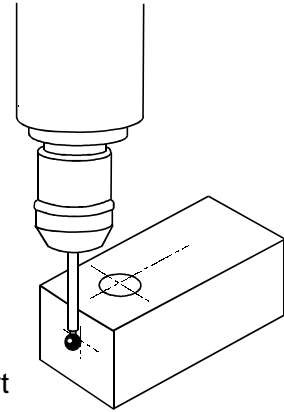


# Digitizing a Part with MachineMate

This CNC procedure (part program and PLC application) will digitize a part within a defined cube. The program will move across a part, of a defined width, taking samples of its depth at defined intervals. After each pass, it will advance a defined step and take another pass of samples, until it has reached its defined height.

The feature has a simple set up, including the resolution of the points to be captured on the part and the rough dimensions of the part (XYZ on a mill or XZ on a lathe). Upon activation, the CNC will move the machine enabling the touch probe to record the surface of the part. It will also handle a missing surface, like a hole or an outside surface that is inside the rough dimensions. This digitizing process records the activity in a part program that can reproduce the original contours, enabling the reverse engineering of a part or its features.



The part program that does the digitizing (in the 'G54 H1' context) assumes it is starting at the lower left corner, so X and Y will be increasing in value over the course of digitizing while Z will be decreasing from the start point (- into the part). For ease of reading the output program, this initial position could be 0,0,0. If the part's corner is not really at 0,0,0 when digitizing but such a reference for part zero is desired in the output program, then adjust the G54 and/or H1 offsets accordingly when the output program is executed.

This digitizing part program requires the following configuration parameters:

- P201 – part width (X)
- P202 – part depth (Z)
- P203 – part height (Y)
- P204 – increment for sampling in width
- P205 – increment for sampling in height
- P206 – the back off distance after each contact during the digitizing
- P207 – probe length to be offset from the actual probe contact point (can be = or > 0.0)
- P208 – whether the digitizing program is running in inch (= 0) or metric (= 1)
- P209 – the output part program number (Pxxxxxx) generated by this digitizing process
- P210 – the reference plane / back off distance at the start of each pass in the output program

As with any MachineMate® part program, the generated part program is simple ASCII and can be edited with any text editor (like Notepad with Windows).



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