

## NEW in Version 8.0 Touch probe in TopMill

As a new function of TopMill is the measurement of the workpiece with touch probes.

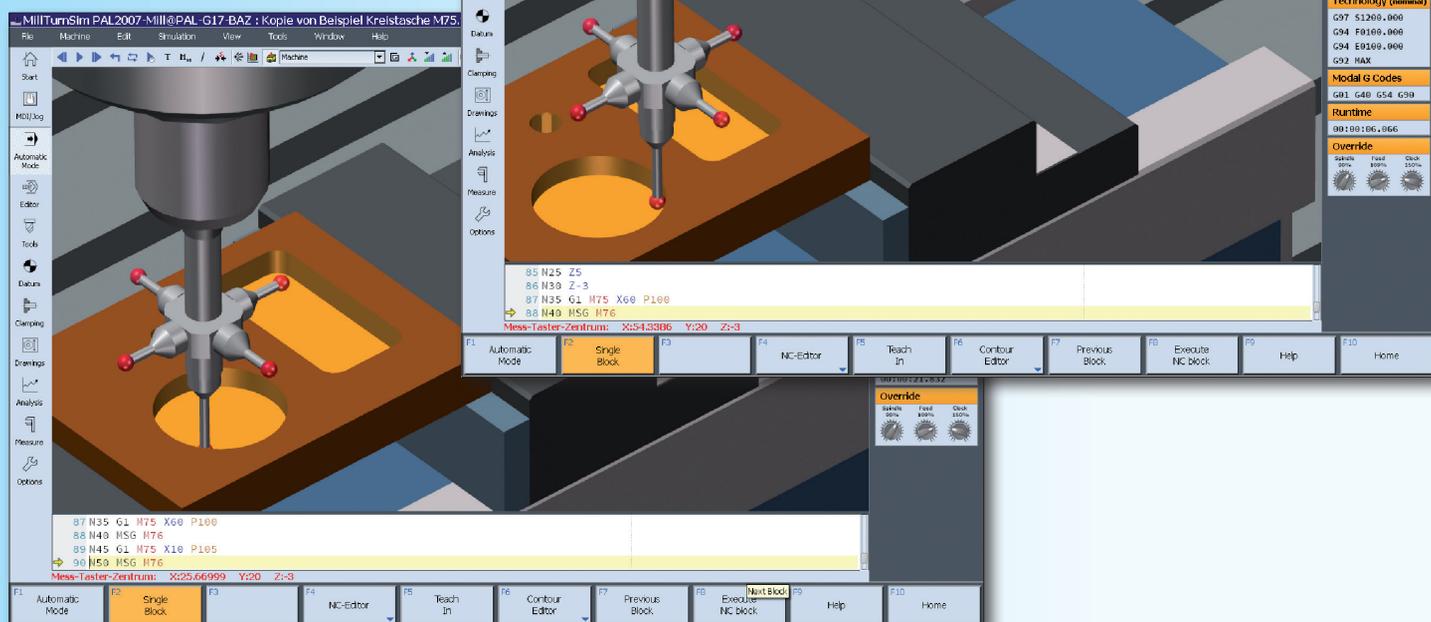
For this purpose, the operation of a touch probe system was implemented as a new feature of the MTS CNC simulation. This mode of operation consists in the simple behavior that a touch probe system when touching an obstacle (normally the workpiece) with a probe ball, the deflection of the touch probe stops the axes movements by feed hold.

Since stopping the axes can not suddenly happen, the touch point is slightly overrun. This travel distance of this run over is determined by direction-specific calibrations of the touch probe measuring system in measuring feedrate and the axes stop positions are corrected corresponding to this calibration.

These parameter values stored in the CNC as result of this measuring process referred to as single point touch probe measurement can be evaluated with any other single point measurements in a measurement cycle or in user-written NC-program macros.

