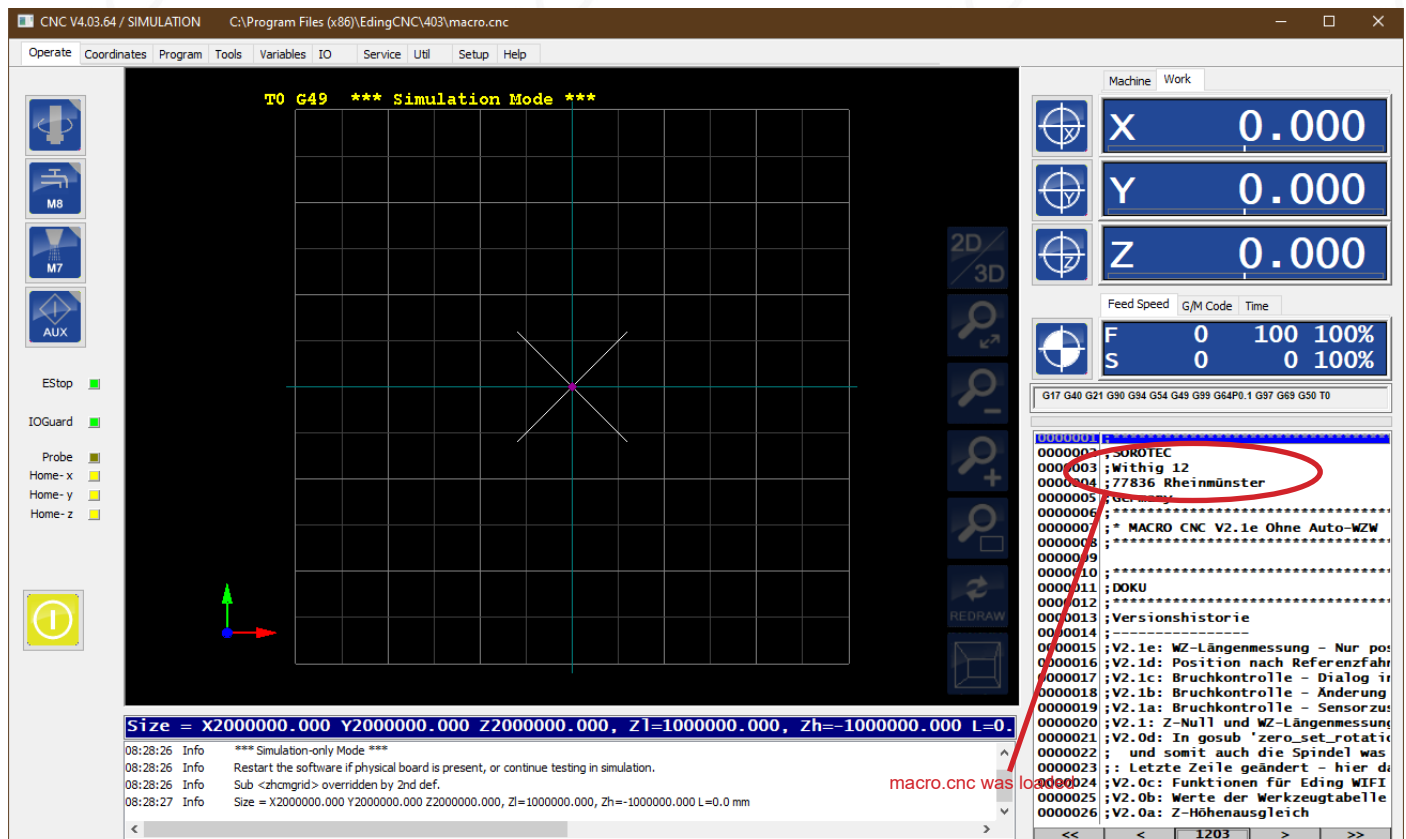


Fig. 1: The macro was found and loaded without errors

## Determine coordinates

Before the configuration is started, the desired machine coordinates must be determined and noted. To do this, first carry out a reference run. Then switch the coordinate display to the Machine tab.

### 1. Set tool change point

- Move to the desired tool change point and note the machine coordinates.

### 2. Define tool length measuring point

- Remove the tool from the milling motor and only insert a collet with a union nut.
- Now move the milling machine over the tool length sensor point. Note the X and Y coordinates.
- Lower the Z axis until the tool length sensor switches. Also note this value.

