

Utilizing the "Shortest path" retraction policy in Mastercam HSM Performance Pack toolpaths for best results.

When using the "Shortest path" retraction policy on the geometry tab, with "Preserve rapid movement" rapid filtering selected on the toolpath tab, there is a detail that has to be set up correctly to get the intended results when post processing.

Nearly all post processors are set up with the nobrk variable set to zero (or no), which means that the post processor breaks up rapid motion in a XY move and a Z move. That turns the smooth shortest path motion into alternating XY and Z moves, some of them quite short. That will slow down the motion as the machine has to execute a lot of 90 degree direction changes (between horizontal and vertical motion), and that is definitely not smooth motion.

There are two possible solutions the problem:

1. Map rapid motion to high feed.

Change the rapid filtering to "Map to high feed cutting", and set an appropriate feed rate to map to (it should be set to the maximum feed rate of the machine). This will change the rapid (G0) moves to feed (G1) moves, and the feed motion is not broken up by the post processor. This is the easiest solution.

2. Modify the post processor.

Changing the nobrk variable to one (or yes) will prevent the post processor from breaking up the rapid motion, but that change alone could create problems as the post might then use rapid motion in all three axes when approaching the part from a toolchange and/or between operations. To prevent crashes because of that, it is also necessary to check (and possibly edit) the psof, ptlchg0 and ptlchg postblocks, to manually break up the motion in those postpblocks. In the ptlchg0 postblock, that breakup should take the current and following Z position into account, using something like this:

```
if fmtrnd(z) > prv_z, n, 'G0', z, e  
n, 'G0', x, y, e  
n, 'G0', z, e
```