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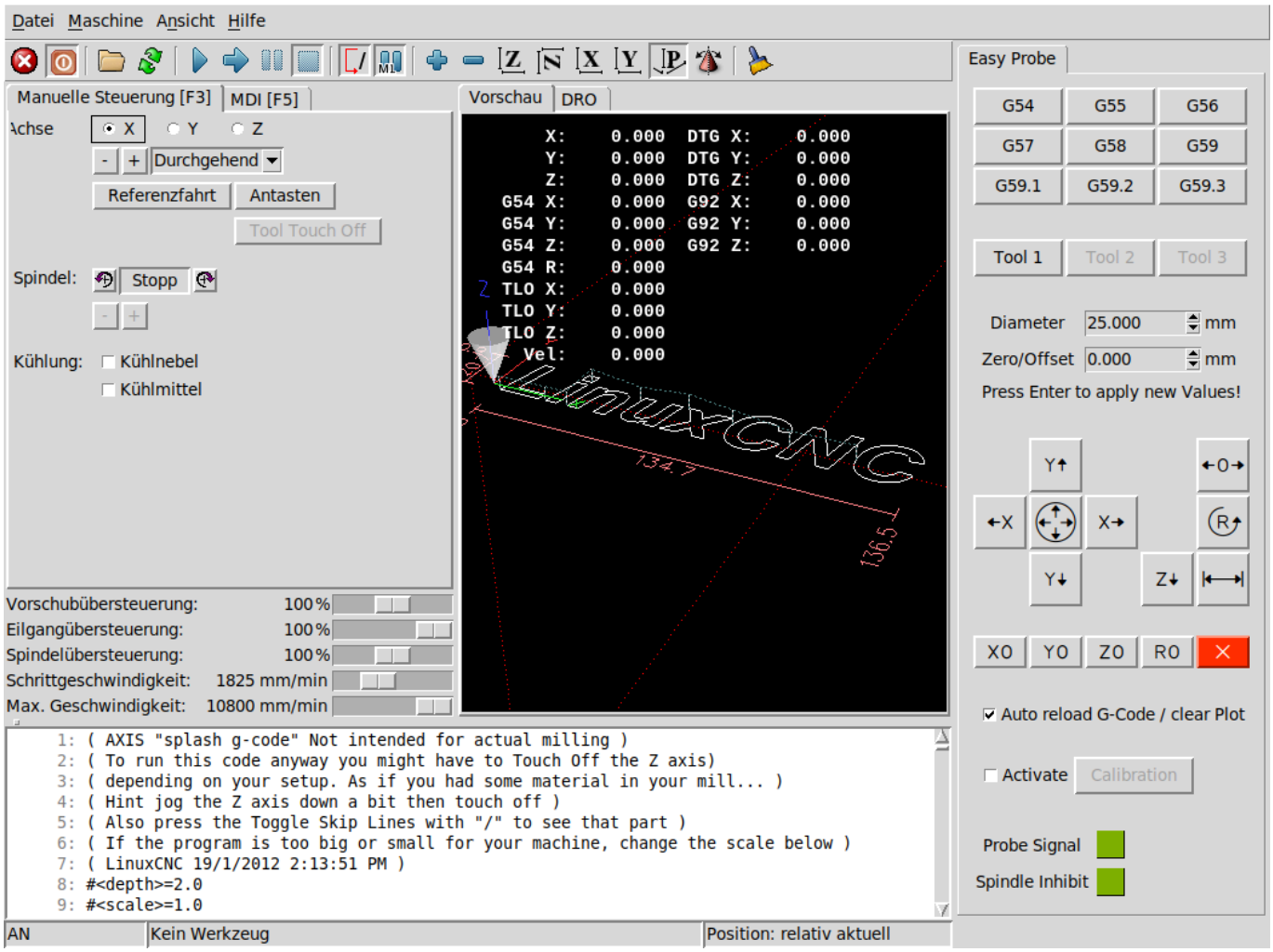
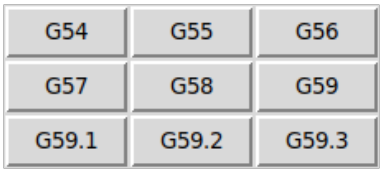
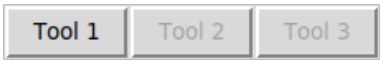


1) Coordinate system



Select the current coordinate system with the buttons G54 to G59.3 before you start probing.

2) Probe tool



Select your probe tool here. Up to three different probe tools or one probe tool with up to three different probe tips can be user defined in your INI file. Each probe tool will be calibrated individually.

Note: Buttons for unused probe tools will automatically be disabled.

Be aware that pressing the tool buttons leads to a toolchange (M6) and also adds a tool length offset (G43) to the system.