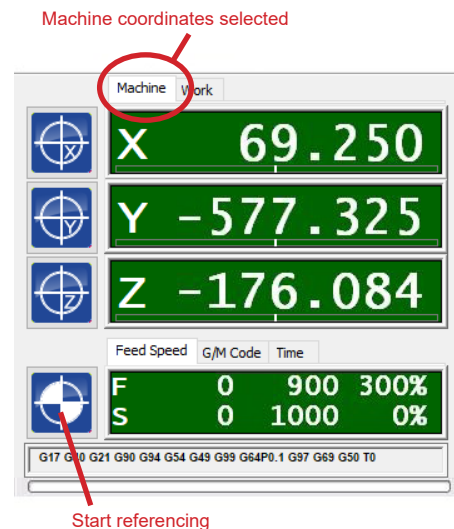


Fig. 2: Determination of the coordinates

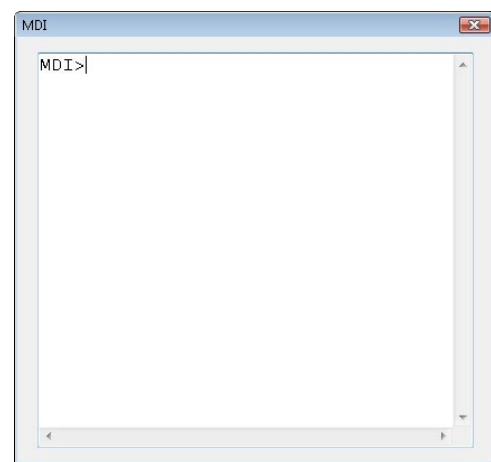



Fig. 3: Blank MDI window

## Start configuration

In order to configure the Sorotec macro, the “Manual data entry” must be opened by pressing the button  or the **F6** key in the main menu.

An empty MDI window (Figure 3) is opened by entering “gosub config” (Figure 4) to start the step-by-step configuration and confirming with the **ENTER** key.

The first configuration menu then opens for entering the changer type (Figure 5).



Fig. 4: Start command

## Tool change type

- Enter the tool change type:
  - 0 = no action when changing tools
  - 1 = The machine moves to a predefined position and requests the tool to be changed. After changing the tool, milling continues immediately.
  - 2 = like 1 with the difference that after the change the tool is measured.
- Accept the setting by pressing the button **OK**.
- “Tool changer position” opens.

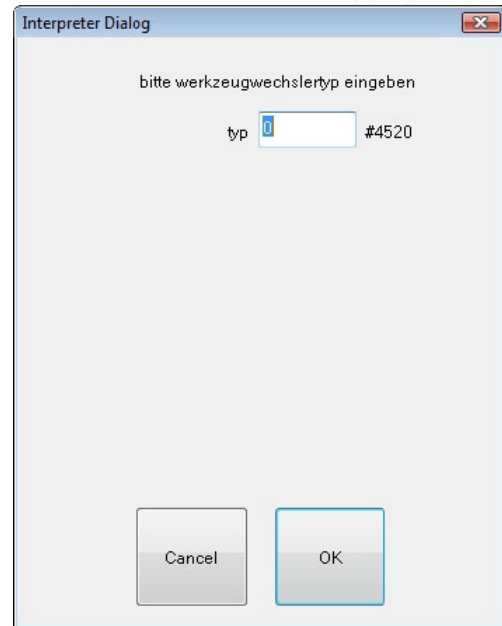


Fig. 5: Input type of tool changer

## Tool changer position



### Attention:

**Only enter machine coordinates for all position data! Always enter all coordinates with a decimal point! Values entered with a decimal point are rejected and accepted as zero.**

- Enter tool changer position.:
  - Position X/Y axis**  
The coordinates to which the machine is moved when changing tools are entered here.
  - Position Z axis**  
It is recommended to leave this value at 0.
- Accept the setting by pressing the button **OK**.
- “Length sensor data” opens.

