

PROSPECTOR

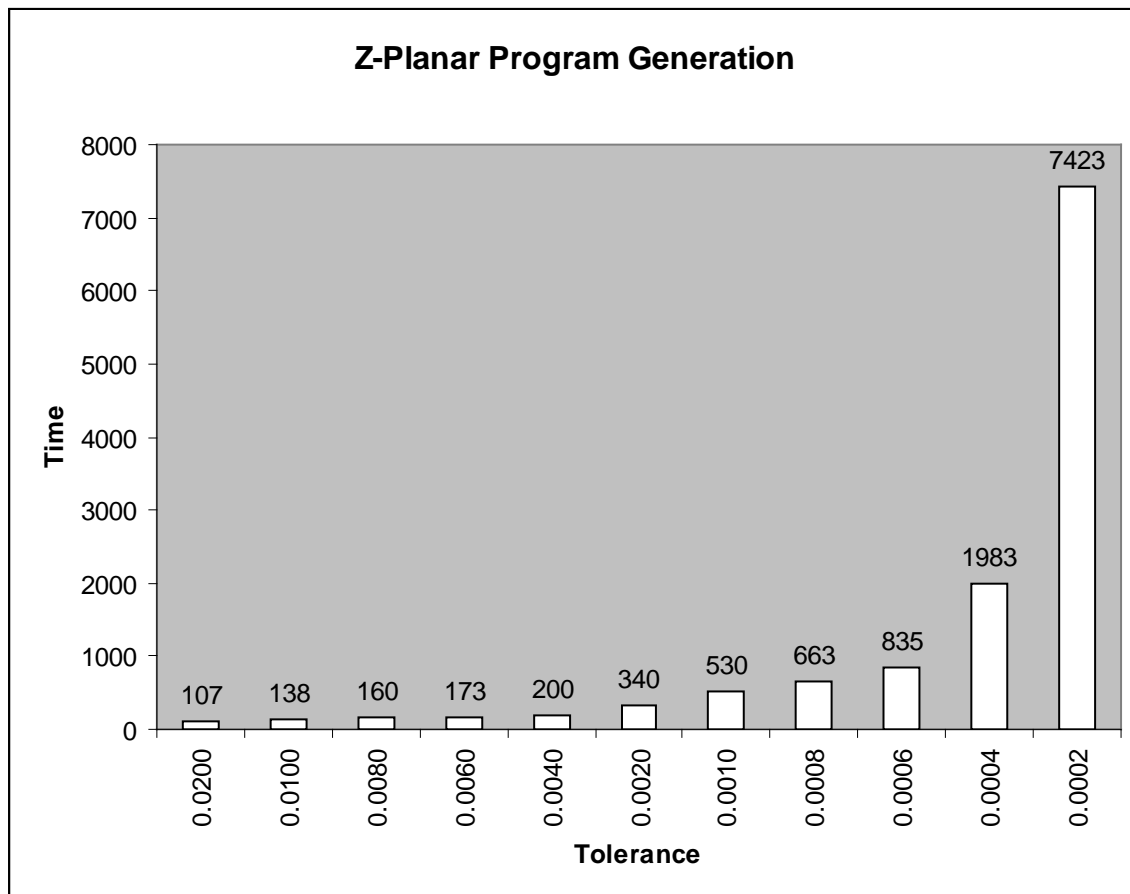
The Gold Standard In Moldmaking

Tolerance Selection and Processing Speed

Tolerance has a major impact on the amount of time it takes Prospector to generate a cutter path. To maximize the performance of your system, you will want to choose the most appropriate tolerance for program generation.