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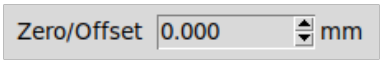
3) Diameter

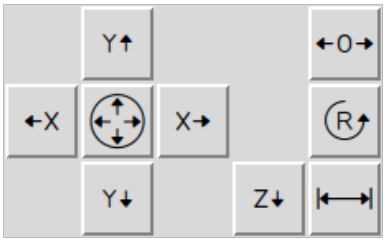
a) In case of a probe tool calibration, enter the exact diameter of the calibration ring.
b) In case of a pocket probe, enter the estimated diameter of the pocket.
Note: Instead of scrolling you can cklick on the number, enter a new value and hit enter.

4) Zero/Offset



If your probe target value should be anything else than zero, set it to the desired value before probing.
Note: Instead of scrolling you can cklick on the number, enter a new value and hit enter.

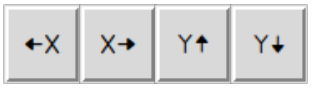
5) Probe buttons



To perform any of the probe actions, please make sure that
a) the right coordinate system has been selected
b) the right tool has been selected and calibrated once before
c) zero/offset has been set to the desired value

Please note that any probe action only affects the currently selected coordinate system.

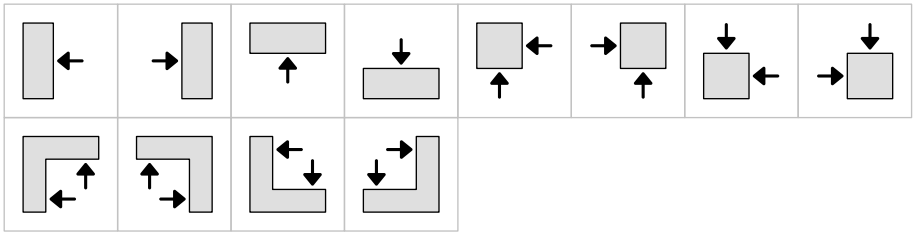
5.1) Edge/corner probe



For edge probe move the tip at least as close to the edge as the ***MAX_XY_DISTANCE*** value from your INI file.
For probing corners (either inside or outside) perform two seperate edge probes for X and Y.

Note: This procedure was deliberately not automated to avoid the risk of crashes while moving from the first to the second probe point.

Edge/corner probe examples:



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5.2) Top probe

For top probe move the tip at least as close to the top as the ***MAX_Z_DISTANCE*** value from your INI file and click the top probe button.

5.3) Pocket probe

For pocket probe move the tip as close to the center as possible. Enter the estimated diameter in the input field above and click the pocket probe button.

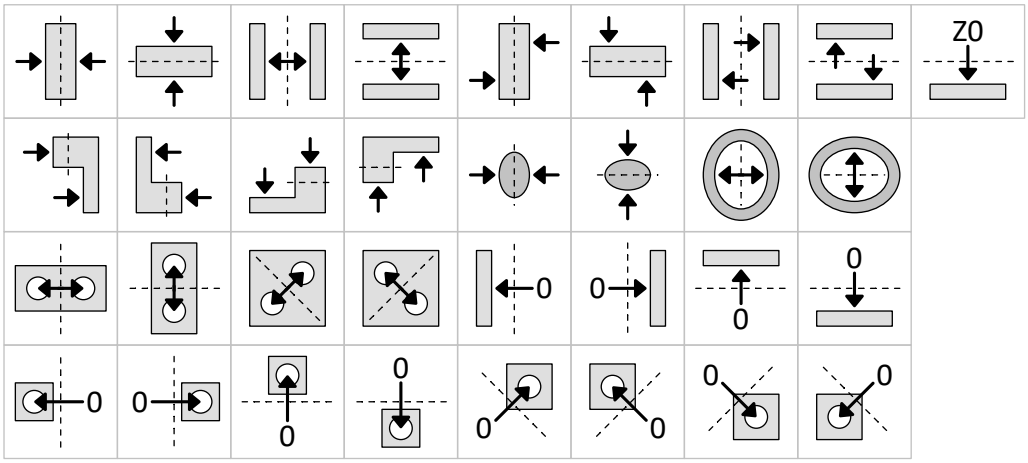
5.4) Width/midpoint probe

1. Click the width/midpoint button to start the operation
2. Probe the first point or click the width/midpoint button to skip the first probe if you want to use the current zero point as the first point
3. Probe a second point that is comparable to the first one:
   - In case of a first probe, it must be in the same axis except if your second probe is a pocket probe. So if your first probe results in an X value, the second probe must at least include an X value, too.
   - In case of the zero point as first point, any second probe action is allowed since the first point has X, Y and Z values.
4. After a successful operation the calculated midpoint will be set to zero/offset value and the distance between both points will be shown in the probed axis

Note that you can use the function to find the midpoint of any shape such as cuboids, tubes, steps or even between bores.