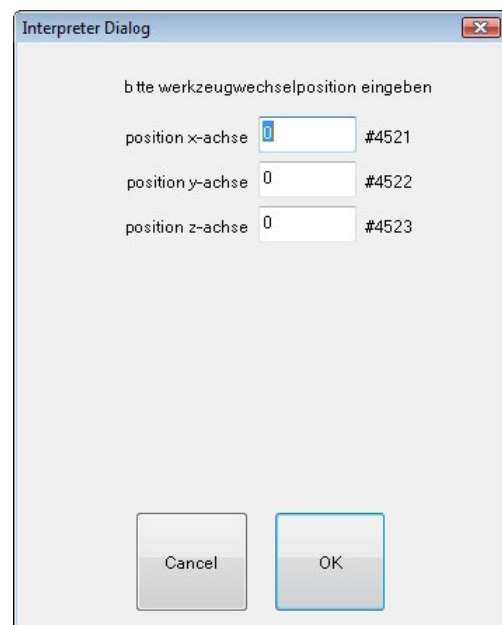


Fig. 6: Tool changer position

## Length sensor data

- Enter length sensor data:

### Type

Inverts the sensor signal

- (is required if the macro tells you that no tool length sensor was found)

### Height sensor

Enter the height of the length sensor.

### Approach feed

Approach speed on button in mm/min. The speed must not be too high so that the drive can brake after the switch is triggered without driving to a block. Approx. 100 mm/min is recommended.

### Switching feed

The button triggers again at this speed in mm/min. Approx. 10 mm/min is recommended.

- Accept the setting by pressing the button **OK**.
- “Tool sensor data” opens.

bitte z-nullpunktsensordaten eingeben

bitte z-nullpunktsensordaten eingeben

typ 0=Öffner, 1=schliesser  #4400

höhe sensor  #4510

anfahrvorschub:  #4512

tastvorschub:  #4513

Fig. 7: Length sensor data

Interpreter Dialog

bitte werkzeuglängensensordaten eingabe

position x-achse  #4507

position y-achse  #4508

sicherheitshöhe z  #4506

sp. ohne werkzeug  #4509

max. werkzeuglänge  #4503

anfahrvorschub:  #4504

tastvorschub:  #4505

Cancel OK

Fig. 8: Tool sensor data

## Tool sensor data

- Enter tool sensor data:

### Position X / Y axis

Tool length sensor attachment point

### Safety height Z

Height approached before moving to the tool length sensor. Recommended value = 0

### Sp. (switching point) without tools

Switching height without tools inserted.  
Position of the Z axis when switching the tool length sensor when it is approached with an empty collet (corresponding to zero tool length).

### max. tool length

Maximum tool length to use

### Approach feed

Approach speed on button in mm/min. The speed must not be too high so that the drive can brake after the switch is triggered without driving to a block. Approx. 100 mm/min is recommended.

### Switching feed

The button shuts down again at this speed in mm/min. Approx. 10 mm/min is recommended.

- Accept the setting by pressing the button **OK**.
- “Breakage control” opens.

## Breakage control

When activated, it is checked whether a tool length sensor is connected and then the condition of the milling cutter is checked by moving to the sensor before it is stored in the tool magazine. Only activate the breakage control when all tools in the magazine have been measured.

- Breakage control: 0 = off, 1 = activated
- Wear limit: 1 mm recommended

“Position after measurement” opens.

The 'Interpreter Dialog' window has a title bar with a close button. The main text reads 'bitte werkzeuglängensensordaten eingabe'. Below this, there are seven rows of input fields, each with a label, a text box, and a variable name in parentheses. The first row has a dropdown menu showing '0'. At the bottom, there are two buttons: 'Cancel' and 'OK'.

Label	Value	Variable
position x-achse	0	#4507
position y-achse	0	#4508
sicherheitshöhe z	0	#4506
sp. ohne werkzeug	0	#4509
max. werkzeuglänge	0	#4503
anfahrvershub:	0	#4504
tastvershub:	0	#4505

Fig. 9: Breakage control data

## Position after measurement

This is where you determine where the machine will go after a measurement.

- Enter position after measurement:

### Function

0 = predefined position

1 = Workpiece zero point in X and Y. Z is moved to safety height.

2 = Tool change position is approached.

3 = Machine zero point is approached.

4 = Machine stops over sensor.

This is not recommended as there is a risk that the sensor will be hit when the program starts.

### Position X / Y axis

Predefined position that is approached when function = 0.