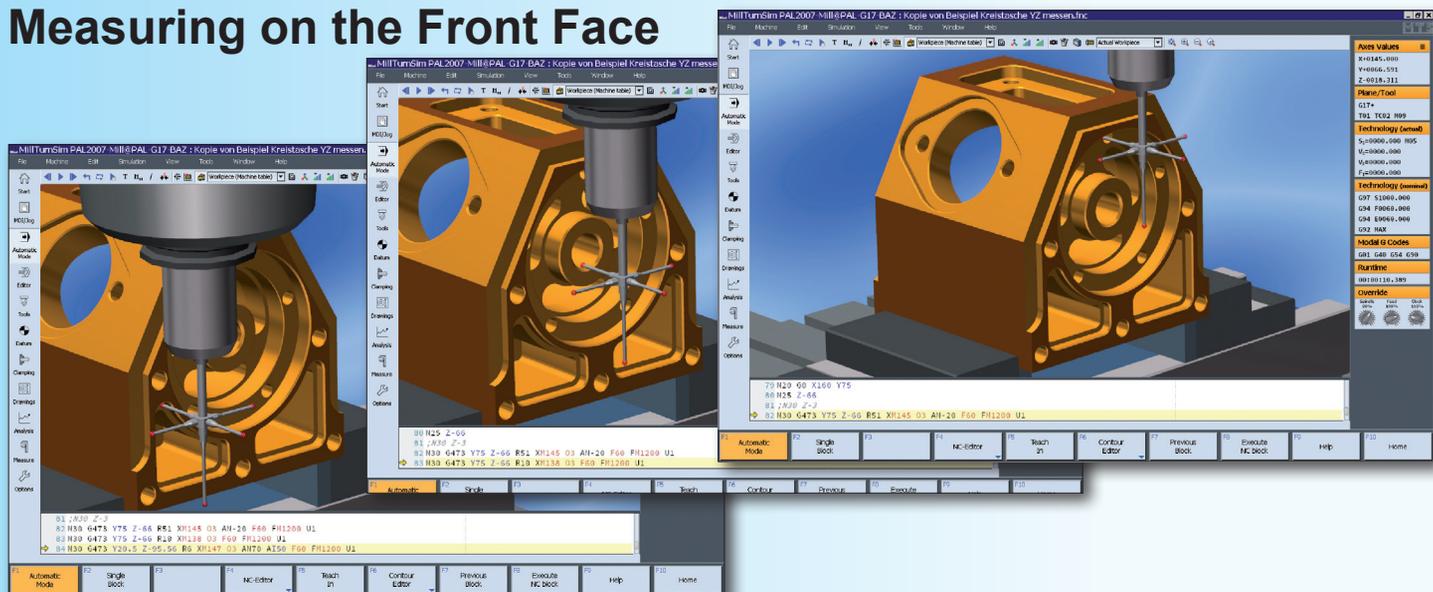
For simple tasks such as measuring a hole / circular pocket / pin and square pocket measuring cycles are provided as macros whose results are displayed or logged during the simulation.

### Determination of the circular pocket radius and circle center with three measurements



Through the modal machine command M75 the simulation control goes to the measurement mode. In this mode, in case of collisions of the touch probe ball the collision points are treated as individual measurements taking into account the active correction value set. For this, the axis values are saved in the parameters beginning with the start number programmed in the NC block and can then be further processed in a macro and / or displayed with a message command M76. The modal measurement mode M74 is turned off with M74. Collisions of the touch probe arms with the workpiece or clamping components are reported in the simulation as a collision and will stop program run - if collision detection is activated.

# Measuring on the Front Face



The simulation of the measurement process is extremely helpful on the one hand in the creation of special measuring macros for predefined contour shapes or complex workpieces and on the other hand existing measurement macros can be tested. The possible adaptation to specific CNC controllers in **TopMill** then allows the simulation and verification of measurement programs in a variety of control NC languages.

The touch probe geometries of renowned touch probe systems introduced in the market are available in the tool management as templates and can be easily adjusted in very simple manner to any other touch probe. The construction of new probes with 1-5 touch probe balls in different touch probe assemblies takes place in the tool management system of **TopMill** like in reality.