Hint: To get the exact width and height of an oval, first perform a probe action in X to get the midpoint, then perform a probe action in Y to get the height and a second one in X to get the width.

Width/midpoint probe examples:



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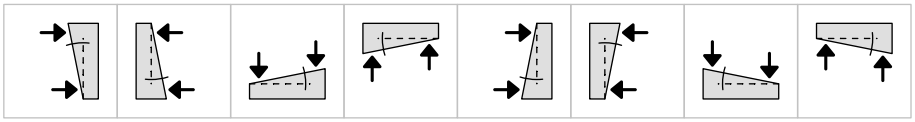
5.5) Rotation probe

1. Click the rotation button to start the operation
2. Probe the first point or click the rotation button to skip the first probe if you want to use the current zero point as the first point
3. Probe the second point in any direction of the same axis (X or Y) or click the rotation button to abort the operation
4. After a successful operation the rotation will be set so that the probed axis will be pointing towards the second probe point

Rotation probe examples:



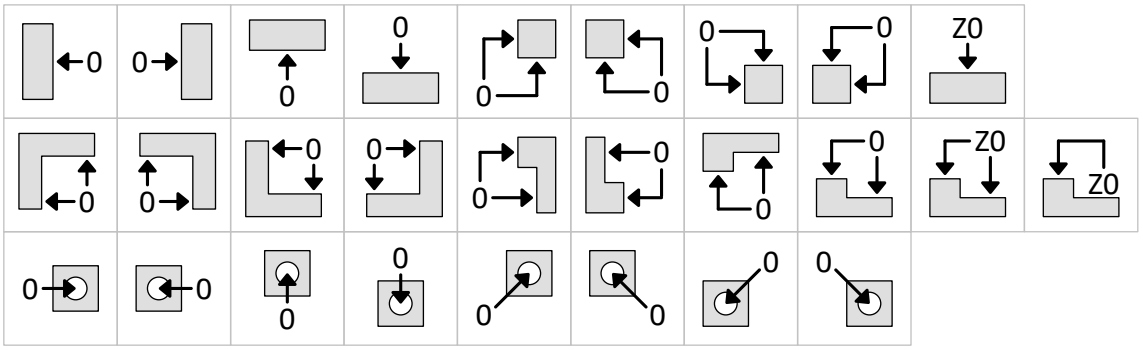
5.6) Distance probe

Click the distance button once to enter the ***measuring mode***. All measurements will refer to the current origin (zero point). You can do as many measurings as you need. When you're done, click the abort button.

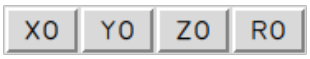
Click the distance button a second time to enter the ***logging mode***. While in logging mode, all measured values will be saved to a file named probe_results.txt in your configuration folder. Be aware that each time you enter the logging mode, your previous logfile will be overwritten!

Note: If you need to set the origin without changing your current coordinate system, abort the operation, switch to any unused coordinate system, set your origin and restart the operation.

Distance examples:



6) Set axis to zero/offset



If you just need a rough zero point or offset and there is no need for a precise probing, you can use the buttons to set your current position to the ***zero/offset*** value you have entered above. While X to Z offset units are mm, R offset units are degrees. Note that it only affects the currently selected coordinate system.

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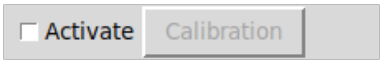
7) Abort operation

You may abort any probe operation anytime by clicking the abort button.

8) Auto reload G-Code

Under normal conditions the g-code should be reloaded after touching off. However, in case of very large files a reload may take too long, depending on your computer and data source. If you don't want to reload your g-code and clear the plot after setting a new zero point, uncheck this function.

9) Calibration



Each probe tool and tip combination must be calibrated with a calibration ring at least ***once before use***. The calibration corresponds to a pocket probe with multiple probe trips. The determined values will be matched to the exact diameter of the calibration ring.

To perform a calibration

1. fix the calibration ring on your machine
2. enter the exact diameter
3. move the probe tip as close to the center as possible
4. check the checkbox to activate the calibration button
5. click the button and follow the LinuxCNC messages.

Once a tool is calibrated, its values will be stored permanently.

Note that

- the number of probe trips can be defined in your INI file. A higher number will lead to better results
- it is recommended to recalibrate your tools from time to time
- the calibration values will be stored in your tool table file

10) Probe signal

The square LED indicates an active probe signal. This may help you to check your probe tool manually and make sure that it is properly connected and in working order.

11) Spindle inhibit

The square LED indicates that spindle.0.inhibit has been set to true. This is the case when you switch to one of the three defined probe tools. For enabling the spindle again, simply switch to any other tool.