The 'Interpreter Dialog' window has a title bar with a close button. The main text reads 'position nach messung anfahren'. Below this, there are three rows of input fields, each with a label, a text box, and a variable name in parentheses. The first row has a dropdown menu showing '0'. At the bottom, there are two buttons: 'Cancel' and 'OK'.

Label	Value	Variable
funktion:	0	#4519
position x-achse	0	#4524
position y-achse	0	#4525

Fig. 10: Where to go after the measurement?

- Accept the setting by pressing the button **OK**.
- “Offset 3D button” opens.

## Offset 3D button

- Input offset 3D button:

### Towards X+

Specifies the offset in the direction X+.

### Towards X-

Specifies the offset in the direction X-.

### Towards Y+

Specifies the offset in the direction Y+.

### Towards Y-

Specifies the offset in the direction Y-.

- Accept the setting by pressing the button „OK“.
- “Spindle warm-up” opens.

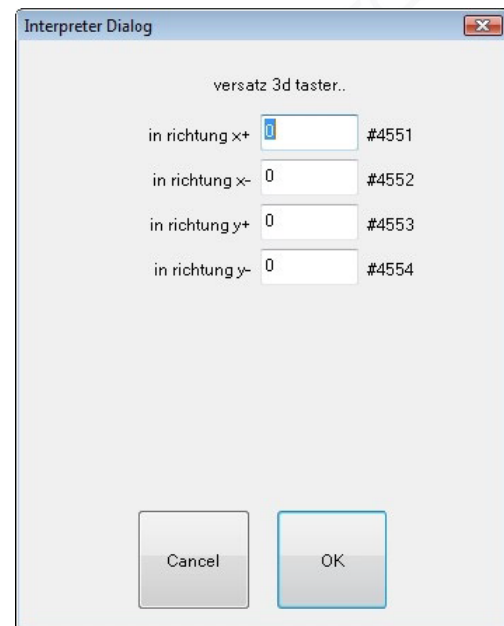


Fig. 11: Offset for a 3D button

## Spindle warm-up parameters

- Enter spindle warm-up parameters:

### Stage speed

Speed for the spindle warm-up of the stage.

### Runtime (sec.) stage

Time for the spindle warm-up of the stage in seconds.

0 = No spindle warm-up at the specified stage.

- Accept the setting by pressing the button „OK“.
- Configuration completed.

The Sorotec macro is now configured and can be used. If you want to change entries, start the configuration again.

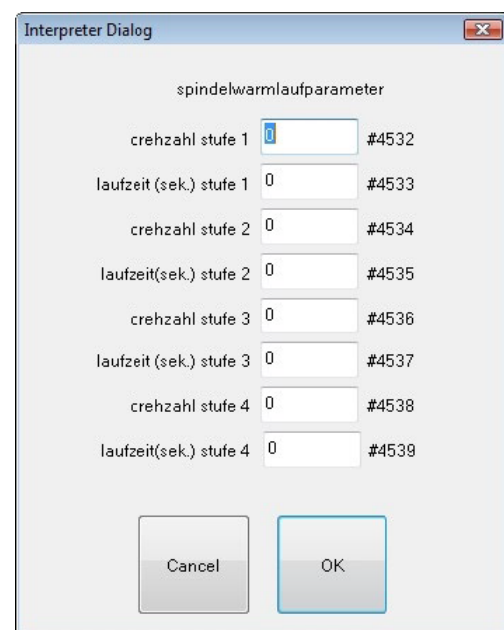


Fig. 12: Parameters for spindle warm-up



## Introduction to using the Sorotec macro

The following chapters describe the use of the individual functions are described.

These are in detail:

1. Determine Z zero point
2. Tool length measurement
3. Spindelwarmlauf
4. Tool change
5. Tool manipulation
6. Determine the zero point of the X and Y axes
7. Approach machine zero point

## Determine Z zero point

The basic idea is to use a movable height sensor to efficiently determine the Z zero point. To determine the Z zero point, proceed as follows:

1. Position the movable height sensor on the surface on which the Z zero point is to be set.

2. Move the X and Y axes of your machine so that the tool is above the movable height sensor.
3. Start the Z zero point determination.




### Attention:

If the Z zero point determination is started immediately after starting the EdingCNC program without the tool having been calibrated beforehand, the query will first be asked as to whether the tool should be calibrated. Pressing the "OK" button carries out the tool length measurement. The machine then moves back to the X and Y position in which it was before the tool length measurement.

