PRECIX ADVANCED CUTTING TECHNOLOGIES

TOOLPATH

This comes up constantly in all CNC table work be it laser, router, dispenser, tangential knife, etc. . Usually this is done by the CAM software which performs the translation from design to toolpath. However, it is often done poorly or not at all. We would like to provide this function at our tool controller independent of the user's toolpath software. To our knowledge, no other tool manufacturer provides this. Sample data for this will come from an inhouse project developing a dispensing head which lays a polymer "track" simulating the lead in a stained glass window. A second head dispenses the "glass" in liquid form which spreads out to, and is contained by, the previously laid tracks.

Assumptions/Constraints:

- table size up to 6'x12'
- files will consist of a series of xyz moves from pt A to pt B
- position data will be real numbers (xxx.xxx")
- moves will not necessarily be consecutive (i.e. A to B, E to F, C to D, D to E, B to C, etc.)
- files will contain between 300 and 30,000 moves
- files will consist of moves which "cut", and jogs which reposition the tool
- in general the jogs should be minimized and the cuts should be as continuous as possible
- processing time is similar to nesting (see above)
- process will run on a pentium III class machine running at 500 Mhz or better under QNX realtime os

There will be additional contraints to the this problem. I'll try to identify them this week.

PROBLEM DATA SET

I will be able to custom design a data set which demonstrates the various limits of these problems. I may also be able to provide a small utility which displays the data sets (including data thay you may update) if you feel it would be of use to the group.