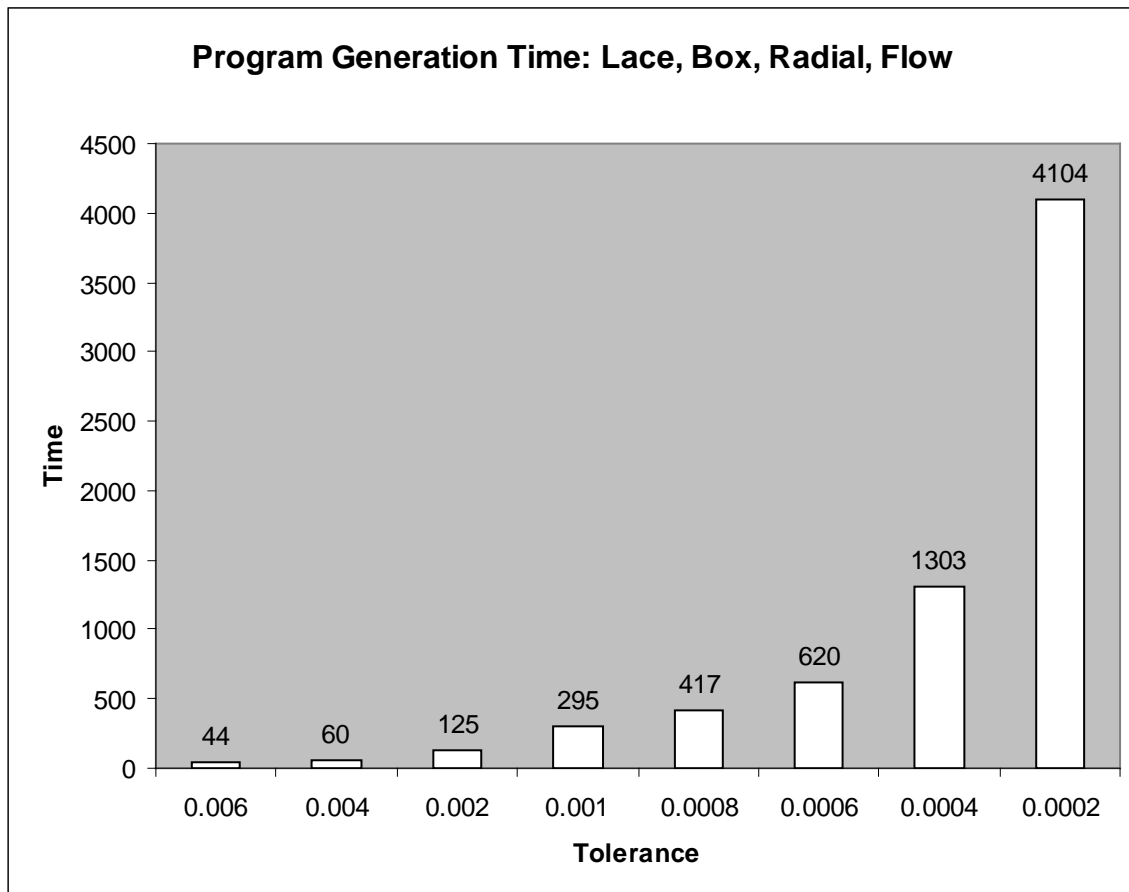
Roughing

For roughing and semi-roughing operations, you can usually run at a loose tolerance because you will be using a relatively large stock allowance. For example, if we're roughing and leaving .075" of stock on the job, a tolerance of .02" is probably all we need. In this situation, it's not important that we precisely leave .075" of constant stock all over. The benefit in processing time is huge. As we can see from the chart below, our processing time will be 5 times faster choosing this roughing tolerance than a precise .001" finish tolerance.



Finishing

Producing a good finish is important on every job. Many factors determine the final quality of the finish machining. Cutting tools, your CNC control and your machine tool all factor into the quality equation. On the programming side, the tolerance you specify will be the major factor in producing the level of quality you require for a given job. You want to make sure you are using an appropriate tolerance that will produce the results you're looking. The idea is to use the largest tolerance you can while still being able to produce the level of finish quality you require. A tolerance setting that works well for one machine tool may not produce good results on different machine. Similarly the tools you use and different material types you machine are all factors to consider when choosing a tolerance. Choosing a tolerance that works well for the worst case scenario (e.g. a CNC/machine that requires a high tolerance to produce a good finish), can seriously effect program generation times for other situations. From the chart below, we can see that if we choose a .0002 tolerance for finish lace cuts to handle the worst case, our program generation time will be over 13 times slower when programming for a machine tool or application that can use a .001" tolerance to produce a good finish.



The same considerations hold true when you are using Z-Planar programs to finish a job. From the chart on page 1, we can see that program generation time is 14 times slower choosing a .0002" tolerance versus a .001" tolerance.

Using PowerSource Effectively

Tolerances for different machining strategies and machining stages (Rough, SemiRough,...) are established in your PowerSource database. By default, all new programs will use the tolerances defined in the database. Like all settings in PowerSource, you can apply rules to define what value to assign for a tolerance given any machining condition. It's a good idea to take a close look at the tolerances being used for your Prospector system(s). Some fine-tuning or programming rules to establish proper settings could end up saving you time on every program.