The Z zero point determination must then be started again. Information about tool length measurement can be found in the next chapter.

## Z zero point determination

The Z zero point determination is started by pressing the button  or the **F2** key in the user menu.

- After pressing the **OK** button, the Z zero point determination is started.

The machine lowers the Z-axis at a specified speed (approach feed) until the tool triggers the movable height sensor. The button then slows down (switching feed) until it triggers again. This ensures the highest possible precision. After determining the zero point, the Z axis is raised again by 5 mm so that the height sensor can be removed.

The Z zero point determination is finished.

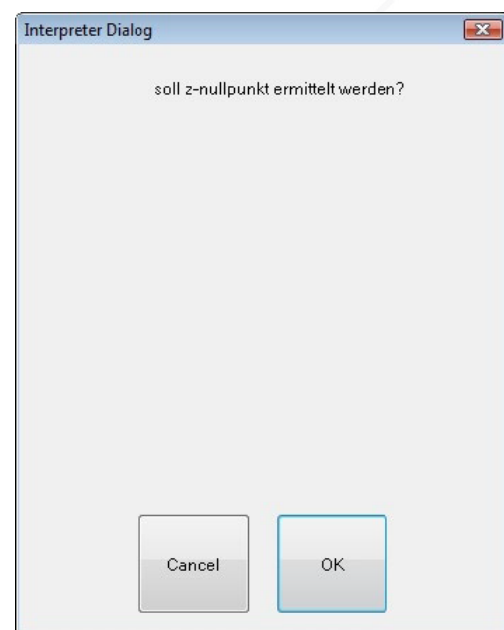



Fig. 13: Start the measurement for the Z zero point



## Tool length measurement

The tool length measurement is started by pressing the button  or the F3 key in the user menu.

- Entering the tool length:  
The current approximate tool length is entered here. (Caution: It is better to enter too long than too short)
- After pressing the **OK** button, the tool length measurement is carried out.

### Notice:

*The default length displayed after starting the tool length measurement is the value that was entered for max. tool length when setting up the macro.*

The machine now moves to the specified position of the tool length sensor on the X and Y axes. Once this is reached, the Z axis lowers until the tool is measured and outputs the tool length.

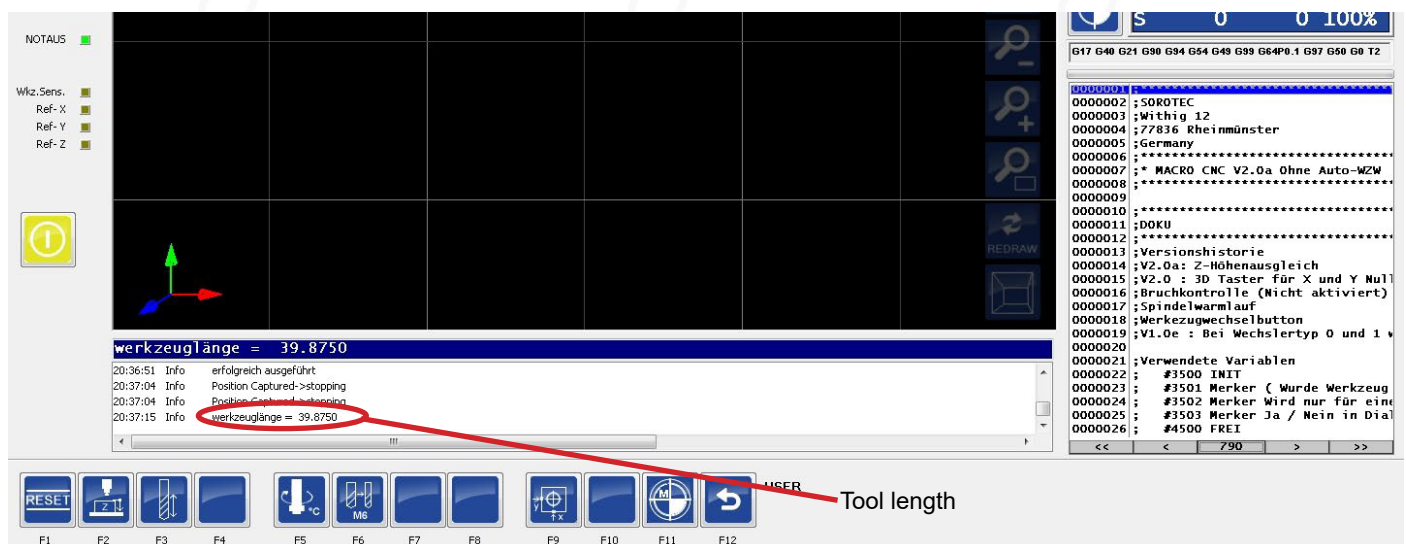


Fig. 14: Display of the measured tool length

After the measurement, the machine moves to one of the five possible positions that were entered when setting up the macro:

- predefined position
- Workpiece zero point on the X and Y axes. The Z axis is approached while in safety height.
- Tool change position is approached.
- Maschinennullpunkt wird angefahren.
- Machine stops above the sensor.

The tool length measurement is finished.

### Notice:

*The tool length displayed is a relative value and is required for internal calculation. When a new tool length measurement is made, the last tool length is used for the calculation and the Z axis is shifted by this value.*

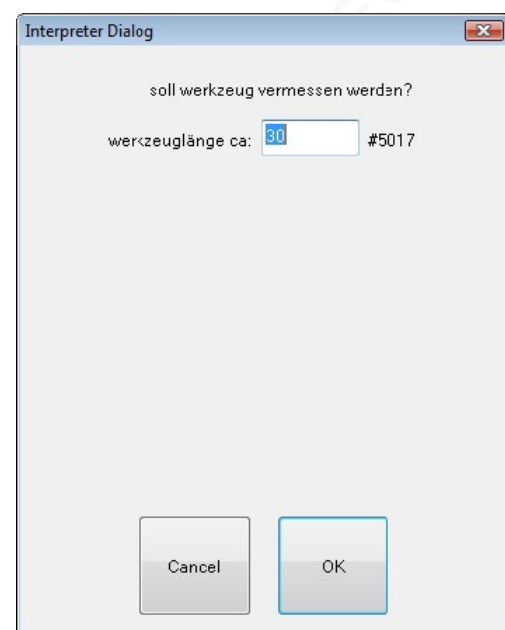



Fig. 15: Approximate tool length

## Spindle warm-up


The spindle warm-up is started by pressing the button  or the **F5** key in the user menu.

After pressing the **OK** button, the spindle warm-up is carried out.

### Notice:

The spindle warm-up is used to slowly bring the spindle to operating temperature.

The machine moves the Z axis to the machine zero point and starts the spindle warm-up.


The spindle warm-up can be canceled by pressing the button  or the **Esc** key.

The spindle warm-up is finished.



Fig. 16: Start warming up the spindle

## Tool change

The tool change is started by pressing the button  or the **F6** key in the user menu.

Entering the tool change:

- Enter new tool number.
- Accept the setting by pressing the button **OK**.

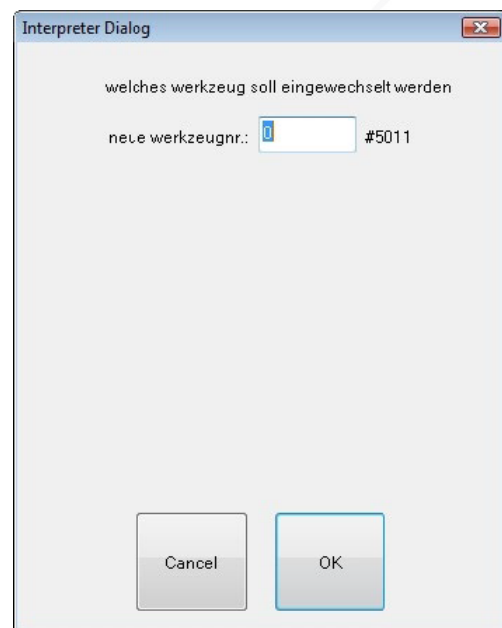


Fig. 17: Which tool is next?

If the newly entered and the old tool numbers are the same, you will be asked whether the tool change should still take place.

- This is confirmed by pressing the **OK** button.
- Pressing the **Cancel** button cancels the tool change.

For the tool change, the Z axis is moved to the specified safety height. The X and Y machine coordinates entered when setting up the macro are then approached.

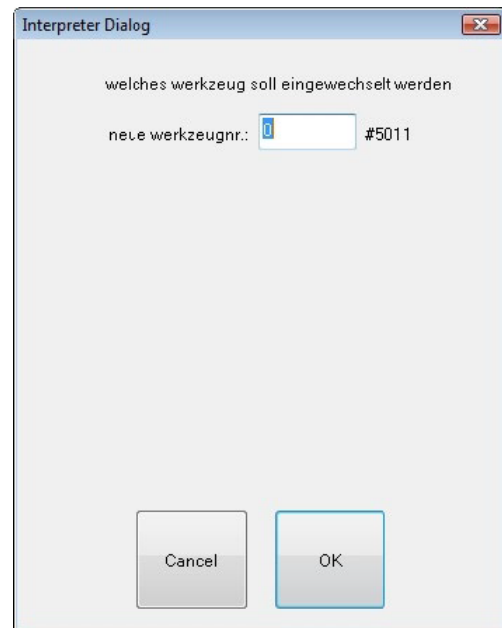


Fig. 18: The requested tool is already loaded

The program now requests a tool change.

- With "old tool no.:" the tool number used before the tool change is displayed.
- For "new tool no.:" the previously entered tool number is displayed.
- This is confirmed by pressing the **OK** button.
- Pressing the **Cancel** button cancels the tool change.

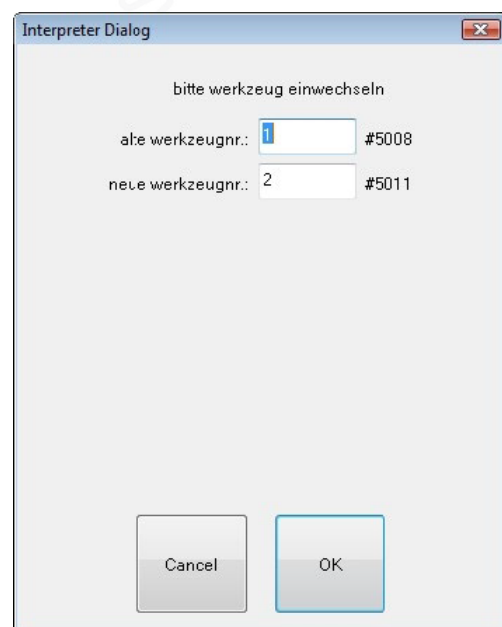


Fig. 19: Confirmation of tool change

The inserted tool is then measured, as described in the tool length measurement chapter.

- This is confirmed by pressing the **OK** button.
- Pressing the **Cancel** button cancels the tool change.



## Attention:

After pressing the Cancel button, only the tool length measurement is canceled. The tool change has been completed and is also displayed.

The tool change is finished.



Fig. 20: Confirmation of measurement after change


**werkzeugnr.: 1.0000 mit werkzeugnr.: 2.0000 gewechselt**

```
21:19:26 Info    erfolgreich ausgeführt
21:19:26 Info    werkzeug wird vermessen
21:19:27 Info    erfolgreich ausgeführt
21:19:27 Info    werkzeugnr.: 1.0000 mit werkzeugnr.: 2.0000 gewechselt
```

Fig. 21: Completed tool change in the log

## Tool manipulation

Tool manipulation is used to change the tool number without actively executing a tool change. A Z zero point determination or tool length measurement is then not necessary

Tool manipulation is started by pressing the button  above **F7** or the **F7** key in the user menu.

Input tool manipulation:

- With “old tool no.:" the tool number used before the tool change is displayed.
- For “new tool no.:" the previously entered tool number is displayed.
- This is confirmed by pressing the **OK** button.

Tool manipulation is finished.

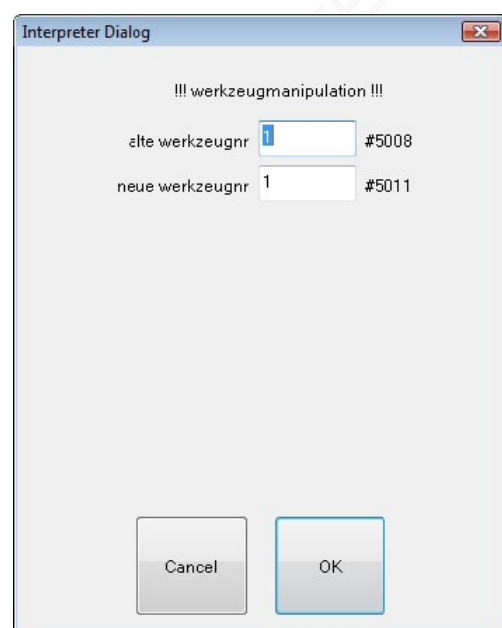


Fig. 22: Change tool number

## Determine the zero point on the X and Y axes

With the zero point determination in conjunction with a 3D probe, a workpiece edge can be probed on the X and/or Y axis, for example, in order to define the respective edge as the zero point.

To determine the zero point of an axis, proceed as follows:

- Position the 3D probe next to the workpiece edge to be probed.
- The tip of the 3D probe must be below the workpiece surface (see Fig. 23).
- Start the zero point determination.

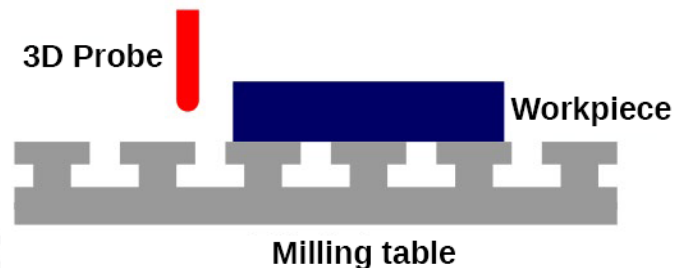



Fig. 23: Probe tip below upper workpiece limit

The zero point determination is started by pressing the button  or the **F9** key in the user menu.

Determine zero point input:

- For “Direction:” the number 1 ... 4 is entered to determine the corresponding direction for probing.

1 = X+  
2 = X-  
3 = Y+  
4 = Y-

- The information is confirmed with **OK**.

The machine moves in the specified direction to touch the object. Once the 3D probe has touched the object, the zero point of the workpiece coordinate is shifted by the offset of the 3D probe. The machine then moves 1 mm in the opposite direction to free the 3D probe again.

The zero point determination is finished.

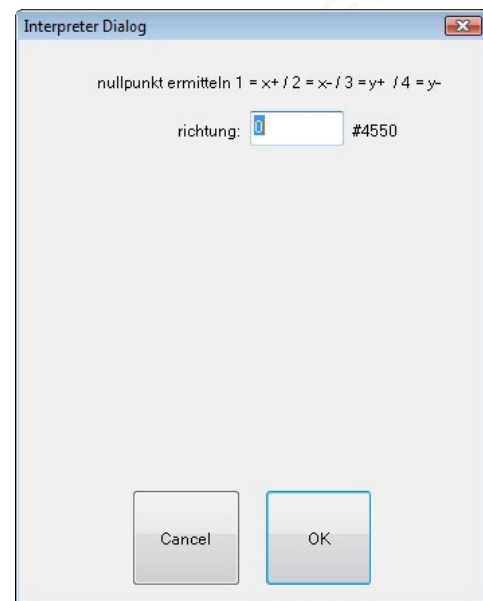



Fig. 24: Specification of the probing direction

## Approaching the machine zero point

Approaching the machine zero point is started by pressing the button  or the **F11** key in the user menu.

Pressing the **OK** button confirms the process.

The machine moves the Z axis to the machine zero point, then the X and Y axes.

Approaching the machine zero point is complete.

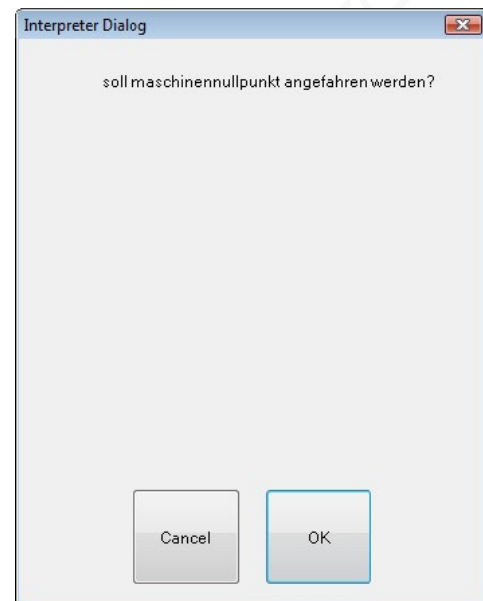


Fig. 25: Should the machine zero point be approached?